

How do nonprofessional investors respond to disclosure of Audit Quality Indicators?

ABSTRACT

Both U.S. and international standard setters have sponsored initiatives to develop a reliable portfolio of audit quality indicators (AQIs). The primary goal of these initiatives is to provide new insights into how to evaluate audit quality and, critically, how high-quality audits are achieved. In an experiment, we examine how nonprofessional investors, a primary beneficiary of the financial reporting process, respond to receiving auditor-disclosed AQIs. We manipulate both the trend of the AQI data disclosed (positive or negative) and whether the *quantitative* AQIs are accompanied by a *qualitative* contextual narrative from the auditors (present or absent). We also include a control group conforming to the current audit reporting environment that omits any AQI disclosure. We find that investors experience more positive affective reaction towards the auditors when they receive a positive-trending AQI portfolio compared to when a negative trend of AQIs is disclosed. In turn, investors receiving a positive-trending AQI portfolio are more likely to ratify the selection of their company's auditor and voluntarily increase their equity investment in the company. Our results also indicate that a positive-trending AQI portfolio is more influential on investor decision-making when it is accompanied by a qualitative discussion providing additional context. Our findings should be of interest to regulators and standard setters as they consider how to advance the dialogue on AQIs and determine the proper communication medium to disseminate AQI data.

Keywords: audit quality, audit quality indicators, nonprofessional investors, disclosure

JEL Descriptors: M40, M41, M42

I. INTRODUCTION

Regulators and standard setters are devoting significant attention to the content and possible uses of audit quality indicators (AQIs), measures aimed at providing new insights into audit quality (CAQ 2014, 2016; PCAOB 2013, 2015a). The topic of audit quality, not surprisingly, also continues to be discussed and debated among academics. And while numerous models and audit quality measures have been developed, a lack of consensus in how to define and properly measure audit quality and auditor performance remains.¹ As part of this renewed discussion on how to best measure and communicate AQI data, the Public Company Accounting Oversight Board (PCAOB) recently published a concept release that identifies 28 possible AQIs and is seeking comment on potential value to audit committees, audit firms, investors, and regulators (PCAOB 2015a). The PCAOB's proposal recognizes investors as the primary beneficiaries of the financial reporting process and the stakeholder group at which audit quality is ultimately directed. To inform this discussion surrounding the potential public dissemination of AQI data, we examine how nonprofessional investors react to auditor disclosure of engagement-level and firm-level AQIs.

In its 2015 concept release, the PCAOB identified a series of potential quantifiable audit quality measures relating to: (1) the audit professionals on individual audit engagements, (2) the audit process (e.g., the audit firm's tone at the top messaging and investment in infrastructure needed to support quality audit performance), and (3) audit results (e.g., measures relating to financial statements and other auditor communications). The PCAOB, with input received from the Center for Audit Quality (CAQ), also has recognized that these quantifiable measures are most informative when they are included in context. As a result, both the PCAOB and the CAQ

¹ See Francis (2011), Knechel, Krishnan, Pevzner, Shefchik, and Velury (2013), and Defond and Zhang (2014) for thorough reviews and commentary on the audit quality literature.

have discussed the benefits of supplementing the *quantitative* AQIs with contextual *qualitative* narrative (e.g., CAQ 2014).

At present, investor visibility of audit quality and auditor performance is limited to the standardized audit report about the company's financial statements and internal control. The information provided by a portfolio of AQIs, when provided in the appropriate context, could alert investors to the quality of auditor performance at a particular engagement or even the audit quality provided by a particular firm (PCAOB 2015a).² This is consistent with the PCAOB's definition of audit quality as "meeting *investors'* needs for independent and reliable audits and robust audit committee communication" (emphasis added) (PCAOB 2013, 3). By increasing the transparency of the audit process, AQI disclosure should also help to close the current expectations gap facing financial statement users and the audit profession (McEnroe and Martens 2001; Turner, Mock, Coram, and Gray 2010). This information would prove most valuable for investors when voting to ratify the audit committee's choice of financial statement auditor. Making AQI information available to shareholders would also allow investors to better evaluate the audit quality associated with a particular entity's financial statements, thereby influencing investment-related decisions (PCAOB 2015a).

We leverage research and theory from the auditor litigation literature related to evaluator judgments of auditor performance, as well as marketing theory on affective commitment, to make predictions about the influence of AQI disclosure on the decision-making process of nonprofessional investors. Prior research shows that information on audit quality elicits a range of affective reactions in evaluators towards auditors, and that these affective reactions impact

² Investors also have access to publicly disclosed PCAOB inspection reports that may also serve to inform their evaluations of audit quality. However, the PCAOB acknowledges in its 2015 concept release that these reports "discuss particular audit deficiencies, rather than the broader elements that can make for quality, and then on an anonymous basis" (PCAOB 2015a, 23). Further, the inspections are risk-based and therefore may not be representative of an audit firm's overall practice.

evaluators' decision-making process (Kadous 2001; Reffett 2010; Brasel, Doxey, Grenier, and Reffett 2016). We expect that investors receiving a portfolio of AQIs demonstrating audit quality improvement will experience positive emotion and affect, while auditors who receive a portfolio of AQIs that are perceived to indicate diminishing audit quality will experience a negative affective response. In turn, we expect investors to make decisions related to auditor ratification and their equity investment holdings in the company consistent with the nature of their affective reaction towards the auditor.

We test our predictions with a $2 \times 2 + 1$ between-subjects experiment that manipulates the relative trend of the *quantitative* AQI portfolio (positive trend or negative trend) and the presence or absence of a *qualitative* discussion narrative from the audit firm that accompanies the AQI data. The fifth treatment group serves as a control condition that emulates the current auditor reporting environment in which no AQI data is disclosed. In the positive AQI trend condition, the portfolio of AQIs improve over a three-year reporting window. In the negative trend condition, the portfolio of AQIs demonstrate an identical negative trend over the three-year reporting window. We manipulate AQI discussion by varying the presence or absence of a discussion narrative that provides additional context to each of the quantitative AQI measures. Our participants include MBA students and senior undergraduate accounting students, the majority of whom own individual stocks, who serve as nonprofessional investors.

Our results generally support our hypotheses. Investors experience more positive feelings towards the auditors when the portfolio of AQIs demonstrates improved audit quality compared to when a negative trend of AQIs is disclosed. The nature of investors' affective reaction is directly related to their affective commitment to the auditors such that investors experiencing a positive affective reaction are more likely to ratify the selection of their company's auditor. In follow-up tests, we find that AQI disclosure also influences shareholder investment decisions.

Investors receiving a positive-trending AQI portfolio voluntarily increase their equity investment in the company, while investors receiving a negative-trending AQI portfolio voluntarily decrease their equity investment in the company. Finally, and in support of the PCAOB and CAQ's belief that AQIs require an appropriate context to be most effective, we find that a positive-trending AQI portfolio is more influential on investor decision-making when it is accompanied by a qualitative discussion providing context.

Our findings make several contributions to the accounting literature, the regulatory discussion surrounding the use of AQI data, and to audit practice. First, we are the first paper, to our knowledge, to examine how nonprofessional investors perceive and respond to AQI disclosures. Our results indicate that AQI disclosures are informative and influential for investors, lending credence to the PCAOB's desire to provide public disclosure of AQI data to aid in shareholder decision-making (PCAOB 2013; 2015a). Second, we examine the current environment audit firms and financial statement users operate in, in which AQI information is largely omitted from public disclosure, and provide timely information to both practitioners and regulators about investors' use of audit quality information and their ability to understand the key quality measures. In doing so, we answer a call for qualitative and experimental research examining audit quality that focuses on stakeholders of audits, such as investors (Knechel et al. 2013). Finally, we contribute to audit practitioners by showing how shareholders interpret audit quality measures, and how audit firms can positively influence shareholders by providing qualitative context in combination with their quantitative metrics.

II. BACKGROUND AND HYPOTHESES

Background

In a 2008 report issued by the Advisory Committee on the Auditing Profession (ACAP), the committee made a recommendation to the Public Company Accounting Oversight Board

(PCAOB) to “determine the feasibility of developing key indicators of audit quality and effectiveness and requiring auditing firms to publicly disclose these indicators” (United States Treasury 2008, 115-116). Currently, the only observable output of a financial statement audit is the audit report. The standardization of the audit report provides limited information for investors and other external company stakeholders to evaluate the quality of the audit performed and the general manner in which the audit was conducted.³ Indeed, difficulties in evaluating auditor performance and audit quality have led researchers and regulators to identify audit services as a “credence good” (Causholli and Knechel 2012; PCAOB 2015a), in which significant information asymmetry between auditors and auditees can lead to significant and often detrimental implications for audit quality, efficiency, and regulation.

In response to the recommendation made by ACAP, the PCAOB initiated an AQI project beginning in 2013 focusing on potential audit quality measures that may assist audit committees and investors when evaluating audit services at the engagement team and audit firm level. Identifying and developing reliable audit quality measures could also assist PCAOB regulatory processes for improving audit quality and protecting investors, as well as provide audit firms with new incentives to compete based on audit quality (PCAOB 2013). In 2015, the PCAOB issued a concept release to seek public comment on the possible uses of a portfolio of AQIs (PCAOB 2015a). The concept release also identified a preliminary set of 28 AQIs organized around three areas: *Audit Professionals*, *Audit Process*, and *Audit Results*.⁴ Key criterion for

³ The PCAOB recently adopted a new auditing standard that expands the traditional auditor’s report to include disclosure of Critical Audit Matters (CAMs) (PCAOB 2017). Related audit research indicates that investors find value in this additional information disclosed in the audit report (Christensen, Glover, and Wolfe 2014). However, the CAM provision relates to material accounts or financial statement disclosures that required especially subjective or complex auditor judgment, and are not otherwise associated with components or measures of audit quality.

