Understanding Audit Quality: Insights from Audit Professionals and Investors*

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ABSTRACT

Projects seeking to define, measure, and evaluate audit quality are on the agendas of auditing standards setters as well as audit firms. The Public Company Accounting Oversight Board (PCAOB) currently provides information regarding audit quality through the release of inspection reports, and the Board intends to establish and report audit quality indicators. To provide additional perspective on audit quality, we obtain auditors' and investors' views, definitions, and indicators of audit quality. We find that investors' definitions of audit quality focus more on inputs to the audit process than do auditors', and that investors view the number of PCAOB deficiencies as an indicator of overall firm quality. We find a consensus that auditor characteristics may be the most important determinants of audit quality, and that restatements may be the most readily available signal of low audit quality. We relate responses to a general audit quality framework, provide support for archival audit research, and identify additional disclosures that participants suggest could signal audit quality. Taken together, we provide evidence regarding the construct of audit quality in the post-SOX environment, evaluate many of the audit quality indicators proposed by the PCAOB, and suggest avenues for future research.

Comprendre la qualité de l'audit : points de vue de professionnels de l'audit et d'investisseurs

RÉSUMÉ

Des projets visant à définir, mesurer et évaluer la qualité de l'audit figurent au programme des instances de normalisation en matière d'audit de même que des cabinets d'audit. Le

* Accepted by Jeffrey Pittman. We thank the six participating audit firms and the Center for Audit Quality's Research Advisory Board for helping refine our study materials and for funding this project. We also thank Tara Voskamp for assistance in identifying investor participants. We are grateful for helpful comments from Jeffrey Pittman, two anonymous reviewers, Jean Bedard, Kathleen Bentley, Brian Bratten, Joe Brazel, Tony Bucaro, Liz Carson, Brian Fitzgerald, Karla Johnstone, Andrew McMartin, Jeff McMullin, Bill Messier, Jeff Pickerd, Nate Sharp, Kecia Smith, Frances Tice, Ken Trotman, Chris Wolfe, and workshop participants at Texas A&M University, Australian National University, the University of New South Wales, the 2013 Texas A&M FDS Conference, the 2013 BYU Accounting Research Symposium, the 2014 Audit Midyear Meeting, the 2014 Deloitte Foundation/University of Kansas Auditing Symposium, and the 2014 EAA Congress. Brant Christensen acknowledges funding from the Deloitte Foundation, Steven Glover acknowledges funding from the K. Fred Skousen Professorship, and Thomas Omer acknowledges funding from the Delmar Lienemann Sr. Chair of Accounting at the University of Nebraska-Lincoln. The views expressed in this article and its content are those of the authors and not those of the Center for Audit Quality or the participating firms.

Contemporary Accounting Research Vol. 33 No. 4 (Winter 2016) pp. 1648–1684 © CAAA
doi:10.1111/1911-3846.12212

Public Company Accounting Oversight Board (PCAOB) produit actuellement de l'information au sujet de la qualité de l'audit en publiant des rapports d'inspection, et se propose d'instaurer des indicateurs de qualité de l'audit et de faire état des résultats de leur application. Pour jeter un éclairage supplémentaire sur la qualité de l'audit, les auteurs recueillent auprès d'auditeurs et d'investisseurs leurs opinions, leurs définitions et leurs indicateurs en matière de qualité de l'audit. Ils constatent que les définitions de la qualité de l'audit proposées par les investisseurs sont davantage centrées sur les intrants du processus d'audit que celles des auditeurs, et que les investisseurs considèrent le nombre des déficiences relevées par le PCAOB comme un indicateur de la qualité globale du cabinet. Les auteurs notent l'existence d'un consensus quant au fait que les caractéristiques de l'auditeur seraient les déterminants les plus importants de la qualité de l'audit et que les retraitements seraient le signal le plus évident de la faible qualité de l'audit. Ils relient les réponses des participants à un cadre de référence général sur la qualité de l'audit, fournissent des arguments à l'appui des études d'archives en audit, et reconnaissent que les informations supplémentaires dont les participants suggèrent la publication pourraient signaler la qualité de l'audit. Dans l'ensemble, les auteurs présentent des éléments probants en ce qui a trait à la notion de qualité de l'audit dans l'environnement postérieur à l'adoption de la SOX, évaluent bon nombre des indicateurs de qualité de l'audit proposés par le PCAOB et suggèrent des pistes de recherche future.

1. Introduction

Auditing standards require auditors to plan and perform audits to obtain reasonable assurance about whether the financial statements are free of material misstatements and to express an opinion about the fair presentation of the financial statements (PCAOB 2010a). The degree to which financial statement users can rely on an audit opinion depends on the *quality* of the audit performed. Despite the importance of audit quality to the stability of the capital markets, and the large body of research investigating the topic, regulators, investors, and researchers continue to debate the definition, composition, and measurement of audit quality (Bedard, Johnstone, and Smith 2010; DeFond and Zhang 2014; Francis 2011; Knechel, Krishnan, Pevzner, Shefchik, and Velury 2013).

Defining and measuring audit quality enables interested parties to assess whether audit quality is improving over time and thus identify audits with lower quality, while also providing incentives for audit firms to invest in initiatives that improve audit quality.[1] Projects seeking to define, measure, and evaluate audit quality are on the agendas of the International Auditing and Assurance Standards Board (IAASB 2013), the Public Company Accounting Oversight Board (PCAOB 2012a, 2013, 2014a), the American Institute of Certified Public Accountants (AICPA 2014), and the Center for Audit Quality (CAQ 2012, 2013a, 2014), as well as audit firms themselves (KPMG 2011; PwC 2014). These projects demonstrate widespread interest in understanding audit quality but are still in the early developmental stages. We contribute to this public debate by obtaining perceptions and measures of audit quality from audit professionals and investors—two key groups interested in the audit and financial reporting process. Prior research has shown that these groups have different expectations of the audit process, often referred to as an "expectations gap" (Church, Davis, and McCracken 2008).

The PCAOB informs stakeholders about select audit engagements through its release of Parts 1 and 2 of its inspection reports, and other PCAOB releases provide instruction to audit committee members regarding matters to discuss with their auditor (PCAOB 2012b). To provide additional information about the audit process and audit quality, the PCAOB has also initiated its own project to define and measure audit quality (PCAOB

1. We thank an anonymous reviewer for identifying additional reasons to measure audit quality.

2013, 2014a). Because the PCAOB has initiated this discussion, it is likely to influence expectations about audit quality. This study contributes to the current discussion on audit quality by (i) providing evidence that contributes to understanding and defining audit quality, (ii) providing empirical evidence regarding many of the audit quality indicators proposed by the PCAOB, (iii) adding empirical substance to existing theoretical frameworks of audit quality (Bedard et al. 2010; Francis 2011; Knechel et al. 2013), and (iv) highlighting differences and consistencies between auditor and investor expectations about the audit process.[2]

In 2012, we conducted a survey of audit professionals and investors to obtain their insights on audit quality; the survey produced responses from 93 audit professionals and 102 investors.[3] Auditor participants were from the four largest audit firms, as well as two other international firms, and auditors reported over 20 years of experience on average in public accounting. While auditor responses may not generalize to smaller audit firms, the surveyed firms audit more than 98 percent of the 1,500 largest public companies (GAO 2008). Investor participants averaged 24 years of work experience, reported significant investing experience, and had received a business degree, indicating they are knowledgeable and well-informed investors. Follow-up interviews with investors indicated experience with audits as an auditee and suggest that a substantial portion of our investor participants have experienced the audit as a member of an auditee's management team. Therefore, both surveyed participant groups can provide valuable insights on audit quality. To this end, we asked participants to define audit quality and suggest practical ways that it could be measured; evaluate the association of various engagement-, team-, and entity-specific characteristics with audit quality; evaluate the association between PCAOB inspection findings and audit firm quality; and identify publicly available signals of low audit quality. Previous studies using surveys of auditors, financial statement users, and preparers ranked various audit characteristics with respect to their importance in determining audit quality (Carcello, Hermanson, and McGrath 1992; Schroeder, Solomon, and Vickery 1986). However, these surveys were conducted before the Sarbanes-Oxley Act of 2002 and the creation of the PCAOB fundamentally changed the audit industry. This study examines audit quality in the current regulatory and legal environment.