⁴ Example indicators for *Audit Professionals* include staffing leverage, experience of audit personnel, the use of specialists, and average hours worked per week; example indicators for *Audit Process* include internal quality review results, PCAOB inspection results, and compliance with independence requirements; example indicators for

these potential AQIs is that they are (1) quantifiable and (2) evaluated in context (e.g., by accompanying each *quantitative* measure with a *qualitative* narrative to provide context). The current stage of the AQI project still poses many questions, including whether the use and disclosure of AQIs should be mandatory or voluntary, the appropriateness and operation of the proposed audit quality measures, how (and to whom) to distribute AQI data, among others.⁵

The CAQ has been closely following the PCAOB's AQI initiative and has expressed agreement that reliable AQIs could be used by auditors and the PCAOB to enhance audit quality (CAQ 2014). And while the CAQ advocates an approach of communicating AQIs strictly between the audit firm and the audit committee, the PCAOB's AQI project continues to advocate for public disclosure of AQI information for investors, a stakeholder group recognized by the PCAOB as the primary beneficiary of the financial reporting process and to whom audit quality is ultimately aimed (PCAOB 2015a). The PCAOB contends that such disclosure would benefit investors by making them "better able to evaluate the audit quality associated with particular financial statements, with a consequent effect on investment decisions" (PCAOB 2015a, 8). Thus, a goal of this paper is to participate in the development of a path forward on AQIs by examining how investors evaluate audit quality and how AQIs shape their investment-related decisions.

Information Asymmetry

Prior research has shown extensively that investors and audit professionals have different expectations regarding the audit process and auditor performance (e.g., McEnroe and Martens 2001; Gray, Turner, Coram, and Mock 2011; Asare and Wright 2012; Christensen, Glover, Omer, and Shelley 2016). Cumulatively, these differences are often referred to as a significant

Audit Results include frequency of financial statement restatements and timely reporting of internal control weaknesses (PCAOB 2015a). We further discuss the specific types of AQI data in Section III.

⁵ In developing its AQI initiative, the PCAOB also considered international regulatory efforts associated with AQIs, including initiatives sponsored by the U.K.'s Financial Reporting Council (FRC 2008), and the International Auditing and Assurance Standards Board (IAASB 2014).

“expectations gap” (McEnroe and Martens 2001; Church, Davis, and McCracken 2008; Mock et al. 2013). The expectation gap reflects a gap of information between what financial statement users desire and understand and what is communicated by auditors via the standardized audit report (Mock et al. 2013). The consequences of this information asymmetry, in addition to those previously described, is a general misunderstanding by investors of the role and responsibility of the auditor. In particular, research indicates that investors have higher expectations for various facets of the audit process than do auditors (McEnroe and Martens 2001), including exaggerated expectations of auditors' responsibilities under current standards (Ruhnke and Schmidt 2014).

We expect that public disclosure of AQIs will, over time, serve to reduce the expectations gap by improving the transparency of the audit process (Turner et al. 2010). However, current misunderstandings of the auditor's role and responsibility in the financial reporting process, coupled with the public's difficulty in assessing the performance of auditors (Ruhnke and Schmidt 2014), is likely to cause financial statement users and other evaluators to hold auditors to an elevated standard care in performing an audit (Kadous 2000). That is, investors' general perception that auditors serve as “public watchdogs” (McEnroe and Martins 2001) is likely to create investor expectations in audit quality and general standards of care that exceed those prescribed by auditing standards. Indeed, chief among the concerns in public disclosure of engagement-level AQIs is that such disclosure would do more harm than good because, unlike audit committee members, investors are not privy to the contextual dialogue necessary to “bring focus on the significance of AQIs to audit quality at the engagement level” (CAQ 2016, 13).

Due to the significant role that auditors play in upholding the capital markets and protecting the public's interest, we expect that public disclosure of AQIs will amplify investors' emotional (affective) reactions towards the auditor. Prior research shows that information pertaining to audit quality and auditor performance can generate a range of affective reactions in

evaluators towards auditors, and that these affective reactions impact evaluator's decision-making process (Kadous 2001; Reffett 2010; Reffett, Brewster, and Ballou 2012; Brasel et al. 2016). Given the current expectations gap existing between the audit profession and financial statement users, and that investors and other financial statement evaluators hold auditors to extremely high standards of care, it is likely that investors will have exceedingly high expectations for audit quality as communicated by AQIs. We expect that when investors perceive disclosed AQIs as signaling potentially diminished audit quality, they will experience negative affect because the AQIs do not match their preconceived expectations for audit quality, leaving investors feeling that "more could have been done" (Reffett 2010). On the other hand, AQI disclosure that meets or exceeds investor expectations is likely to generate a strong positive emotion reaction towards the auditors. This leads to our first hypothesis:

H1: Investors will have more positive feelings towards the company's financial statement auditor when a positive trend of AQIs is disclosed relative to the negative feelings towards the auditor when a negative trend of AQIs is disclosed.

Effect on Auditor Retention

As noted above, we expect that the nature of AQI disclosure, i.e. whether investors perceive the trend in audit quality to be improving or diminishing, to elicit differing affective reactions toward the auditors. This is important because prior research, primarily in the domain of auditor litigation (e.g., Kadous 2001; Reffett 2010; Brasel et al. 2016), demonstrates that differences in affective reactions impact subsequent evaluator judgments and decisions made in regards to auditor performance. That is, evaluators tend to attribute the negative feelings and emotions they experience to the auditors, thereby increasing their motivation to find fault with the auditor's performance (Kadous 2000, 2001).

One critical decision that investors often make on an annual basis is deciding whether to support a continued relationship with the audit firm by ratifying the selection of their company's

auditor.⁶ Importantly, both the ACAP and the PCAOB include discussion of the significance and prevalence of the investor ratification decision in their AQI proposals as justification for public disclosure of AQIs for investors and other financial statement users (United States Treasury 2008; PCAOB 2013). In business relationships, such as the auditor-auditee client relationship, a commitment phase begins when there is an implicit or explicit agreement for continuous relationship between the parties (De Ruyter and Wetzels 1999). In other words, the parties are satisfied with the relationship and make a conscious effort to maintain and continue that relationship (Dwyer, Schurr, and Oh 1987; Moorman, Zaltman, and Despande 1992). Commitment is not possible without mutual trust, shared values, or perceived high service quality (Dwyer et al. 1987; Morgan and Hunt 1994).

Commitment in a business relationship is shaped by both instrumental and affective components of the relationship (Anderson and Weitz 1992; Morgan and Hung 1994). The instrumental dimension refers to the costs and benefits of developing and maintain the business relationship, whereas affective commitment is based on a general positive feeling towards the exchange partner (Allen and Meyer 1990; Shore and Wayne 1993). In general, there is a strong positive link between the quality of service and affective commitment (Morgan and Hunt 1994; De Ruyter and Wetzels 1999). Prior marketing research also shows that affective commitment plays an important role in sustaining exchange relationships (Mohr and Nevin 1990; Anderson and Weitz 1992). Similarly, De Ruyter and Wetzels (1999) document a positive relationship between perceived audit quality and affective commitment in auditor-client relationships.

⁶ The PCAOB's (2015a) concept release reports that 90 percent of public companies on the Russell 3,000 list submitted at least one proposal to shareholders for auditor ratification between 2011 and 2013. Furthermore, nearly 95% of S&P 500 companies put auditor ratification to an annual shareholder vote (United States Treasury 2008).

Continuance decisions also derive from the level of affective commitment. De Ruyter and Wetzels (1999) find that higher levels of affective commitment considerably reduce the likelihood of auditor dismissal. We expect positive trends in AQI disclosure will enhance investors' affective commitment to the audit firm by signaling improved service quality and thereby generating a positive affective reaction from investors. On the other hand, we expect negative trends in AQI disclosure to diminish investors' affective commitment to the audit firm. Thus, in the context of shareholder decision-making related to ratification, a more positive affective reaction towards the auditor generated by a positive trend in AQI disclosure should increase investor commitment to continue the relationship. This leads to our second hypothesis:

H2: Investors are more likely to ratify the selection of the company's auditor when a positive trend of AQIs is disclosed relative to when a negative trend of AQIs is disclosed.

Our second hypothesis predicts differences in investor decision-making when a positive AQI trend is disclosed relative to a negative AQI trend. However, the preceding discussion is also likely to hold in the current auditor reporting environment. That is, investors experiencing positive emotions and affect towards the auditors due to the disclosure of a positive trend in AQIs will also likely increase their affective commitment to the auditors, relative to when no AQI disclosure is provided. In turn, we expect shareholder support for auditor retention to be higher when a positive trend in AQIs is disclosed relative to when no AQI disclosure is provided. On the other hand, the negative affective reaction associated with a negative trend in AQIs will likely decrease investors' affective commitment, resulting in a lower commitment and thus less support for auditor retention, relative to when no AQI disclosure is provided. We summarize these predictions in our final hypotheses:

H3a: Investors are *more* likely to ratify the selection of the company's auditor when a positive AQI trend is disclosed relative to when no AQIs are disclosed.