We find that audit professionals define audit quality primarily in terms of compliance with professional auditing standards, while investors rely more on the individual characteristics of the engagement team performing the audit. Investors' focus on auditor characteristics suggests that additional input-related disclosures might be useful to financial statement users in evaluating audit quality. In terms of engagement-specific characteristics of audit quality, we find that both audit professionals and investors perceive characteristics of the audit opinion, outcomes from the review process, and the payment of reasonable audit fees as pertinent to determining audit quality. Auditors also indicate that the timely completion of audit planning and fieldwork contribute to high audit quality.

2. We use the term "auditors or "audit professionals" throughout the paper to describe both partner and senior manager participants; over 80 percent of our audit professional survey responses are from partners. Untabulated analysis indicates that partners' and senior managers' responses are not statistically different ($p > 0.10$ in all univariate comparisons). Further, we use the term "investors" throughout the paper to describe our investor participants. These participants have educational background and reported investing experience that are equivalent to or greater than those of investor participants reported on in the prior literature (Elliott 2006; Frederickson and Miller 2004; Maines and McDaniel 2000), which suggests that they are experienced and knowledgeable investors. See section 3 for additional details.

3. Investor response rate was approximately 5 percent, consistent with Dichev, Graham, Harvey, and Rajgopal (2013). Because of confidentiality concerns, we were not provided the number of auditor participants solicited by each firm and thus auditor response rates are not available. However, the completion rate of auditors who started the survey was approximately 85 percent. See section 2 for additional discussion regarding data collection.

Consistent with investors' primary definition of audit quality, we find almost unanimous agreement that individual auditor characteristics influence audit quality. We also find evidence that input from parties outside the core engagement team such as the national office and engagement review partners is an important attribute of audit quality. Our findings suggest that future research in the area of individual and team differences is warranted. We also find evidence that client-specific factors such as restatements, SEC enforcement actions, and the frequency of audit committee meetings are significant indicators of audit quality. However, we find that investors' perceptions of audit quality do not fully incorporate the importance of the audit committee in the audit process to the same extent as auditors, providing support for a recent call to make this role more transparent to investors (CAQ 2013b,c).

Finally, we find evidence suggesting an unintended interpretation of PCAOB inspection reports. Despite the PCAOB's efforts to inform readers of the purpose of inspection reports, investors overwhelmingly associate fewer PCAOB deficiencies with higher overall audit firm quality. This response suggests that investors, absent other metrics, may overrely on this regulator-provided signal of problems with the audit process. In response to open-ended questions, we find that both auditors and investors view financial statement restatements as the most readily available public signal of low audit quality. While restatements provide ex post evidence of low audit quality, such evidence may come too late to inform investors' decisions. Given investors' focus on the inputs to the audit process, a potential need exists for additional information that might aid in developing forward-looking indicators of audit quality.

This study provides evidence that should help inform the public discussion of audit quality in the post-Sarbanes-Oxley era and adds empirical substance to theoretical frameworks of audit quality (e.g., Francis 2011; Knechel et al. 2013). Participants' responses underscore the importance of considering audit quality as a multifaceted construct that cannot be represented by a single variable or outcome. Our results provide evidence on many of the audit quality indicators currently proposed by the PCAOB and suggest that while many PCAOB-proposed indicators are perceived by the majority of respondents as being associated with audit quality (e.g., auditor experience), some are not (e.g., litigation against the audit firm), and some should be interpreted with caution (e.g., going-concern reports). Our results respond to the call in Francis (2011) for research that improves our understanding of the audit process and the key inputs to that process. Finally, our study provides varying levels of support for archival proxies of audit quality discussed in DeFond and Zhang (2014).

The remainder of this paper is as follows. Section 2 discusses relevant background literature, the survey instrument design, and the data collection process, and section 3 describes our survey participants. Sections 4–8 discuss our audit quality findings and section 9 concludes.

2. Background literature and data collection

Background literature

Prior archival studies use a variety of proxies for audit quality, including financial statement restatements, audit fees, going-concern opinions, lawsuits filed against auditors, client bankruptcies, level of abnormal accruals, and SEC enforcement actions (e.g., Carcello and Nagy 2004; Francis, Maydew, and Sparks 1999; Francis and Michas 2012; Lambert, Jones, and Brazel 2014; Lennox 1999; Palmrose 1998; Stanley and DeZoort 2007). The variety of proxies used to represent a single construct indicates a diversity of views among researchers regarding a reliable measure of audit quality and suggests that a few chosen proxies cannot adequately represent the construct of audit quality. Surveys can play an important role in gaining understanding and insight into unobservable theoretical

constructs, such as audit quality, that prompt a diversity of representations in archival research (Dichev et al. 2013; Nelson, Elliott, and Tarpley 2002).

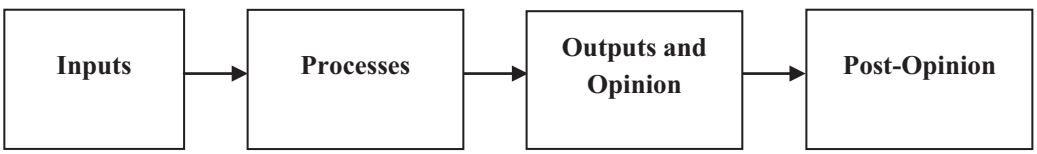
Auditors have been surveyed on earnings management (Nelson et al. 2002), the effect of auditor behavior on audit quality (Herrbach 2001), the effect of budget time-pressure on audit quality (Coram, Ng, and Woodliff 2003), auditor workload (Persellin, Schmidt, and Wilkins 2014), in-person versus electronic review (Agoglia, Brazel, Hatfield, and Jackson 2010), audit partner rotation (Daugherty, Dickins, Hatfield, and Higgs 2012), and auditor identification of fraud risks (Graham and Bedard 2003). Previous studies have also used surveys of auditors, financial statement users, and preparers to rank various audit characteristics (e.g., industry specialization, auditor independence, provision of nonaudit services, etc.) with respect to their importance in determining audit quality (Carcello et al. 1992; Schroeder et al. 1986). Similarly, Duff (2004) surveyed U.K. auditors, finance directors, and fund managers to rank the importance of characteristics identified in the audit quality literature as determinants of audit quality. However, none of these studies solicited auditors' opinions on audit quality beyond the predetermined characteristics presented in the survey. Further, previous surveys were conducted before the Sarbanes-Oxley Act of 2002 and, as a consequence, research eliciting clarifying input about the definition and determinants of audit quality in the current regulatory environment from the perspectives of both auditors and investors is scarce.

Rather than treating audit quality as a single overarching construct, several recent academic papers have provided theoretical frameworks discussing the components of audit quality, (e.g., Bedard et al. 2010; DeFond and Zhang 2014; Francis 2011; Knechel et al. 2013). These frameworks define audit quality in terms of audit inputs (e.g., expertise), audit processes (e.g., auditor judgments and work performed), outputs and opinions (e.g., restatements), and audit contexts (e.g., auditor tenure). In addition to these academic frameworks, the CAQ (2013a), PCAOB (2013), IAASB (2013), and KPMG (2011) have proposed their own audit quality frameworks referencing components consistent with those listed above. Figure 1 depicts a composite general audit quality framework consisting of audit inputs, processes, outputs and opinions, and post-opinion factors. To help focus the discussion of results, we relate our results throughout the paper to this general framework.[4] In what follows, we reference and discuss prior literature and recent reviews of the literature as they relate to our findings.

Research questions and survey design

The PCAOB's efforts to define and measure audit quality may impact both auditors' and investors' perceptions of audit quality. By comparing the responses of these two key stakeholders in the current regulatory climate, we extend the current and prior literature on audit quality and provide empirical support for a theoretical framework of audit quality.[5]

Figure 1 General audit quality framework



4. The framework in Figure 1 is a partial composite of the frameworks developed by Bedard et al. (2010), DeFond and Zhang (2014), Francis (2011), and Knechel et al. (2013).
5. While we did not explicitly seek the perspective of financial statement preparers, the business background and significant work experience increases the likelihood that our investor participants have experienced an audit as a member of the auditee's management team.

Auditors' and investors' survey responses address the following four general research questions:

RQ 1. *What is your definition of audit quality, and how would you measure it?*

RQ 2. *What engagement-, team-, and entity-specific characteristics impact audit quality?*

RQ 3. *What is the association between findings in PCAOB inspection reports and firm-wide quality?*

RQ 4. *What publicly available information signals lower audit quality?*

To address these research questions, auditors (investors) responded to 29 (23) queries regarding audit quality.[6] We submitted a completed survey instrument to senior members of the participating firms and the CAQ's Research Advisory Board for feedback on the survey's content, wording, and readability. The survey instrument was pilot tested by the participating firms and subsequently revised by the author team, after which the final version of the survey was distributed to the participating firms.

Because of differences between audit professionals' and investors' experience, understanding, and exposure to the terminology and concepts associated with financial statement audits, some of the language in the survey was tailored to each group. To ensure that responses from the participant groups were comparable, the revision process was undertaken with the goal of keeping the fundamental meaning of the revised questions the same between groups.[7] We also did not ask investors questions that were specific to the audit process (e.g., timeliness of audit planning). The investor version of the survey was distributed to a small pilot sample of investors for feedback and revised accordingly before final distribution.

Data collection

We coordinated with the CAQ's Research Advisory Board to identify auditor participants from the six participating audit firms, which included the four largest audit firms as well as two other large, international firms. The only restriction on auditor participants was that they were required to have experience serving public company clients subject to PCAOB inspection. After identifying potential auditor participants, the CAQ distributed either a paper-based or Web-based access to the survey to the firms, with most firms using the Web-based survey administered by Qualtrics.com.[8] We obtained 93 usable responses from the 109 auditor participants who started the survey, for a completion rate of 85 percent.

6. The length of our survey is equal to, or shorter than, other contemporaneous surveys (e.g., Dichev et al. 2013; Nelson et al. 2002). We also note that the order of the questions presented to participants was not randomized because questions were presented in meaningful orders and topical groupings that were generally confirmed using factor analysis. While order effects cannot be ruled out, participants' responses to scale-based questions are generally consistent with open-ended questions, thus indicating that the order of question presentation did not drive results.

7. For example, investors were provided a definition of the term "going concern" whereas auditors were not. Responses on questions with minor differences were compared to responses to questions without wording changes within and across participant groups to determine whether the slight wording changes altered the response patterns of participants. Results based on means, medians, and variances suggest that auditor and investor response differences are smaller for the set of questions with minor wording differences than for the set of questions without such differences. Thus, we are confident that any overall differences in responses to posed questions are not the result of the minor wording differences observed. The wording of the questions in Tables 3–6 reflect the wording provided to auditors.

8. In untabulated analysis, we find no systematic differences in responses when we compare responses between those who completed the surveys online versus on paper.

Investor participants were knowledgeable, nonprofessional investors. To restrict the participant pool to individuals with a fundamental understanding of financial statements, we required all participants to have a business degree (e.g., accounting, finance, management, etc.). To increase the likelihood that participants had the necessary financial capital to make investment decisions on their own behalf, we required that participants be at least 10 years beyond graduation. By imposing these restrictions on participants, they have equivalent or greater amounts of professional work experience and individual investing experience than participants in prior studies (e.g., Elliott 2006; Frederickson and Miller 2004; Maines and McDaniel 2000). Additionally, the combination of a business degree and significant work experience increases the likelihood that investor participants have experienced an audit as a member of the auditee's management team. In fact, all investors that participated in our follow-up interviews had significant management responsibilities and had observed the audit in their leadership roles. This exposure to the audit process provides our investor participants with insights regarding the definition, measurement, and components of audit quality that are likely more informed than the broad general class of nonprofessional investors. In coordination with a large U.S. university's alumni association, a randomly selected subset of investors from the pool described above was sent an e-mail invitation to participate in the Web-based survey administered by Qualtrics.com. We obtained 102 usable responses from the 243 participants who started the survey, for a completion rate of approximately 42 percent.[9]

Follow-up interviews

To provide additional insights about the survey findings, we performed follow-up interviews with six audit partners from the participating firms and five representative investors. Our interview protocol consisted of seven questions designed to elicit participants' reactions to the survey results.[10] The interview protocol was reviewed by the CAQ, after which phone interviews were organized with the partners and investors. These interviews allowed interviewees to reflect on individual situations, thus avoiding potential biases associated with survey evidence (Nelson et al. 2002).

3. Participants

Audit professionals

Table 1 provides descriptive statistics for the auditor participants, 81 percent of whom were partners and 19 percent senior managers.[11] Eighty-six percent of responses were from auditors currently employed by a Big 4 firm.[12] On average, partners and senior managers

9. For both auditors and investors, we retain any responses in which the participant had responded to at least half of the survey questions. Of the auditor (investor) responses used, 94 percent (96 percent) responded to all scale-based questions. Inferences hold upon keeping only those observations with complete surveys. Instrument available from authors upon request.

10. These interviewees were from the same participating audit firms and investor pool as the participants in the survey, but the interviewees did not complete the survey. Instead, they were provided with summary survey results and were asked to reflect on their own experiences and to react to their colleagues' responses.

11. Auditor demographics were limited to questions approved by the participating firms. In the case of one firm, limited demographic information was provided only at an aggregate level.

12. In untabulated analysis, we find no differences in responses between Big 4 firms and Tier 2 firms with three exceptions in which Big 4 firms (i) associate audit firm size more strongly with higher audit quality than Tier 2 firms ($p < 0.05$); (ii) associate failing to provide a going-concern opinion to a company that subsequently goes bankrupt more strongly with lower quality than Tier 2 firms ($p < 0.05$); and (iii) associate timely completion of fieldwork more strongly with higher quality than Tier 2 firms ($p < 0.05$). Inferences are robust to retaining only responses from Big 4 auditors and we find no consistent evidence of systematic differences in responses *within* the Big 4 firms.