H3b: Investors are *less* likely to ratify the selection of the company’s auditor when a negative AQI trend is disclosed relative to when no AQIs are disclosed.

Qualitative AQI Information

A key component of the PCAOB’s AQI initiative is the desire to include qualitative context to supplement the quantitative AQI measures. The informational value and subsequent influence on investor decision-making for providing additional qualitative context likely depends on investor perceptions of disclosure credibility. Generally speaking, accounting studies find that providing additional explanation to accompany a quantitative disclosure enhances disclosure credibility (Hutton, Miller, and Skinner 2003; Baginski, Hassell, and Kimbrough 2004; Mercer 2004). Similarly, in an audit report setting, Christensen et al. (2014) find that source credibility moderates the effect of disclosing a Critical Audit Matter (CAM) paragraph on nonprofessional investor decision-making such that a CAM disclosure provided by a high-credibility source has greater influence than a similar disclosure provided by a source with perceived lower credibility. Thus, it is likely that providing this additional context will enhance the overall informativeness of AQI disclosures.

While the findings of prior research suggest that, *ceteris paribus*, qualitative information should increase the influence of AQI disclosures on investor decision-making, this effect might differ based on whether investors are provided with positive or negative trending AQI data. In the context of management disclosure of earnings forecasts, prior research finds that disclosures containing bad news typically result in larger analyst forecast revisions and stock price reactions than disclosures containing good news (Williams 1996; Hutton et al. 2003). This prior research also shows that because managers' forecasts of bad earnings news are likely to be inherently credible (Skinner 1994, Soffer, Thiagarajan, and Walther 2000), accompanying “soft talk” disclosures are unlikely to affect the information content of these forecasts. Thus, the benefits of

providing additional qualitative context in a negative-trending AQI setting may be diminished. It is also possible that pairing qualitative information with negative quantitative AQI measures could be perceived as a persuasion attempt by the auditor to mitigate the effects of disclosing lower audit quality metrics (Anderson, Kadous, and Koonce 2004; Kadous, Koonce, and Towry 2005). Because of the limited body of research investigating qualitative accounting disclosures, and due to recent findings that nonprofessional investors respond differently to identical qualitative disclosures provided by auditors and by management (Christiansen et al. 2014), we pose the following research question as it relates to the influence of qualitative AQI information:

RQ: Will providing qualitative information, in addition to quantitative AQI data, further influence investors' decision-making process for ratifying the selection of the company's auditor?

The development of our hypotheses and research question regarding investors' decision-making focuses primarily on their decision to support or not support ratification of the company's financial statement auditor because this choice relates most directly to auditor performance and quality. However, consistent with prior studies examining nonprofessional investor decision-making (e.g., Christensen et al. 2014), we also capture participants' voluntary change in their equity investment in the company. We discuss the findings related to this measure as an additional analysis in the Results section.

III. METHOD

Participants

Our participants are 114 MBA and senior undergraduate accounting students recruited from two large universities who act as nonprofessional investors.⁷ The majority (63.2 percent) of

⁷ We received, in total, 130 completed cases. However, we omit from statistical analyses 16 participants who completed the case in either less than five minutes or in excess of two hours because it was clear, through repeated omitted responses and numerous incorrect responses to comprehension check questions, that they did not appropriately tend to the case materials. However, inferences from our results are unchanged if we include all completed observations in our tests.

our participants are MBA students with prior professional work experience. Our participants are a good proxy for nonprofessional investors given that our case is of low complexity (Elliott, Hodge, Kennedy, Pronk 2007) and the vast majority of participants (86.0 percent) hold some type of corporate investment (e.g., individual stocks, corporate bonds, mutual fund investments, etc.) or plan to purchase individual stocks in the near future.⁸ The case was administered online through Qualtrics to provide consistency of delivery method given our participants were from two universities in different geographic regions. Our participants include 58 male students and 56 female students who have completed an average of 4.68 accounting classes and an average of 2.39 finance classes. In addition, the average years of work experience is 7.07 years.

Setting

We test our predictions in a setting in which auditors are required to disclose AQIs in a separate “Part 2” of their audit report that accompanies the standard integrated audit report of an entity’s financial statements and internal control over financial reporting (ICFR). Since there is currently no uniform consensus in how best to disseminate AQIs, we chose to include them as a separate part of the auditor’s report because the audit report is the primary means the audit firm has for communicating with investors. We chose to examine AQIs primarily at the individual engagement level because both the PCAOB and the CAQ recommend an approach to communicate AQIs that focuses on engagement-level indicators, with firm-level indicators, focusing on an audit firm’s overall strategies and initiatives, used as a complement to the engagement-level indicators (PCAOB 2015a; CAQ 2016). Importantly, participants are informed

⁸ Results are robust to using only participants who currently invest or plan to invest in individual stocks or using only MBA students in our tests. We therefore use all available observations for each analysis in the results that follow. Inferences from our results are also unchanged when we include any of the demographic characteristics as a covariate.

in the introduction of the experimental case that information in the case is prepared following prevailing accounting and auditing standards, which may *differ* from current standards.

We constructed the AQIs used in our experimental case following the guidelines and recommendations made by both the CAQ and the PCAOB. In the PCAOB's concept release, potential AQIs are categorized into the following three groups: *Audit Professionals*, *Audit Process*, and *Audit Results*. We use identical category headings in our case materials. The category of *Audit Professionals* includes audit quality measures centered on the availability, competence, and focus of the audit professionals performing the audit. We include three indicators in this category, measuring (1) the percentage of engagement hours provided by specialists (i.e., valuation specialists, tax specialists, and IT specialists), (2) the change in total engagement audit hours from the prior year, and (3) the average overtime hours worked per week on the audit engagement by staffing level (i.e., partner(s), manager(s), senior associate(s), and associate(s)). *Audit Process* focuses on measures concerning tone at the top and leadership, auditor incentives and independence, and monitoring and remediation activities. We include two indicators in this category, measuring (1) the compliance rate on audit engagements subject to *internal* firm inspection and (2) results of *external* PCAOB inspections (i.e., the number and percentage of audit engagements with deficiencies identified in Part 1 of the PCAOB's inspection report). *Audit Results* focus on measures relating to the financial statements, such as the number and impact of restatements. We include a single audit quality measure in this category, the number and percentage of audit clients who issue restatements due to errors.

These AQIs were chosen because of their inclusion in both the CAQ's and PCAOB's recommendations for audit quality measures. Each of these measures was also among the AQIs included in the CAQ's recent pilot-testing (CAQ 2014; 2016), and the measures specifically included in the *Audit Professionals* category were each ranked by the audit committee members

in the CAQ's pilot-testing as the most useful indicators for evaluating audit quality. Importantly, each of the AQIs is quantifiable, which the PCAOB has identified as a key criterion for providing meaningful insight in evaluating audit quality.⁹ Finally, as discussed below, we were able to obtain externally-validated information to construct each of the audit quality measures.

We populated our audit quality measures using publicly available information disclosed by the Big-4 audit firms through annual audit quality and transparency reports. For example, PwC includes 16 "Transparency Data Points" to provide information about their audit practice and investment and focus on audit quality in an annual report on audit quality (see PwC [2016] for a recent example). KPMG also publishes an annual Transparency Report (e.g., KPMG [2016]). Similarly, both Deloitte and EY publish annual reports discussing their commitment to audit quality (see, for example, Deloitte [2016] and EY [2016]). We tailored the audit quality information disclosed in these various reports to construct our AQI treatments, making adjustments as needed to represent engagement-level information in our experimental materials. Using audit quality information reported by the Big-4 audit firms ensures that our AQI treatments represent externally valid manipulations.

Experimental Design

To examine our hypotheses, we utilize a 2 x 2 plus 1 between-subjects experimental design. We manipulate two independent variables: (1) the relative trend of the *quantitative* AQIs disclosed in the auditor's report and (2) the presence or absence of a *qualitative* narrative discussing the AQI trend. The AQI trend and AQI discussion treatments accompany the standard unqualified audit report as Part 2 of the auditor's report in the case materials. The fifth treatment

⁹ The PCAOB identified a total of 28 potential in its 2015 Concept Release, but has expressed a desire to refine the list to a smaller number that is "manageable and effective" (PCAOB 2015a). Similarly, a recent meeting of the PCAOB's Standing Advisory Group (SAG) supported narrowing the 28 AQIs down to just the few most valuable (PCAOB 2015b).

group is a control condition in which participants are provided with identical background and financial information as the AQI treatment groups but no information on audit quality is disclosed. Instead, the control condition is only provided with the current period's standard unqualified audit report. The control condition provides us with an opportunity to examine the current regulatory environment where auditors are not required to provide specific audit quality information and serves as a benchmark for our other four treatment conditions. The Qualtrics software randomly assigned participants to one of the five treatment groups. See the Appendix for excerpts from our experimental treatments.