TABLE 1
Demographics—Audit professionals

Title and Tenure	
Partner	81%
Senior Manager	19%
Years in current position	
Partners	11 years
Senior Managers	3 years
Years in public accounting	
Partners	23 years
Senior Managers	11 years
Client Portfolio	
Percent Publicly Traded	67%
Industry Expertise	
Manufacturing	32%
Banking/Finance/Insurance	32%
Retail/Wholesale	22%
Tech (Software/Biotech)	22%
Transportation/Energy	18%
Service/Consulting	11%
Communications/Media	9%
Other	9%
Mining/Construction	6%
Healthcare/Pharmaceutical	6%
Education	
Highest degree obtained	
Bachelor's degree	80%
MBA	14%
Non-MBA Master's degree	6%

Note:

Some percentages add to more than 100 percent because participants could select more than one option.

had held their current title for over 11 and 3 years, respectively, and had total public accounting work experience of more than 23 and 11 years, respectively.

Auditors were asked to identify industries in which they considered themselves audit experts. The two industries most frequently identified were Manufacturing and Banking/Finance/Insurance (32 percent each). Our participant pool also reported expertise in the Retail/Wholesale (22 percent) and Technology (22 percent) industries, with the remaining industries reporting expertise under 20 percent. Based on the data in Table 1, participants have experience performing audits in a wide range of industries.

Investors

Table 2 provides descriptive statistics for investor participants. Approximately 78 percent are between the ages of 41 and 60, an age range that is consistent with Dichev et al. (2013). All participants have undergraduate business degrees and 49 percent have advanced degrees.[13] Participants had worked an average of 24 years and were employed in

13. According to Table 2, approximately 60 percent of our investor participants received an undergraduate degree in accounting and thus it is possible that these participants are fundamentally the same as the auditor participants. In untabulated analysis, we compare responses from investor participants with an undergraduate degree in accounting with responses of participating auditors, and we continue to find systematic differences between the two groups.

TABLE 2
Demographics—Investors

General	
Age	
<30 years old	0%
31–40 years old	15%
41–50 years old	37%
51–60 years old	41%
61–70 years old	6%
>70 years old	1%
Gender	
Male	65%
Female	35%
Education	
Bachelor's in Accounting	60%
Bachelor's in Finance	22%
Bachelor's in Management	2%
Master's in Accounting	13%
Master's in Finance	11%
Master's in Other	5%
MBA Finance	6%
MBA Other	9%
PhD	5%
Employment	
Work Experience (years)	24
Years at Current Job (years)	10
Industry	
Other	16%
Service/Consulting	14%
Transportation/Energy	12%
Public Accounting	12%
Banking/Finance/Insurance	11%
Education	10%
Mining/Construction	7%
Retired	7%
Manufacturing	5%
Retail/Wholesale	2%
Healthcare/Pharmaceutical	2%
Communications/Media	1%
Tech (Software/Biotech)	1%
Unemployed	0%

Investment Patterns	
Read Business Press: mean response 7.01 (on scale of 1-Never to 11-Daily)	
Refer to the audit report for investment decisions	
Always	19%
Most of the time	22%
Sometimes	25%
Rarely	22%
Never	12%
Current Investment Activity	
Retirement Account	94%
Mutual Funds	87%
Stock	84%
Bonds	23%
Primary Investment Vehicles	
Mutual funds	85%
Individual stocks	52%
Corporate bonds	21%
Cash deposits	29%
Money market funds	42%
Derivatives	12%
U.S. Treasury bonds	11%
Other	21%
Financial Statement Evaluation	
The number of companies evaluated using financial information in the past five years:	
0 companies evaluated	11%
1–5 companies evaluated	33%
6+ companies evaluated	56%
Portfolio Value	
Value less than $50,000	7%
Value greater than $50,000	93%

Note:

Some percentages add to more than 100 percent because participants could select more than one option.

a variety of industries, with no single industry being selected by more than 16 percent of participants. As suggested above, our investor participants are more likely to have experienced audits, and the audit process, in the context of their current job responsibilities than the general class of nonprofessional investors.

Because education and job responsibilities do not necessarily equate to investing experience, we also asked a series of questions about actual investing knowledge and experience of our investor participants. On average, our participants read the business press approximately weekly and a high proportion of participants currently invest in individual stocks (84 percent), individual mutual funds (87 percent), and/or a retirement account such as a 401(k) or IRA (94 percent). Approximately 89 percent of investor participants have used financial statement information to evaluate at least one company in the past five years and 93 percent report a total portfolio value of at least $50,000. Because it is possible that investor responses differ based on actual investing experience, we compared responses of auditors and *only* investors who use stock as a *primary* investment tool. We continue to find systematic differences between the two groups using this subsample of investors. Taken together, demographic data from Table 2 indicates that our investor participants are knowledgeable, nonprofessional investors with reasonable investing experience that is equivalent to or greater than that of participants used in prior literature (Elliott 2006; Frederickson and Miller 2004; Maines and McDaniel 2000).

4. Definitions and measures of audit quality

We asked participants to provide up to four definitions of audit quality, as well as how each definition could be practically measured. We received 197 responses. After reviewing the responses, the author team created 18 categories for definitions of audit quality and used two independent raters to assign all responses among these categories. The Cohen's Kappa measure was 0.64, an agreement level that is significantly different from zero ($p < 0.01$) and indicates acceptable inter-rater agreement.[14] Raters resolved all differences, and reported results represent raters' consensus.

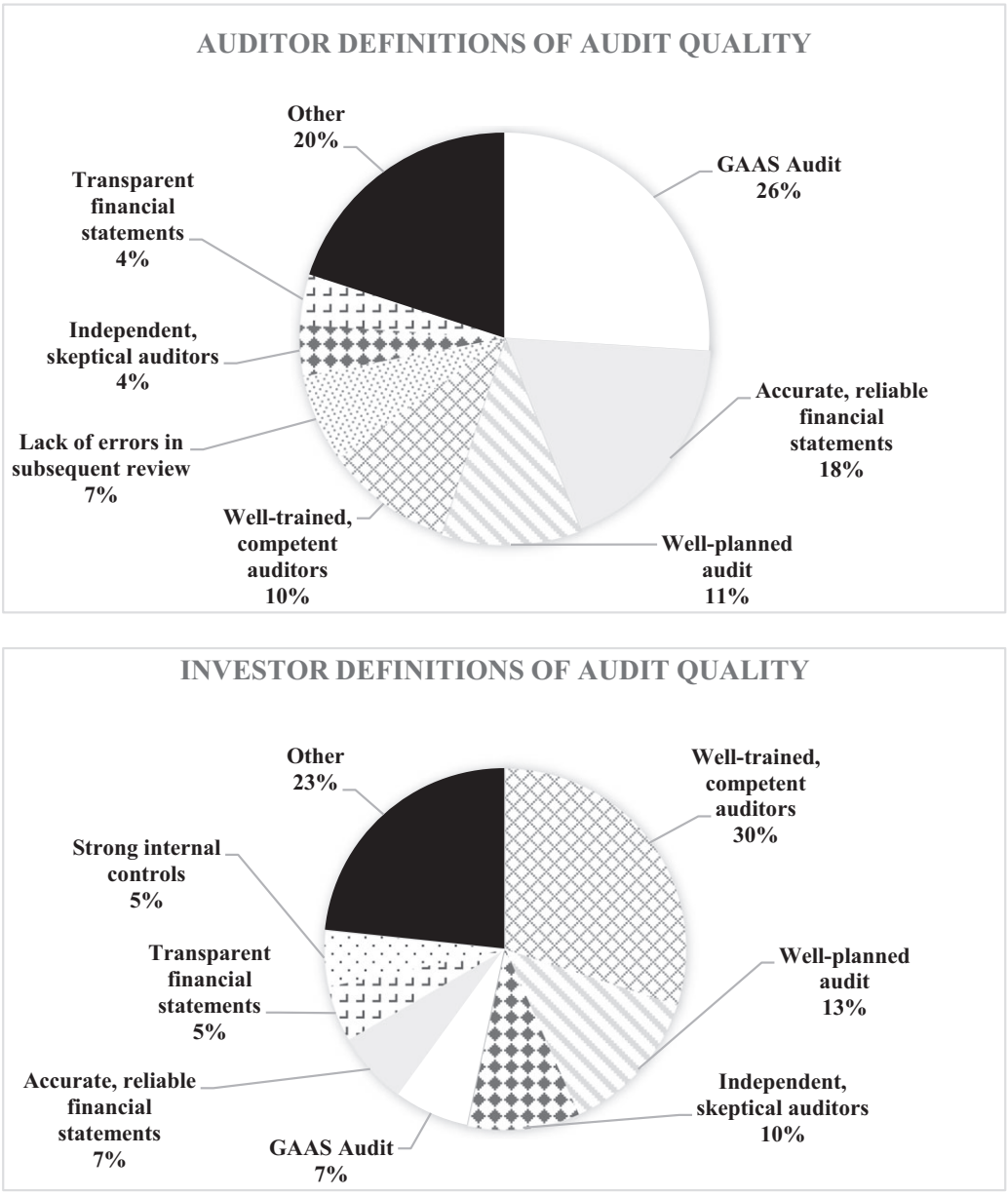
Figure 2 presents auditors' and investors' most frequent definitions of audit quality as a percent of each group's total responses. Several differences are noticeable between participant groups, thus highlighting portions of the gap between auditors' and users' expectations of the audit process (e.g., Church et al. 2008). First, while both groups include definitions related to the *inputs* and *processes* portions of the audit quality framework, this is especially apparent in investors' responses, as more than *half* of investors' definitions refer to the *inputs* and *processes* portions of the framework. Investors' most frequent definition of audit quality relates to having well trained, competent auditors (including specialists, where necessary), which could be measured by auditor experience, inspection results, and the size of the audit firm. This definition, as well as investors' second, third, and fourth most frequent definitions (a well-planned audit; one performed by independent, skeptical auditors; and a GAAS-compliant audit), consistently relate to the *inputs* and *processes* portions of the audit quality framework.[15]