We manipulate AQI trend as either positive or negative based on whether the quantitative AQI measures tabulated in the auditor's report improve (positive AQI trend) or decline (negative AQI trend) over a three-year reporting window.¹⁰ In the positive trend scenario, each of the six AQIs demonstrates year-over-year improvement. In the negative trend scenario, participants are provided with an identical negative trend for each of the six AQI measures. We manipulate the AQI discussion variable by varying the presence or absence of a qualitative discussion narrative that provides additional context to each of six quantitative AQI disclosures. This manipulation captures remarks expressed by both the PCAOB and the CAQ that quantitative AQIs are most useful when accompanied by a contextual qualitative narrative (CAQ 2014; 2016; PCAOB 2015a). In the discussion-present condition, a written discussion of the AQI results is provided by the audit firm beneath each tabulated AQI. These discussions were informed by the annual audit quality and transparency reports published by the Big-4 audit firms. Across all conditions, the audit firm provides a positive explanation for each AQI trend. In the treatments where no

¹⁰ We include multiple years of AQI data to be consistent with the CAQ's pilot-testing, which provided comparative AQIs for the selected audit engagements, and because both the PCAOB and CAQ recognize the critical importance of providing context and comparability within AQI disclosures.

discussion is provided, participants receive only the quantitative AQI results tabulated over a three-year reporting window. Varying the presence and absence of a contextual narrative in both AQI trend conditions allows us to determine whether providing this additional qualitative information enhances the overall informativeness of AQI disclosure.

Materials and Procedures

The experiment is administered via a three-part Web-based instrument. The task requires participants to evaluate information about *MicroTech, Inc.*, a specialty manufacturer and distributor of software games. The first part of the instrument contains an introduction of the role of financial statement auditors and informs the participants that they are to assume the role of a current shareholder of a fictitious company and that they are not employed by the company. As previously discussed, participants are informed that information in the case is prepared following prevailing accounting and auditing standards, which may *differ* from current standards. Participants are then provided with background information on the company and information on the company's financial statement auditor.¹¹

The second part of the instrument includes the current period's standard unqualified audit report and the AQI treatments. Across all experimental conditions, participants are then provided with selected financial information pertaining to *MicroTech, Inc.* The selected financial information includes a complete income statement and a footnote disclosure associated with investment income. The footnote disclosure provides a brief description about the company's fair

¹¹ Consistent with prior audit research examining investor decision-making via a Web-based experimental design (see, for example, Christensen et al. [2014]), we include five quiz questions across part 1 and part 2 of our instrument to confirm participants' comprehension of the case information. Accuracy across the five quiz questions is 92.8 percent, which indicates that participants had an appropriate understanding of the task. Inferences from our results are unchanged when we eliminate participants who responded incorrectly to any of the five quiz questions. We therefore include all available observations for each analysis in the results that follow.

value for its trading securities as well as a reconciliation of the beginning and ending balances of the security assets. The financial information does not vary across experimental conditions.

After reviewing the audit report and selected financial information for *MicroTech, Inc.*, participants proceed to the third and final part of the instrument, which consists of our dependent measures (discussed below), followed by manipulation check questions, and concluding with demographic questions. Participants were able to move forward or backward throughout parts 1 and 2 of the case, except for when prompted to answer a quiz question. Full access to the case materials was denied only when participants had completed the case and were responding to manipulation checks and providing demographic information. The task took an average of 26.2 minutes to complete.

Dependent Variables

We collect two primary dependent measures. The first measure, affective reaction, represents participants' overall feelings toward the audit firm and is captured on an 11-point scale where -5 represents "Very strong negative feelings"; 0 represents "Neutral" feelings; and +5 represents "Very strong positive feelings". The second dependent measure is participants' support for auditor retention, which measures the likelihood that they will support retaining the audit firm for next year's financial statement audit on a 9-point scale with endpoints labeled "Do not support" (1) and "Fully support" (9) and the midpoint is labeled "Somewhat support" (5). In addition to our two main dependent measures, we also collect additional process measures to further examine the decision process of investors. We collect participants' assessment of auditor competency on a 9-point scale with endpoints labeled "Completely incompetent" and "Completely competent" and the midpoint is labeled "Somewhat competent". We also collect participants' assessment of the audit firm's commitment to performing high quality audits on a similar 9-point scale with endpoints labeled "Not at all committed" and "Very committed" and

the midpoint is labeled “Somewhat committed”. Last, participants decide whether to make a voluntary change in their equity investment in the company.

IV. RESULTS

Manipulation Checks

Participants responded to two manipulation check questions on scales ranging from 1 to 9 via a post-experimental questionnaire. Participants in the positive and negative AQI trend treatment groups were asked to identify the overall trend of the AQIs provided in the auditor’s report (1 = Worsening each year; 9 = Improving each year) and to identify whether a written discussion accompanied each tabulated AQI (1 = No; 9 = Yes). We find that participants correctly identified both the trend of the AQIs (6.53 versus 4.14; $t_{89} = 5.75$, $p < 0.001$) and whether the audit firm provided a discussion of the AQI results (6.34 versus 3.43; $t_{89} = 5.71$, $p < 0.001$).¹² These analyses indicate successful manipulation of AQI trend and AQI discussion.¹³

Investors’ Affective Reaction

Hypothesis 1 predicts that investors will have more positive feelings towards their company’s financial statement auditor when a positive trend of AQIs is disclosed in the auditor’s report compared to when a negative trend of AQIs is disclosed. Descriptive statistics for participants’ affective reaction towards the audit firm are provided in Table 1, Panel A. The results of a one-way ANOVA with affective reaction as the dependent variable indicate a

¹² We report two-sided p-values for all tests other than for tests for our directional hypotheses, for which we report one-sided p-values.

¹³ We find identical results for our manipulation checks (all p-values < 0.001) when we test the simple main effects (i.e., within the AQI Discussion – Present/Absent conditions and within the AQI Trend – Positive/Negative conditions). We also find identical results for the AQI Discussion manipulation when we compute a binary measure (1 = Yes; 0 = No) based on participant’s proximity to either scale endpoint ($\chi^2 = 17.02$, $p < 0.001$).

significant treatment effect ($F_{4,96} = 5.41, p = 0.001$). Panel C reports the planned comparisons used to test Hypothesis 1.¹⁴

[Insert Table 1 here]

The planned comparisons in Panel C confirm that, as predicted, participants in the positive AQI trend condition have a more positive affective reaction towards the audit firm than participants in the negative AQI trend condition ($t_{96} = 4.06, p < 0.001$). Examining the comparisons separately, the difference in affective reaction between the positive and negative AQI trend conditions is significant in both the presence and absence of an additional AQI discussion ($t_{96} = 4.24, p < 0.001$ and $t_{96} = 1.65, p = 0.052$, respectively). These results support Hypothesis 1 and show that AQIs influence investor feelings and affective reaction towards their company's audit firm.

Support for Auditor Retention

In addition to capturing their affective reaction to the audit firm, we are also interested in investors' decision-making process for providing (or not providing) support for retaining the audit firm to perform the subsequent year's financial statement audit. Descriptive statistics for participants' audit firm ratification decision are provided in Table 2, Panel A. The results of a one-way ANOVA with support for auditor retention as the dependent variable indicate a significant treatment effect ($F_{4,109} = 4.05, p = 0.004$). Panel C reports the planned comparisons.

[Insert Table 2 here]

Hypothesis 2 predicts that investors are more likely to support auditor retention in the positive AQI trend condition relative to the negative AQI trend condition. Planned comparisons

¹⁴ Thirteen participants omitted a response to the affective reaction dependent measure. We retain all reported statistical inferences when these participants are dropped from subsequent hypothesis testing. We therefore use all available observations for each analysis in the results that follow.

reported in Panel C confirm that participants in the positive AQI trend condition are more likely to support retaining the financial statement auditor than participants in the negative AQI trend condition ($t_{109} = 3.38$, $p\text{-value} < 0.001$). Furthermore, this increase in support in the positive AQI trend condition is significant in both the presence and absence of an additional AQI discussion ($t_{109} = 4.07$, $p < 0.001$ and $t_{109} = 1.47$, $p = 0.073$, respectively). These results support Hypothesis 2 and show that AQIs influence investors' decision to support retaining the audit firm. This is important because more than 90% of all public companies seek annual shareholder ratification of the auditor recommended by the audit committee (EY 2013).

Hypothesis 3a and Hypothesis 3b offer predictions for investor support for retaining the audit firm when a positive AQI trend and a negative AQI trend is disclosed in the auditor's report, respectively, compared to a control condition in which no AQIs are disclosed. Thus, the control condition reflects the current audit reporting environment in which only a standard unqualified audit report accompanies an entity's financial statements. The mean contrasts testing Hypothesis 3a and shown in Table 2, Panel C, indicate that, as predicted, participants are more likely to support retaining the audit firm when a positive AQI trend is disclosed that also includes auditor discussion of the AQI results ($t_{109} = 1.84$, $p = 0.037$). This is important because while AQIs are primarily quantitative in nature, they are likely most useful when supplemented by a contextual qualitative narrative (CAQ 2014; 2016). However, differences in participant support between the positive AQI trend condition and the control condition are insignificant when the AQI discussion is excluded from the auditor's report and when the two positive AQI trend treatment groups are combined ($t_{109} = -0.26$, $p = 0.794$ and $t_{109} = 0.72$, $p = 0.239$, respectively). This is likely due to investors' predetermined beliefs that financial statement audits that abide by

the professional standards set forth by the PCAOB are of substantially high quality (Christensen et al. 2016).¹⁵ Thus, Hypothesis 3a is partially supported.

The planned comparisons shown in Table 2, Panel C, confirm that participants in the negative AQI trend condition are less likely to support auditor retention than a control group excluding AQI disclosure ($t_{109} = 2.08$, $p\text{-value} < 0.022$). This decrease in support in the negative AQI trend condition compared to the control condition is significant in both the presence and absence of an additional AQI discussion ($t_{109} = 1.88$, $p = 0.033$ and $t_{109} = 1.79$, $p = 0.039$, respectively). Cumulatively, these results support Hypothesis 3b and show that AQIs provide important contextual and informational value useful for investors in evaluating the entity's financial statement auditor.