In response to investors' focus on well-trained, competent auditors, one partner interviewee stated, "[investors] and audit committee members want to know: Who is on the

14. According to Neuendorf (2002), a Kappa measure between 0.40 and 0.70 is acceptable, while above 0.80 is ideal. The eight categories included in Figure 2 capture 79 percent of participant responses. The remaining 21 percent of responses are spread over the following 10 categories, each of which was mentioned five or fewer times: the appropriate audit opinion; communication between auditor and audit committee; timely completion of the audit; audit fee; within-firm review; audit firm's tone-at-the-top; frequency of firm turnover; management follows audit recommendations; constructive interaction with management; and quality of client's accounting staff.

15. Investor participants suggest that a well-planned audit could be measured by client industry complexity and auditing all material balances. They also suggested that independence and skepticism could be measured by nonaudit fees and auditor rotation. Investors' connection between nonaudit fees and a perceived lack of auditor independence is consistent with Schmidt (2012). Investors suggest that GAAS-compliant audits could be measured by auditor expertise, training, and results from external inspections.

Figure 2 Definitions of audit quality



Note:

Participants were asked to provide up to four definitions of audit quality and how they would measure each definition. Percentages above are based on the number of times a participant mentioned each definition, divided by total count of responses provided for each group. Only the seven most frequent definitions are provided for each group, because subsequent definitions were not mentioned frequently enough to be meaningful.

team? Do we have the right team? Do they have the right experience? Don't tell me about GAAS; tell me about the team." An investor interviewee echoed this view, stating that he had noticed "significant variability" in the skill of individual auditors auditing his com-

pany. In contrast, an audit partner expressed skepticism about this investor viewpoint, stating that "you can have the right staffing levels, training and expertise, but I'm not convinced that automatically translates into audit quality." This partner went on to state that "[you] have to combine [those team characteristics] with performing the audit in accordance with GAAS. Compliance with GAAS is the minimum requirement, but the quality of the audit can be improved by increasing the quality of the staff through additional training, expertise, etc."

Although auditors' most frequently mentioned definition (GAAS-compliant audits) also focuses on *inputs* and *processes*, audit professionals appear to focus more than investors on the *outputs and opinion* portion of the framework in defining audit quality.[16] Auditors' second and fifth most frequent definitions are accurate and reliable financial statements on which the public can rely, and lack of errors identified in subsequent review.[17] Thus, auditors emphasize factors related to the *inputs* and *processes* portions of the general framework, over which they have the greatest control, but also factors related to the end product of the audit by which they are judged. Finally, several smaller differences are evident in Figure 2. Investors appear to be more concerned with the need for auditor independence, an issue consistent with concerns recently voiced by regulators (Franzel 2012). Additionally, although 5 percent of investors mention a strong internal control environment as a definition of audit quality, auditors do not frequently mention internal control, which is not unexpected because auditors evaluate but do not directly control auditees' internal control environments.

Based on responses to our first research question, we conclude that both audit professionals and investors heavily weight the *inputs* and *processes* portions of the general framework in audit quality definitions; however, auditors place more weight on the outputs by which they are judged than do investors when defining audit quality. Currently, there are numerous measures of audit *outputs* available to financial statement users but very few audit *inputs* and *processes* measures. While participants suggest some publicly observable measures of *inputs* and *processes*, most suggested measures are not currently available to financial statement users. The limited number of observable measures of inputs and processes provides support for the suggested disclosure of audit engagement team characteristics (Knechel et al. 2013).

5. Attributes of audit quality

Tables 3–5 report audit professionals' and investors' responses to questions about how the quality of a specific audit engagement is impacted by various audit environment characteristics. Many of these characteristics are being considered by the PCAOB as audit quality indicators (PCAOB 2013); see Appendix 1 for a mapping of summary findings to PCAOB-proposed audit quality indicators. Based on consultations with audit professionals and on our understanding of the audit function, the characteristics listed were sorted into three groups, each of which relates to a different aspect of the audit: (i) the audit engagement (e.g., inspection results), (ii) resources available to the audit team (e.g., sufficiency of staffing), and (iii) the audited entity (e.g., accruals). Participants were asked to evaluate the extent to which a characteristic relates to audit quality by marking their response on an 11-point Likert scale anchored by "Lower Audit Quality" (1) and "Higher Audit Quality" (11)

16. Participants suggest this definition can be measured by the results of internal and external review and inspection, lack of future restatements, and individual auditor expertise.

17. Participants suggest these definitions can be measured by restatements, SEC action in subsequent years, auditors' correct identification of risks, number of Part 1 PCAOB comments, and results from other inspections.

TABLE 3
Examining the attributes of audit quality: Characteristics of the audit engagement

For each statement below, how is the audit quality of a specific engagement impacted by...

Question	Attribute	Auditors' average score[a]	Investors' average score[a]	Auditor versus Investor [b]
Audit firm size				
3.1	...the entity being audited by a U.S. audit firm with a strong global network?	9.40*** $N = 92$	7.47*** $N = 102$	$p < 0.01$ $F = 64.46$
The audit report				
3.2	...the audited entity receiving an unqualified opinion?	6.82*** $N = 93$	7.28*** $N = 102$	$p = 0.06$ $F = 3.56$
3.3	...issuing a clean audit opinion if the audited entity files for bankruptcy within the subsequent 12 months?	5.43*** $N = 90$	4.00*** $N = 102$	$p < 0.01$ $F = 24.84$
3.4	...adding a going-concern paragraph to the audit opinion when the audited entity does not file for bankruptcy within the subsequent 12 months?	6.94*** $N = 93$	7.08*** $N = 102$	$p = 0.60$ $F = 0.27$
Review and inspection results				
3.5	...fewer audit deficiencies identified during real-time internal quality review?	8.33*** $N = 93$		
3.6	...the internal quality reviewers identifying fewer deficiencies for the engagement?	7.97*** $N = 93$	7.48*** $N = 102$	$p = 0.06$ $F = 3.55$
3.7	...the peer-review firm identifying fewer deficiencies for the engagement?	8.12*** $N = 93$	8.05*** $N = 101$	$p = 0.79$ $F = 0.07$
3.8	...the PCAOB inspectors generating fewer matter sheets for the engagement?	8.15*** $N = 93$	7.52*** $N = 101$	$p = 0.02$ $F = 5.15$
Timeliness of audit procedures				
3.9	...the timeliness of completing audit planning procedures?	8.74*** $N = 92$		
3.10	...the timeliness of completing audit field work?	8.85*** $N = 93$		
Other				
3.11	...the lack of eventual lawsuits filed due to the work performed to support an audit opinion?	6.60*** $N = 93$	6.86*** $N = 100$	$p = 0.33$ $F = 0.93$
3.12	...the payment of reasonable audit fees to the auditor?	7.78*** $N = 93$	7.17*** $N = 102$	$p = 0.04$ $F = 4.26$

Notes:

[a] Mean values are tested against the scale's midpoint of 6. ***, ** and * indicate the mean is statistically different from the midpoint at $p < 0.01$, $p < 0.05$ and $p < 0.10$ respectively. Scale bounded by Lower Audit Quality (1), Higher Audit Quality (11), with a midpoint of Not Related (6).

[b] Results from a one-way ANOVA comparing the mean values of each question across auditors and investors. In situations where the question was not asked to both groups, the appropriate boxes are blank.

TABLE 4
Examining the attributes of audit quality: Resources available for the audit team

For each statement below, how is the audit quality of a specific engagement impacted by...				
Question	Attribute	Auditors' average score[a]	Investors' average score[a]	Auditor versus Investor [b]
Engagement team qualifications				
4.1	...the sufficiency of engagement team staffing?	10.02*** $N = 93$	8.80*** $N = 102$	$p < 0.01$ $F = 38.03$
4.2	...having well-trained auditors on the engagement team?	10.14*** $N = 93$	9.66*** $N = 102$	$p < 0.01$ $F = 10.72$
4.3	...having auditors on the engagement team with the appropriate expertise (e.g., industry expertise, experience in specific transactions, forensics, etc.)?	9.82*** $N = 93$	9.88*** $N = 102$	$p = 0.67$ $F = 0.18$
Consultations and other				
4.4	...the number of hours billed by engagement review partners?	7.63*** $N = 93$		
4.5	...the number of consultations with the national office?	7.14*** $N = 93$		
4.6	...the number of consultations with external experts?	6.77*** $N = 93$		
4.7	...the number of consultations with internal specialists?	7.68*** $N = 93$		
4.8	...achieving expected levels of engagement profitability?	6.23 $N = 92$	5.88 $N = 102$	$p = 0.12$ $F = 2.40$

Notes:

[a] Mean values are tested against the scale's midpoint of 6. ***, ** and * indicate the mean is statistically different from the midpoint at $p < 0.01$, $p < 0.05$ and $p < 0.10$, respectively. Scale bounded by Lower Audit Quality (1), Higher Audit Quality (11), with a midpoint of Not Related (6).

[b] Results from a one-way ANOVA comparing the mean values of each question across auditors and investors. In situations where the question was not asked to both groups, the appropriate boxes are blank.

with a midpoint of "Not Related" (6).[18] We compare auditor and investor responses using ANOVA and compare each group's mean response to the midpoint using *t*-tests.[19] We use

18. As with any analysis using a Likert scale, there is the potential that some individual participants will misunderstand the question and respond on the opposite end of the scale from the rest of the group. Upon review of the data, it appears that several individual participants did misunderstand certain questions; their responses were reversed relative to the majority of participants. However, there did not appear to be an identifiable group of participants who misinterpreted all questions. Using factor analysis, we found that 95 percent of auditors and 96 percent of investors treated the Likert scales in the same manner, providing evidence that the scales were not broadly misinterpreted.

19. By necessity, each question is analyzed individually because each question is a different dependent variable. However, the number of tests performed possibly raises concerns about spurious results. We use MANOVA on all 18 questions from Tables 3–5 in which auditors' and investors' responses are compared. Overall responses from the two groups are significantly different ($p < 0.01$), providing evidence that differences identified in individual questions are not spurious. We augment our analysis by testing median responses for each question between auditors and investors. We continue to find significant differences between groups using these alternative (nonparametric) tests.

TABLE 5
Examining the attributes of audit quality: Characteristics of the audited entity

For each statement below, how is the audit quality of a specific engagement impacted by...

Question	Attribute	Auditors' average score[a]	Investors' average score[a]	Auditor versus Investor[b]
Accruals				
5.1	...the audited entity's historical conservatism reflected in recording reserves (compared to industry peers)?	6.89*** $N = 93$	6.62*** $N = 101$	$p = 0.19$ $F = 1.69$
Subsequent outcomes				
5.2	...the lack of financial statement restatements by the audited entity related to the period in question?	7.87*** $N = 93$	7.32*** $N = 102$	$p = 0.03$ $F = 5.00$
5.3	...the lack of SEC enforcement actions against the audited entity for reporting or disclosure deficiencies related to the period in question?	7.66*** $N = 93$	7.26*** $N = 102$	$p = 0.16$ $F = 2.00$
5.4	...the lack of subsequent discovery of significant accounting fraud and/or misrepresentation in the audited financial statements?		7.30*** $N = 102$	
Committee meetings				
5.5	...the number of formally planned audit committee meetings per year?	7.65*** $N = 92$	7.11*** $N = 102$	$p = 0.03$ $F = 4.93$
5.6	...the number of formally planned board of directors meetings per year?	6.58*** $N = 93$	6.19 $N = 102$	$p = 0.06$ $F = 3.47$

Notes:

[a] Mean values are tested against the scale's midpoint of 6. ***, ** and * indicate the mean is statistically different from the midpoint at $p < 0.01$, $p < 0.05$ and $p < 0.10$ respectively. Scale bounded by Lower Audit Quality (1), Higher Audit Quality (11), with a midpoint of Not Related (6).

[b] Results from a one-way ANOVA comparing the mean values of each question across auditors and investors. In situations where the question was not asked to both groups, the appropriate boxes are blank.

factor analysis to validate our question groupings as well as provide evidence regarding the correlation of the individual attributes of audit quality. As detailed in Appendix 2, this analysis of auditors' (investors') responses provides nine (six) distinct key indicators of audit quality, supporting the multifaceted nature of audit quality. We reference these factors as needed in presenting our results. We do not discuss each question in the text; rather, we focus on questions that highlight important differences and similarities between groups.