Our research question provides further consideration for the effect of including a qualitative discussion of the AQI results within both the positive and negative AQI trend conditions. Table 2, Panel C, reports these results. We find that participants are more likely to support retaining the audit firm when a positive AQI trend disclosure is accompanied by a qualitative explanation for the AQI results than when the qualitative explanation is omitted ($t_{109} = 1.88$, two-tailed $p = 0.070$). This result highlights the importance and value, particularly for accounting firms, of including contextual narratives within an AQI disclosure when positive quantitative AQIs are reported. However, we find no differences in investor support for retaining

¹⁵ Consistent with this explanation and the results of Hypothesis 3a, we find that participants' direct assessment of audit quality does not differ significantly between the positive AQI trend condition and the control condition when the AQI discussion is excluded from the auditor's report and when the two positive AQI trend treatment groups are combined (both two-tailed $p\text{-values} > 0.241$). However, participants assess audit quality marginally higher when a positive AQI trend includes a discussion of the AQI, relative to the control condition ($t_{109} = 1.85$, two-tailed $p = 0.067$, untabulated).

the auditor when a negative AQI trend disclosure either includes or omits a similar qualitative explanation ($t_{109} = -0.07$, two-tailed $p = 0.945$).¹⁶

Additional Analyses

Investor Decision Process

Our theory development predicts that positive and negative AQI trends cause investors to develop feelings and an overall affective reaction towards the audit firm, consistent with the notion that AQIs can signal heightening or diminishing audit quality. In turn, we expect this affective reaction towards the audit firm to influence the level of support investors provide for retaining the audit firm, and our results are generally supportive of our hypotheses. To provide further evidence that these mechanisms are at work, we model investors' decision process using a structural model.¹⁷ Our model analyzes how AQI trend influences investors' affective reaction, which in turn influences investors' perceptions of auditor competency, the audit firm's commitment to quality, and, ultimately, their decision to support (or not support) retaining the financial statement auditor.

[Insert Figure 1 here]

Figure 1 presents the path model with standardized path coefficients. The model demonstrates excellent fit and describes the relationships in the data well (Byrne 2013).

Consistent with Hypothesis 1, the link between receiving a positive-trending AQI portfolio and

¹⁶ The lack of significant differences in the negative AQI trend condition may be due in part to the type of explanation provided for the seemingly negative AQI trend in the quantitative measures. In the instrument, the accounting firm provides a positive explanation for the AQI trends in both the positive and negative AQI conditions (e.g., a decline in overall audit hours was attributed to a leverage of new technology that automated critical but rote tasks, allowing the audit team to focus on more substantive issues). We made this design choice to maximize the external validity of our AQI disclosures, as it is likely firms would be reluctant to admit unequivocally that their audit quality had deteriorated. Importantly, our results indicate that providing such an explanation did not have a detrimental, backfiring effect for the accounting firm.

¹⁷ Participants in the control group are excluded from the path analysis because they were not provided with AQI disclosure in the auditor's report.

investors' affective reaction is positive and significant (coef. = 0.417, two-tailed $p < 0.001$). The results of the path model further support the notion that investors' affection reaction toward the audit firm influence perceptions of auditor competency (coef. = 0.753, two-tailed $p < 0.001$) and perceptions of the audit firm's commitment to quality (coef. = 0.429, two-tailed $p < 0.001$). In turn, the links from auditor competence, affective reaction, and commitment to quality to investors' support for auditor retention are each positive and significant (two-tailed p -values < 0.001). These results indicate that, consistent with the hypothesized predictions, AQI disclosure influences investors' affective reaction towards the auditor. As a result, investors perceive auditor competence and commitment to quality to be higher (lower) in conjunction with their more positive (negative) affective reaction. These effects then positively influence investor support for retaining the auditor.

Voluntary Change in Firm Investment

Consistent with Christensen et al. (2014), who examine investors' decision-making processes in response to the inclusion of CAMs to the standard unqualified auditor's report, we also asked participants to provide an assessment of how they would voluntarily change their investment in the firm based on the case information. Participants responded to an 11-point scale (-5 = Significantly reduce investment; 0 = No change in investment; +5 = Significantly increase investment), where a significantly positive (negative) number would indicate a decision to increase (decrease) their investment in the firm. There are undoubtedly numerous factors that influence investors' decision to increase or decrease their investment holdings, and thus we did not require participants to provide an investment decision within the Qualtrics software. Nonetheless, 88 of the 114 participants (77.2 percent) did provide a change in investment decision. Results are presented in Table 3.

[Insert Table 3 here]

Notably, participants in the positive AQI trend condition are more likely to increase their investment in the firm (mean = 0.650) than participants in the negative AQI trend condition (mean = -0.862; $t_{83} = 3.46$, two-tailed $p = 0.001$). Examining the comparisons separately, the difference in the investment decision between the positive and negative AQI trend conditions is significant in both the presence and absence of an additional AQI discussion ($t_{83} = 2.52$, two-tailed $p = 0.014$ and $t_{83} = 2.37$, two-tailed $p = 0.020$, respectively). Furthermore, participants' change in investment assessment in the positive AQI trend condition is significantly higher than zero ($t_{37} = 2.35$, two-tailed $p = 0.024$), while participants' investment assessment in the negative AQI trend condition is significantly lower than zero ($t_{33} = -2.46$, two-tailed $p = 0.019$). These results are consistent with our hypothesis development and reinforce the significant influence that audit quality, as communicated via AQI disclosure, has on investor decision-making.

Relative Importance of AQI Measures

Participants in both AQI trend conditions were also asked to rate the relative importance of each of the six individual AQIs disclosed by the audit firm in determining audit quality on separate 9-point scales (1 = Not at all important; 9 = Very important). Table 4, Panel A, reports the descriptive statistics, and Panel B reports mean comparisons of each of the AQI categories (i.e., *Audit Professionals*, *Audit Process*, and *Audit Results*), calculated from paired-sample *t*-tests. The results shown in Panel B indicate that participants perceive AQIs related to both *Audit Process* and *Audit Results* as being more important determinants of high audit quality than AQIs related to *Audit Professionals* ($t_{90} = 9.47$, two-tailed $p < 0.001$ and $t_{90} = 8.74$, two-tailed $p < 0.001$, respectively). We also find no differences in participants' assessments of AQI importance between *Audit Process* and *Audit Results* ($t_{90} = 90.48$, two-tailed $p = 0.633$).¹⁸ These results

¹⁸ We obtain identical statistical inferences when we perform the analyses separately within the positive AQI trend condition and the negative AQI trend condition. We also obtain identical statistical inferences when we analyze each

should be of interest to both regulators and audit firms in the continued dialogue to determine which AQIs are most informative for various stakeholder groups.

[Insert Table 4 here]

V. CONCLUSION

The topic of audit quality continues to be discussed and debated among academics, practitioners, and regulators. Researchers have developed numerous models and measures aimed at capturing the construct of audit quality, but there continues to be a lack of consensus in how to define, let alone measure, the quality of auditor performance. Based on recommendations from the Advisory Committee on the Auditing Profession to the U.S. Department of the Treasury, the PCAOB recently began an initiative aimed at providing a clearer view of auditing by identifying key variables, in the form of audit quality indicators (AQIs), that may reflect and inform discussions about audit quality. Part of the evolution of the PCAOB's AQI project includes making AQI information available to investors to assist them in evaluating the audit quality associated with particular entity financial statements, with a consequent effect on investment decisions (PCAOB 2015a). We conduct an experiment to examine how public disclosure of AQIs influences nonprofessional investors' decision-making process.

We find that investors experience more positive feelings and affective reaction towards their company's financial statement auditor when receiving a positive-trending AQI portfolio that accompanies the standard audit report compared to receiving a negative-trending AQI portfolio. In turn, investors' affective reaction towards the auditors influences their decision to ratify the selection of their company's auditor for the following year's audit. Investors receiving

AQI measure individually rather than across categories, except that the mean difference between *PCAOB Inspections* and *Financial Restatements* becomes marginally significant ($t_{90} = 1.93$, two-tailed $p = 0.057$).

a set of AQIs indicating a positive trend in audit quality demonstrate a stronger affective commitment to the audit firm and are therefore more likely to support retaining the auditor compared to investors receiving a negative trend of AQIs. Follow-up tests show that AQI disclosure also influences investment decisions. Investors voluntarily increase their equity investment in the company when a positive AQI trend is disclosed and voluntarily decrease their equity investment in the company when a negative AQI trend is disclosed. Consistent with the PCAOB's and CAQ's held belief that *quantitative* AQIs are most useful when accompanied by a contextual *qualitative* narrative, we find that disclosure of a positive trend of AQIs is more influential on investor decision-making when a qualitative discussion accompanying the tabulated AQIs is included in the disclosure. Disclosing a negative AQI trend is equally as influential in both the presence and absence of a qualitative discussion. Finally, our results suggest that investors find firm-level AQIs related to audit process and audit results to be more informative than engagement-level AQIs related to audit professionals. This finding should be of particular interest to regulators in determining the type of AQIs investors most value.