Characteristics of the audit engagement: Audit firm size

Question 1 in Table 3 (question 3.1) asks participants to indicate whether being audited by a U.S. audit firm with a strong global network affects audit quality. In response, audit professionals indicated that larger audit firms are associated with higher audit quality (mean score of 9.40 on the 11-point scale).[20] Although we acknowledge that auditor par-

20. Unless otherwise noted, all mean scores are significantly different from the midpoint of 6, indicating a significant association with higher or lower audit quality.

ticipants' professional association with larger firms likely skews their responses on this issue, it is important to note that investors *also* associated strong global networks with higher audit quality (mean score of 7.47), albeit at a significantly lower level than auditors ($p < 0.01$). Although prior research has used firm size as a proxy for audit quality (e.g., Francis et al. 1999; Kim, Chung, and Firth 2003), Lawrence, Minutti-Meza, and Zhang (2011) attribute the Big 4 effect to client characteristics instead of audit firm size. Our survey responses support a recent working paper by DeFond, Erkens, and Zhang (2014), which indicates that firm size is crucial in achieving a high-quality audit, *especially* at larger clients. One partner suggested that "by definition the firm would have to be large to perform a quality audit of a large organization ... because only a few firms can actually have the resources and ability to audit the largest companies that are located in multiple jurisdictions." Both audit professionals' and investors' responses support academics' use of audit firm size as a proxy for audit quality and provide one publicly observable measure for an element from the *inputs* portion of the audit quality framework.

Characteristics of the audit engagement: The audit report

Questions 3.2–3.4 address the association between audit quality and the audit opinion. Responses to question 3.3 indicate that on average, both audit professionals and investors associate the issuance of an unqualified audit opinion to a client that subsequently files for bankruptcy (Type 2 error) with *lower* audit quality (mean scores of 5.43 and 4.00, respectively), with investors' responses significantly stronger than audit professionals' ($p < 0.01$). Regarding Type 1 misidentification errors, in which a going-concern paragraph is included in the audit report and the client does not file for bankruptcy in the subsequent period, both audit professionals (mean score of 6.94) and investors (mean score of 7.08) associate this situation with *higher* audit quality. This result suggests that conservative auditors are viewed in a positive light. Therefore, future research may need to incorporate investors' view that audit quality is not impaired when a firm issues a going-concern warning that is not followed by client bankruptcy.

Keeping in mind the low base rate of going-concern opinions (Francis 2011), responses to questions 3.3 and 3.4 relate to the *outputs and opinion* portion of the audit quality framework and provide some support for using going-concern opinions (or the lack thereof) as a proxy for audit quality (Lennox 1999). Prior research providing evidence that going-concern reports are associated with negative stock price reactions (Menon and Williams 2010) is consistent with investors' relatively heavier weight on the association between going-concern issuance and audit quality. Investors' stronger association between Type 2 going-concern errors and lower audit quality highlights another source of the expectations gap between auditors and investors. Recently proposed changes by the FASB to require management to take a more active role in signaling going-concern difficulties may help to better align these expectations (FASB 2014).

Characteristics of the audit engagement: Review and inspection results

The most direct evaluation of an audit engagement's quality occurs during the iterative review process, which begins with real-time reviews during the audit (PCAOB 2004); continues with internal firm review performed by the engagement review partner (PCAOB 2009) and possible additional internal quality control review; and concludes with external reviews by peer firms and/or the PCAOB. Deficiencies identified during the review process indicate a departure from standards and, hence, lower audit quality. Questions 3.5 through 3.8 relate to the *processes* and *post-opinion* portions of the general audit quality framework. In response to these questions, both audit professionals and investors associate fewer review deficiencies at each step of the audit review process with higher audit quality (mean scores greater than midpoint at $p < 0.05$). These questions are significantly

TABLE 6
Examining the association between PCAOB reports and firm-wide audit quality

To what extent is the quality of an audit firm as a whole impacted by...	Auditors' average score[a]	Investors' average score[a]	Auditor versus Investor[b]
...having fewer total Part One comments in PCAOB inspection reports?	6.99*** $N = 93$	7.90*** $N = 101$	$p < 0.01$ $F = 19.22$

Notes:

[a] Mean values are tested against the scale's midpoint of 6. ***, ** and * indicate the mean is statistically different from the midpoint at $p < 0.01$, $p < 0.05$ and $p < 0.10$, respectively. Scale bounded by Lower Audit Quality (1), Higher Audit Quality (11), with a midpoint of Not Related (6).

[b] Results from a one-way ANOVA comparing the mean values of each question across auditors and investors.

correlated with each other ($r \geq 0.45$, $p < 0.01$, untabulated), and load together on the same factor for both groups (see Appendix 2). Only in the case of PCAOB reviews did auditors place greater weight on the association between the review process and audit quality than investors ($p < 0.05$).[21] One investor explained the difference as follows: "clients are not named in inspection reports and thus [the information is] potentially less useful to investors" in identifying engagement-specific audit quality. From another point of view, one partner interpreted this difference between auditors and investors as meaning that "investors aren't as concerned about the PCAOB inspection process as we the partners are," potentially because inspection results play a role in partners' performance evaluation and compensation. As shown later in Table 6, this difference between investors and auditors reverses when considering PCAOB deficiencies and *firm-wide* audit quality; the inspected *audit firm* is named in the inspection report, suggesting that the reports provide useful information to investors when considering firm-wide audit quality. These survey results provide initial evidence regarding the effect of PCAOB inspections on perceived audit quality at large audit firms (DeFond and Zhang 2014).

Characteristics of the audit engagement: Timeliness of procedures

The PCAOB's standard on audit planning (PCAOB 2010b) states that audit planning is not a "discrete" event but rather a process that takes place from the completion of the prior year's audit through the completion of the current year's audit (AS 9 ¶4). The majority of the planning procedures, however, are performed before fieldwork commences and are adjusted as necessary. Responses to question 3.9 relate to audit *processes* and suggest that audit professionals strongly associate timely completion of planning procedures with

21. In an untabulated within-subjects analysis, we compare the mean scores among the varying levels of review to determine whether certain types of review are more strongly associated with audit quality than others. We find that audit professionals indicate that real-time review (mean value 8.33) has the strongest association with audit quality, although only statistically different from the more formal internal quality review, in which audit engagements are selected for review by the firm's national office (mean score 7.97; different at $p = 0.04$). Among investors, we find that peer review has the strongest association with audit quality (mean score of 8.05) and that this association is significantly stronger than either internal quality review ($p < 0.01$) or PCAOB review ($p < 0.01$).

higher audit quality (mean score of 8.74), consistent with PwC's recent emphasis on the timely completion of audit planning (PwC 2014). Provided that timely planning signals appropriately analyzed client risks and that audit procedures were selected to address those risks, disclosure of such information, either by the firms or by the PCAOB, may provide valuable information about audit quality to financial statement users.

Audit professionals on average also associate timely completion of audit *fieldwork* with higher audit quality (question 3.10, mean score of 8.85). One partner we interviewed specifically mentioned time pressure as an impediment to audit quality, stating that "[when I speak of time pressure as an impediment to audit quality], I'm talking about the findings or the need for information that comes right at the end ... and there's a lot of pressure from management, and with some clients from the audit committee, in my opinion, to go ahead and sign the audit opinion without getting that evidence." Therefore, to the extent that fieldwork can be completed before time pressure becomes severe, audit quality may increase. These responses are consistent with and supportive of prior research investigating the extent to which time and budgetary pressure reduce audit quality, including Agoglia et al. (2010), Bronson, Masli, and Schroeder (2014), Coram et al. (2003), Glover, Hansen, and Seidel (2015), Houston (1999), Lambert et al. (2014), López and Peters (2012), and McDaniel (1990).