Our results inform the accounting literature, the continued regulatory discussion surrounding the development and communication of AQIs, and the multiple stakeholder-groups concerned with audit quality. We are the first paper, to our knowledge, to examine the influence of AQIs on nonprofessional investors' decision-making process, a key stakeholder group identified by the PCAOB's AQI initiative. Second, we contribute to the discussion surrounding what should be considered key audit quality measures and whether these measures are useful to investors if provided as public information. Third, by examining the current audit environment, in which engagement-level AQIs are not publicly disclosed, we provide timely information to both practitioners and standard setters about the use of AQI information, as well as inform the concerns raised about investors' ability to understand the key quality measures. Finally, we

contribute to audit practitioners by showing how disclosures of their key quality measures are interpreted by investors and how audit firms can influence this dialog through discussions included in audit quality reports to provide further context.

Our study is subject to certain limitations. First, we disclose engagement and firm-level AQIs publicly as a separate part of the audit report. However, the PCAOB remains undecided on how to best disseminate AQI data (PCAOB 2015a). Future research could examine other methods of disclosure, such as through separate audit firm reports or through a regulatory reporting channel. Second, we examine the decision-making process of nonprofessional investors; however, the CAQ and its member firms have expressed that audit committees, rather than shareholders, are best situated to discuss AQI information with the audit engagement team and with management. Future research is needed to determine how AQI disclosure influences other potential stakeholder groups, including audit committee members and more sophisticated investors. Finally, we chose a subset of the 28 potential AQIs developed by the PCAOB covering the three categories of *Audit Professionals*, *Audit Process*, and *Audit Results*. We encourage future research that examines other prospective AQIs, potentially addressing these limitations.

Overall, our results should be of interest to practitioners, regulators, investors, and other stakeholder groups who desire enhanced measures and communication related to audit quality. Increased transparency of the audit process through the dissemination of AQI data is beneficial to both financial statement users and the audit profession by reducing the expectations gap that currently exists between these two parties. Our findings that AQIs influence investor decision-making indicate that the PCAOB's initiative to develop and communicate reliable measures of audit quality is of significant importance.

APPENDIX

Excerpts of the AQI Treatments¹⁹

AUDIT PROFESSIONALS

(Positive Trend – No Discussion)

Persons with Specialized Skill and Knowledge

Description: In addition to dedicated, experienced partners and professionals, engagement teams can also draw upon Firm specialists in a variety of accounting and auditing areas for complex, highly technical, or specialized areas. This indicator measures the percentage of *MicroTech* audit engagement hours provided by Davis & Company specialists.

Percentage of *MicroTech* engagement hours provided by Davis & Company specialists

	2015	2014	2013
<i>Valuation Specialists</i>	7.9%	5.8%	4.7%
<i>Tax Specialists</i>	4.7%	4.2%	4.1%
<i>IT Specialists</i>	1.6%	1.5%	1.4%
<i>Total Specialist Use</i>	14.2%	11.5%	10.2%

(Negative Trend – No Discussion)

Persons with Specialized Skill and Knowledge

Description: In addition to dedicated, experienced partners and professionals, engagement teams can also draw upon Firm specialists in a variety of accounting and auditing areas for complex, highly technical, or specialized areas. This indicator measures the percentage of *MicroTech* audit engagement hours provided by Davis & Company specialists.

Percentage of *MicroTech* engagement hours provided by Davis & Company specialists

	2015	2014	2013
<i>Valuation Specialists</i>	4.7%	5.8%	7.9%
<i>Tax Specialists</i>	4.1%	4.2%	4.7%
<i>IT Specialists</i>	1.4%	1.5%	1.6%
<i>Total Specialist Use</i>	10.2%	11.5%	14.2%

¹⁹ Included in the Appendix are examples from the positive AQI trend treatment (with and without the Discussion treatment) and the negative AQI trend (with and without the Discussion treatment) for each of the three AQI categories (*Audit Professionals*, *Audit Process*, and *Audit Results*).

AUDIT PROCESS

(Positive Trend – No Discussion)

Internal Davis & Company Inspections

Description: Our internal inspections program provides us with a valuable assessment of how we are executing against professional standards, Firm policies, and our professional obligations. During the inspections process, reviewers evaluate the appropriateness of judgments made by the audit teams and look for instances where compliance with professional standards or Firm policies were not adequately evidenced in the working papers. Each year, over 150 audit engagements are selected for internal review.

Compliance rate of the audit engagements subject to internal inspection:

<u>Fiscal Year</u>	<u>Compliance rate of inspected engagements</u>
2015	94%
2014	93%
2013	84%

(Positive Trend – With Discussion)

Internal Davis & Company Inspections

Description: Our internal inspections program provides us with a valuable assessment of how we are executing against professional standards, Firm policies, and our professional obligations. During the inspections process, reviewers evaluate the appropriateness of judgments made by the audit teams and look for instances where compliance with professional standards or Firm policies were not adequately evidenced in the working papers. Each year, over 150 audit engagements are selected for internal review.

Compliance rate of the audit engagements subject to internal inspection:

<u>Fiscal Year</u>	<u>Compliance rate of inspected engagements</u>
2015	94%
2014	93%
2013	84%

Discussion: We use the data collected when findings are identified in our internal monitoring programs to help us improve audit quality throughout our practice. The results of our 2015 internal inspections indicate we have continued to enhance our audit quality. The number of matters identified is significantly reduced compared to prior years. We also continue to see improvement in various audit areas, including the evaluation of fair value estimates.

AUDIT RESULTS

(Negative Trend – No Discussion)

Financial Restatements Due to Errors

Description: We monitor the level and nature of restatements of our clients' financial statements as part of our continuous improvement efforts because the number and causes of restatements due to errors may be considered as signal of potential audit quality issues.

<u>Year of filing</u>	<u>Number of restatements</u>	<u>% of issuers we audit</u>
2014	22	1.1
2013	16	0.8
2012	13	0.6

(Negative Trend – With Discussion)

Financial Restatements Due to Errors

Description: We monitor the level and nature of restatements of our clients' financial statements as part of our continuous improvement efforts because the number and causes of restatements due to errors may be considered as signal of potential audit quality issues.

<u>Year of filing</u>	<u>Number of restatements</u>	<u>% of issuers we audit</u>
2014	22	1.1
2013	16	0.8
2012	13	0.6

Discussion: The percentages and numbers reported in the table above demonstrate our commitment to providing high quality audits on all of our engagements. While restatements are exceedingly rare in occurrence, we recognize the critical need to determine the factors that may have contributed to the rise in number and percentage of annual restatements so that we can take steps to reduce the risk of reoccurrence. The most common audit areas giving rise to restatements included revenue recognition and income taxes.

REFERENCES

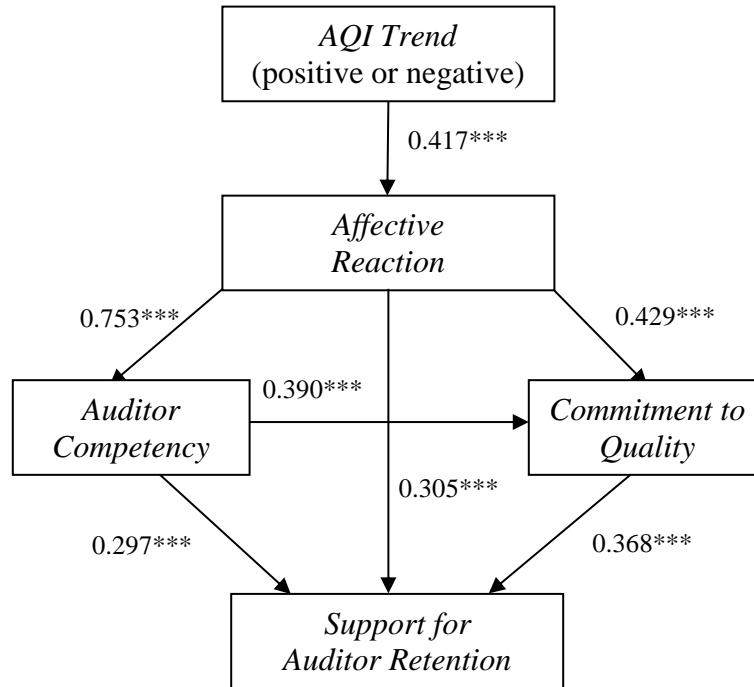
- Allen, N. J. and J. P. Meyer. 1990. The measurement and antecedents of affective, continuance and normative commitment to the organization. *Journal of Occupational and Organizational Psychology* 63 (1): 1–18.
- Anderson, J., and B. Weitz. 1992. The use of pledges to build and sustain commitment in distribution channels. *Journal of Marketing Research* 29 (1): 18–34.
- Anderson, U., K. Kadous, and L. Koonce. 2004. The role of incentives to manage earnings and quantification in auditors' evaluations of management-provided evidence. *Auditing: A Journal of Practice & Theory* 23 (1): 11–27.
- Asare, S., and A. Wright. 2012. Investors', auditors', and lenders' understanding of the message conveyed by the standard audit report on the financial statements. *Accounting Horizons* 26 (2): 193–217.
- Baginski, S., J. Hassell, and M. Kimbrough. 2004. Why Do Managers Explain Their Earnings Forecasts? *Journal of Accounting Research* 42 (1): 1-29.
- Brasel, K., M. M. Doxey, J. H. Grenier, and A. Reffett. 2016. Risk disclosure preceding negative outcomes: The effects of reporting critical audit matters on judgments of auditor liability. *The Accounting Review* 91 (5): 1345–1362.
- Byrne, B. M. 2013. *Structural Equation Modeling with Amos: Basic Concepts, Applications, and Programming*. Mahwah, NJ: Lawrence Erlbaum Associates, Inc.
- Causholli, M. and W. R. Knechel. 2012. An examination of the credence attributes of an audit. *Accounting Horizons* 26 (4): 631–656.
- Center for Audit Quality. 2014. CAQ Approach to Audit Quality Indicators. Available at: <http://www.thecaq.org/caq-approach-audit-quality-indicators>.
- Center for Audit Quality. 2016. Audit Quality Indicators: Journey and Path Ahead. Available at: <http://www.thecaq.org/audit-quality-indicators-journey-and-path-ahead>.
- Christensen, B. E., S. M. Glover, and C. J. Wolfe. 2014. Do critical audit matter paragraphs in the audit report change nonprofessional investors' decision to invest? *Auditing: A Journal of Practice & Theory* 33 (4): 71–93.
- Christensen, B. E., S. M. Glover, T. C. Omer, and M. K. Shelley. 2016. Understanding audit quality: Insights from audit professionals and investors. *Contemporary Accounting Research* 33 (4) 1648–1684.
- Church, B. K., S. M. Davis, and S. A. McCracken. 2008. The auditor's reporting model: A literature overview and research synthesis. *Accounting Horizons* 22 (1): 69–90.

- Defond, M. and J. Zhang. 2014. A review of archival auditing research. *Journal of Accounting and Economics* 58 (2): 275–326.
- Deloitte. 2016. US audit quality report: Our responsibility, our commitment. Available at: <https://www2.deloitte.com/us/en/pages/regulatory/audit-quality.html>.
- De Ruyter, K. and M. Wetzels. 1999. Commitment in auditor-client relationships: Antecedents and consequences. *Accounting, Organizations and Society* 24 (1): 57–75.
- Dwyer, F. R., P. H. Schurr, and S. Oh. 1987. Developing buyer-seller relationships. *Journal of Marketing* 51 (2): 11–27.
- Elliott, W., F. Hodge, J. Kennedy, and M. Pronk. 2007. Are M.B.A. students a good proxy for nonprofessional investors? *The Accounting Review* 82 (1): 139–168.
- EY. 2013. Audit committee reporting to shareholders: going beyond the minimum. Available at: [http://www.ey.com/Publication/vwLUAssets/Audit_committee_reporting_to_shareholders%3A_going_beyond_the_minimum/\\$FILE/Audit_committee_reporting_CF0039.pdf](http://www.ey.com/Publication/vwLUAssets/Audit_committee_reporting_to_shareholders%3A_going_beyond_the_minimum/$FILE/Audit_committee_reporting_CF0039.pdf).
- EY. 2016. Our commitment to audit quality. Available at: <http://auditqualityreport.ey.com/EY%202016%20Audit%20Quality%20Report.pdf>.
- Financial Reporting Council (FRC). 2008. The Audit Quality Framework. Available at: [https://frc.org.uk/Our-Work/Publications/FRC-Board/The-Audit-Quality-Framework-\(1\)-File.pdf](https://frc.org.uk/Our-Work/Publications/FRC-Board/The-Audit-Quality-Framework-(1)-File.pdf)
- Francis, J. R. 2011. A framework for understanding and researching audit quality. *Auditing: A Journal of Practice & Theory* 30 (2): 125–152.
- Gray, G. L., J. L. Turner, P. J. Coram, and T. J. Mock. 2011. Perceptions and misperceptions regarding the unqualified auditor’s report by financial statement preparers, users, and auditors. *Accounting Horizons* 25 (4): 659–684.
- Hutton, A., G. Miller, and D. Skinner. 2003. The Role of Supplementary Statements with Management Earnings Forecasts. *Journal of Accounting Research, Vol. 41 (5):* 867-890.
- International Auditing and Assurance Standards Board (IAASB). 2014. A Framework for Audit Quality, Key Elements that Create an Environment for Audit Quality. Available at: <https://www.ifac.org/publications-resources/framework-audit-quality-key-elements-create-environment-audit-quality>.
- Kadous, K. 2000. The effects of audit quality and consequence severity on juror evaluation of auditor responsibility for plaintiff losses. *The Accounting Review* 75 (3): 327–341.
- Kadous, K. 2001. Improving Jurors’ Evaluations of Auditors in Negligence Cases. *Contemporary Accounting Research* 18 (3): 425–444.

- Kadous, K., L. Koonce, and K. Towry. 2005. Quantification and Persuasion in Managerial Judgement. *Contemporary Accounting Research* Vol. 22 (3): 643–686.
- Knechel, W. R., G. V. Krishnan, M. Pevzner, L. B. Shefchik, and U. K. Velury. 2013. Audit quality: Insights from the academic literature. *Auditing: A Journal of Practice & Theory* 32 (Supplement): 385–421.
- KPMG. 2016. Transparency report 2016. Available at: <https://home.kpmg.com/content/dam/kpmg/us/pdf/2016/12/transparency-report-2016.pdf>.
- McEnroe, J. E. and S. C. Martens. 2001. Auditors’ and investors’ perceptions of the “Expectations Gap”. *Accounting Horizons* 15 (4): 345–358.
- Mercer, M. 2004. How do investors assess the credibility of management disclosures? *Accounting Horizons* 18(3):185-196.
- Mock, T. J., J. Bédard, P. J. Coram, S. M. Davis, R. Espahbodi, and R. C. Warne 2013. The audit reporting model: Current research synthesis and implications. *Auditing: A Journal of Practice & Theory* 33 (Supplement): 323-351.
- Mohr, J. and J. Nevin. (1992). Communication strategies in marketing channels: A theoretical perspective. *Journal of Marketing* 54 (4): 36–51.
- Moorman, C., R. Deshpande, and G. Zaltman. 1992. Factors affecting trust in market research relationships. *Journal of Marketing* 29 (3): 314–329.
- Morgan, R. and S. Hunt. 1994. The commitment-trust theory of relationship marketing. *Journal of Marketing* 58 (3): 20–38.
- PwC. 2016. Our focus on audit quality. Available at: <https://www.pwc.com/us/en/audit-assurance-services/publications/assets/pwc-audit-quality-report-2016.pdf>.
- Public Company Accounting Oversight Board (PCAOB). 2013. Briefing Paper, *Discussion — Audit Quality Indicators*, SAG Meeting, May 15–16, 2013. Available at: https://pcaobus.org/News/Events/Documents/10162013_IAGMeeting/AQI_Briefing_Paper.pdf.
- Public Company Accounting Oversight Board (PCAOB). 2015a. Release No. 2015-005. Concept Release on Audit Quality Indicators. Available at: https://pcaobus.org/Rulemaking/Docket%20041/Release_2015_005.pdf.
- Public Company Accounting Oversight Board (PCAOB). 2015b. Briefing Paper, *Audit Quality Indicators— Update and Discussion*, SAG Meeting, November 12–16, 2015. Available at: <https://pcaobus.org/News/Events/Documents/11-12-2015-SAG-Meeting/SAG-AQI-Memo.pdf>.

- Public Company Accounting Oversight Board (PCAOB). 2017. The Auditor's Report on an Audit of Financial Statements When the Auditor Expresses an Unqualified Opinion. Available at: <https://pcaobus.org/Rulemaking/Docket034/2017-001-auditors-report-final-rule.pdf>.
- Reffett, A. 2010. Can identifying and investigating fraud risks increase auditors' liability? *The Accounting Review* 85 (6): 2145–2167.
- Reffett, A., B. E. Brewster, and B. Ballou. 2012. Comparing auditor versus non-auditor assessments of auditor liability: An experimental investigation of experts' versus lay evaluators' judgments. *Auditing: A Journal of Practice & Theory* 31 (3): 125–148.
- Ruhnke, K. and M. Schmidt. 2014. The audit expectation gap: Existence, causes, and the impact of changes. *Accounting and Business Research* 44 (5): 572–601.
- Shore, L. M. and S. J. Wayne. 1993. Commitment and employee behavior: Comparison of affective commitment and continuance commitment with perceived organizational support. *Journal of Applied Psychology* 78 (5): 774–780.
- Skinner, D. J. 1994. Why Firms Voluntarily Disclose Bad News. *Journal of Accounting Research* 32: 38–60.
- Soffer, L. C., S. R. Thiagarajan and B. R. Walther. 2000. Earnings Preannouncement Strategies. *Review of Accounting Studies* 5: 5–26.
- Turner, J. L., T. J. Mock, P. J. Coram, and G. L. Gray. 2010. Improving transparency and relevance of auditor communications with financial statement users. *Current Issues in Auditing* 4 (1): A1–A8.
- United States Treasury. 2008. Advisory Committee on the Auditing Profession: Final Report. October 6. Available at: <http://www.treas.gov/about/organizational-structure/offices/Documents/final-report.pdf>.
- Williams, P. 1996. The relation between a prior earnings forecast by management and analyst response to a current management forecast. *The Accounting Review* 71(1): 103–113.

Figure 1. Path Model for AQI Trend on Investor Support for Retaining the Audit Firm (Standardized Coefficients for Paths)



Notes:

*** Denotes two-tailed path significance at $p < 0.01$.

Model Statistics:

TLI = 1.048

Incremental Fit Index = 1.009

CFI = 1.00

Chi-square = 0.310, df = 3, p-value = 0.958

RMSEA < 0.001

- AQI Trend* = Dichotomous variable representing whether the trend of AQIs disclosed in the auditor’s report are positive in nature (*AQI Trend* = 1) or negative in nature (*AQI Trend* = 0).
- Affective Reaction* = Measure of participants’ affective reaction to the audit firm, “...please indicate the direction and strength of your feelings toward Davis & Company, the financial statement auditor,” elicited on an 11-point scale (-5 = Very strong negative feelings; 0 = Neutral; 5 = Very strong positive feelings).
- Auditor Competency* = Participants’ assessment of the audit firm’s competency in performing the company’s financial statement audit (1 = Completely incompetent; 5 = Somewhat competent; 9 = Completely competent).
- Commitment to Quality* = Participants’ assessment of the audit firm’s commitment to performing high quality audits (1 = Not at all committed; 5 = Somewhat committed; 9 = Very committed).
- Support for Auditor Retention* = Measure of participants’ support for retaining the audit firm for the following year’s financial statement audit, elicited using a 9-point scale (1 = Do not support; 5 = Somewhat support; 9 = Fully support).

TABLE 1
Investors' Affective Reaction

Panel A: Descriptive Statistics – Mean (standard deviation)

<i>AQI Discussion</i>	<i>AQI Trend</i>		Control (No AQIs)
	Positive	Negative	
Absent	1.54 (2.26) <i>n</i> = 17	0.31 (2.76) <i>n</i> = 19	1.40 (1.91) <i>n</i> = 21
Present	2.25 (1.80) <i>n</i> = 22	-0.60 (2.34) <i>n</i> = 22	
Column Means	1.94 (2.01) <i>n</i> = 39	-0.18 (2.56) <i>n</i> = 41	

Panel B: One-way Analysis of Variance

Source	<i>df</i>	SS	MS	<i>F</i> -value	<i>p</i> -value
Condition	4	107.45	26.86	5.41	0.001
Error	96	476.37	4.96		
Corrected Total	100	583.82			

Panel C: Planned comparisons to test Hypothesis 1

Source	Means tested	<i>df</i>	<i>t</i> -value	<i>p</i> -value
<i>Hypothesis 1: Positive > Negative*</i>	1.94 vs. -0.18	96	4.06	<0.001
AQI Discussion – <i>Absent*</i>	1.54 vs. 0.31	96	1.65	0.052
AQI Discussion – <i>Present*</i>	2.25 vs. -0.60	96	4.24	<0.001
Positive vs. Control	1.94 vs. 1.40	96	0.82	0.413
Negative vs. Control	-0.18 vs. 1.40	96	2.57	0.012

The dependent variable measures participants' affective reaction to the audit firm, "...please indicate the direction and strength of your feelings toward Davis & Company, the financial statement auditor," elicited on an 11-point scale (-5 = Very strong negative feelings; 0 = Neutral; 5 = Very strong positive feelings). The five experimental groups were formed by crossing AQI Trend (positive or negative) with AQI Discussion (present or absent) and by including a Control group reflective of the current standard unqualified auditor's report that excludes AQI disclosure (i.e., a 2 x 2 + 1 experimental design). Planned comparisons are calculated from a one-way analysis of variance in which Condition contains all five experimental groups.

*We use a *p*-value from a one-tailed test for directional predictions only. All non-indicated *p*-values are two-sided.

TABLE 2
Investor Support for Retaining the Audit Firm

Panel A: Descriptive Statistics – Mean (standard deviation)

<i>AQI Discussion</i>	<i>AQI Trend</i>		Control (No AQIs)
	Positive	Negative	
Absent	6.26 (2.51) <i>n</i> = 21	5.28 (2.50) <i>n</i> = 22	6.44 (2.15) <i>n</i> = 23
Present	7.41 (1.33) <i>n</i> = 24	5.23 (2.26) <i>n</i> = 24	
Column Means	6.87 (2.03) <i>n</i> = 45	5.26 (2.35) <i>n</i> = 46	

Panel B: One-way Analysis of Variance

Source	<i>df</i>	SS	MS	<i>F</i> -value	<i>p</i> -value
Condition	4	76.94	19.24	4.05	0.004
Error	109	517.19	4.75		
Corrected Total	113	594.13			

Panel C: Planned comparisons to test Hypothesis 2, Hypothesis 3a and Hypothesis 3b

Source	Means tested	<i>df</i>	<i>t</i> -value	<i>p</i> -value*
<i>Hypothesis 2: Positive > Negative</i>	6.87 vs. 5.26	109	3.38	<0.001
<i>AQI Discussion – Absent</i>	6.26 vs. 5.28	109	1.47	0.073
<i>AQI Discussion – Present</i>	7.41 vs. 5.23	109	4.07	<0.001
<i>Hypothesis 3a: Positive > Control</i>	6.87 vs. 6.44	109	0.72	0.239
<i>AQI Discussion – Absent</i>	6.26 vs. 6.44	109	-0.26	0.794
<i>AQI Discussion – Present</i>	7.41 vs. 6.44	109	1.84	0.037
<i>Hypothesis 3b: Negative < Control</i>	5.26 vs. 6.44	109	2.08	0.022
<i>AQI Discussion – Absent</i>	5.28 vs. 6.44	109	1.79	0.039
<i>AQI Discussion – Present</i>	5.23 vs. 6.44	109	1.88	0.033
<i>Research Question: AQI Discussion</i>				
Positive AQI – <i>Present vs. Absent</i>	7.41 vs. 6.26	109	1.88	0.070
Negative AQI – <i>Present vs. Absent</i>	5.23 vs. 5.28	109	-0.07	0.945

TABLE 2 (continued)

The dependent variable measures participants' support for retaining the audit firm, elicited using a 9-point scale. Higher numbers represent greater investor support. Based on Levene's test, standard errors are adjusted for unequal variances. Planned comparisons are calculated from a one-way analysis of variance in which Condition contains all five experimental groups. See Table 1 for independent variable descriptions.

*We use a p-value from a one-tailed test only for directional predictions. Research question results are presented with a two-tailed p-value.

TABLE 3
Voluntary Change in Firm Investment

Panel A: Descriptive Statistics – Mean (standard deviation)

<i>AQI Discussion</i>	<i>AQI Trend</i>		Control (No AQIs)
	Positive	Negative	
Absent	0.94 (1.61) <i>n</i> = 18	-0.64 (2.17) <i>n</i> = 18	0.04 (1.89) <i>n</i> = 16
Present	0.39 (1.79) <i>n</i> = 20	-1.11 (1.93) <i>n</i> = 16	
Column Means	0.65 (1.71) <i>n</i> = 38	-0.86 (2.04) <i>n</i> = 34	

Panel B: One-way Analysis of Variance

Source	<i>df</i>	SS	MS	<i>F</i> -value	<i>p</i> -value
Condition	4	46.01	11.50	3.25	0.016
Error	83	294.15	3.54		
Corrected Total	87	340.16			

Panel C: Planned comparisons

Source	Means tested	<i>df</i>	<i>t</i> -value	<i>p</i> -value
<i>Positive vs. Negative</i>	0.65 vs. -0.86	83	3.46	0.001
<i>AQI Discussion – Absent</i>	0.94 vs. -0.64	83	2.37	0.020
<i>AQI Discussion – Present</i>	0.39 vs. -1.11	83	2.52	0.014

The dependent variable measures how would investors voluntarily change their investment in the firm based on the case information, elicited using an 11-point scale. Negative numbers represent reduction of investment and positive numbers represent increase in investment with zero indicating no change in investment. Based on Levene's test, standard errors are adjusted for unequal variances. Planned comparisons are calculated from a one-way analysis of variance in which Condition contains all five experimental groups. See Table 1 for independent variable descriptions. Reported *p*-values are two-tailed.

TABLE 4
Relative Importance of AQI Measures

Panel A: Descriptive Statistics – Mean (standard deviation)

<i>AQI Category</i>	<i>AQI Measure(s)</i>			<i>Category Mean</i>
Audit Professionals	<i>Specialist Hours</i> 5.96 (1.82)	<i>Total Audit Hours</i> 5.30 (1.96)	<i>Overtime Hours</i> 4.91 (2.07)	Audit Professionals 5.38 (1.54)
Audit Process	<i>Compliance Rate</i> 6.94 (1.78)	<i>PCAOB Inspections</i> 7.41 (1.76)	--	Audit Process 7.18 (1.79)
Audit Results	<i>Financial Restatements</i> 7.11 (1.79)	--	--	Audit Results 7.11 (1.79)

Panel B: *AQI Category* mean comparisons

Source	Means tested	<i>df</i>	<i>t</i> -value	<i>p</i> -value (two-tailed)
Audit Professionals vs. Audit Process	5.38 vs. 7.18	90	9.47	<0.001
Audit Professionals vs. Audit Results	5.38 vs. 7.11	90	8.74	<0.001
Audit Process vs. Audit Results	7.18 vs. 7.11	90	0.48	0.633

Panel A provides the importance ratings for each of the AQIs from participants in the positive and negative AQI trend conditions. Participants in both AQI trend conditions were asked to rate each AQI's importance in determining audit quality on separate 9-point scales (1 = Not at all important; 9 = Very important). The *Category Mean* is calculated as the mean importance rating for the respective AQI category. Panel B provides mean comparisons, calculated from paired-sample *t*-tests. See the Appendix for excerpts from the AQI treatments.