Characteristics of the audit engagement: Other

Finally, question 3.12 addresses the association between audit fees and audit quality. All else constant, auditors' compensation must be sufficient to allow for adequate audit effort to gather sufficient audit evidence to justify the audit opinion (Messier, Glover, and Prawitt 2014; PCAOB 2010a; Simunic 1980). Audit professionals indicated a positive association between reasonable audit fees and audit quality, and their mean response is significantly higher than that of investors (mean scores of 7.78 and 7.17, respectively, different at $p < 0.05$). While the payment of higher audit fees does not always ensure higher audit quality, participants' responses suggest that reasonable fees tend to be associated with higher quality.

In summary, results documented in Table 3 indicate that audit firm size, accurate and conservative audit opinions, fewer identified audit deficiencies, timely completion of audit planning and fieldwork, and adequate audit fees are indicators of higher audit quality. These indicators relate to all four areas of the audit quality framework. While groups generally agree on the direction of the relationship between these indicators and audit quality, the *strength* of the relationship frequently differs between the two groups.

Resources available for the audit team: Engagement team qualifications

While Table 3 provides responses to questions regarding characteristics of the audit engagement as a whole, Table 4 provides responses to questions examining specific resources available to the engagement team. These characteristics also relate closely to the *inputs* and *processes* portions of the audit framework. In response to question 4.1, both audit professionals and investors strongly identify adequate team staffing as a prerequisite to high audit quality (mean responses of 10.02 and 8.80). While perhaps not surprising, given the wording of the question, interview participants from both groups emphasized the importance of staffing levels and staff characteristics, and results support prior research investigating adequate staffing of audit teams (Bonner 1990; Griffin and Ricchiute 2011). Question 4.2 addresses the association between audit quality and having well-trained auditors. Both audit professionals (mean score of 10.14) and investors (mean score of 9.66) associate having well-trained auditors with higher audit quality, consistent with recent archival research on auditor training (Van Linden and Willekens 2013). Finally, both audit professionals (question 4.3, mean score of 9.82) and investors (mean score of 9.88)

strongly associate industry-based or transaction-based auditor expertise with higher levels of audit quality.[22]

Questions 4.1 through 4.3 are strongly correlated with each other ($r \geq 0.23$, $p < 0.01$, untabulated) and relate to individual characteristics of the audit engagement team. Both groups overwhelmingly link these individual characteristics to audit quality, supporting findings from prior literature that additional expertise leads to higher audit quality overall (e.g., Bedard 1989; Hammersley 2006; Low 2004; Owhoso, Messier, and Lynch 2002; Taylor 2000; Wright and Wright 1997). Given large audit firms' historical ability to attract students from the best accounting programs (Dopuch and Simunic 1982; Stern 2011), our survey results help provide one potential explanation for *why* audit firm size is associated with higher audit quality (DeFond and Zhang 2014). Our findings are also consistent with accounting firms' recent emphasis on key *inputs* to the audit process (CAQ 2012; KPMG 2011) and PwC's disclosure of firm-level data on overtime hours and turnover rates (PwC 2014).

Interviews with investors generally echoed responses from the survey. One investor stated that "audit quality is driven by the individuals," while another stated that "industry-specific expertise is the primary characteristic" that drives audit quality at the individual auditor level. Members of the PCAOB's Investor Advisory Group recently reported that investors strongly recommend the disclosure of audit quality indicators at the engagement team level (PCAOB 2014a). Our results provide evidence that individual auditor characteristics are viewed as an important determinant of audit quality and provide support for the disclosure of engagement team characteristics. One partner indicated that these characteristics could be "reported without embarrassing anybody," while several partners we interviewed suggested that making the disclosures comparable would be difficult because "each engagement really is unique ... and potentially has different staffing needs and requirements." As an alternative, one partner suggested that perhaps firms could disclose "a description of the process by which the sufficiency of an engagement team is evaluated" by the firm itself, a suggestion that is consistent with one firm's willingness to disclose more information regarding their own internal quality monitoring programs (PwC 2013). Another partner suggested that instead of disclosing information about the entire engagement team, the disclosure could perhaps be limited to characteristics related to the engagement team's senior leadership (e.g., partners, senior managers).

What is clear from the survey and interview results is that while auditor characteristics are an important determinant of audit quality, the currently available information on auditor or engagement team characteristics is extremely limited, and additional disclosure could be useful to financial statement users. While there appears to be little support for disclosure of individual characteristics for *all* members of the engagement team, responses indicate that disclosing some characteristics of the engagement team (e.g., staffing) as well as characteristics of engagement team leaders (e.g., industry expertise) would be useful to investors. The suggested disclosures provide information consistent with investors' input-focused audit quality definitions from Figure 2. Because of the exploratory nature of our study, we encourage future research to analyze the specific aspects of staffing and engagement team characteristics (e.g., partner-to-staff ratios) that would be most useful to users of financial statements, as well as establish connections between audit inputs and currently available audit outputs (e.g., restatements).[23]

22. The fact that the vast majority of our investor participants highlight the importance of individual auditor characteristics in determining audit quality further suggests that our participants have likely experienced the audit process as an auditee and are not naïve investors.

23. In a recent working paper, Buchheit and Buslepp (2014) examine the effect of client-to-staff ratios on audit quality using firm-level disclosures for triennially inspected firms.

Resources available for the audit team: Consultations

In addition to the characteristics of the engagement team, input from sources such as engagement review partners, national office partners, external experts, and internal audit firm specialists are potentially important to the *processes* portion of the audit quality framework.[24] Audit standards require audits to be reviewed by an engagement quality review partner (EQRP) with the necessary expertise to understand the client but who is not directly responsible for, or involved in, the day-to-day activities of the audit engagement (PCAOB 2009, AS 7 ¶2). Responses to question 4.4 indicate that on average, audit professionals associate involvement by the EQRP with higher audit quality (mean score of 7.63). Engagement teams may also contact the firm's national office for guidance on technical auditing and accounting matters, and audit professionals on average suggest that national office consultations also play a role in achieving higher audit quality (mean score of 7.14). This response contrasts with views from CFOs, who are concerned that increased involvement of the national office reduces the willingness of local engagement team members to exercise independent judgment, creating a situation that potentially *reduces* audit quality (Dichev et al. 2013). Given that these CFOs experienced the audit process from the auditees' perspective, the net effect of national office involvement on audit quality is unclear. Thus, the results of these two studies suggest additional research on national office consultations and their effect on audit quality is warranted.

Finally, questions 4.6 and 4.7 address the effect of involving external experts and internal specialists, respectively, on audit quality.[25] Because of the increased prevalence of complicated fair value estimates, specialists are increasingly used on audit engagements (Cannon and Bedard 2014; Glover, Taylor, and Wu 2015b). Audit professionals associate the use of both external experts and internal specialists with higher audit quality (mean responses 6.77 and 7.68, respectively); however, mean responses are significantly different ($p < 0.01$, untabulated). Thus, consulting with internal specialists is preferred to consulting with external specialists.

In summary, the results presented in Table 4 indicate that both groups associate characteristics of the individual audit team such as staffing levels, training, and expertise with higher audit quality. Additionally, audit professionals generally associate consulting with individuals outside the core audit engagement team with higher audit quality, although consulting within the firm is viewed more favorably than consulting outside of the firm. These indicators of higher audit quality relate to both the *inputs* and the *processes* portions of the audit quality framework but are *not* generally observable by investors, creating an information asymmetry between audit professionals and investors. Although survey and interview results indicate some suggestions for reducing this asymmetry via disclosure, future research that investigates the specific nature, adequacy, and avenues for such disclosures would prove useful.

Characteristics of the audited entity: Accruals

In contrast to the focus of Tables 3 and 4 on characteristics and resources of the engagement team, Table 5 examines whether characteristics of the *audited entity* are associated with higher or lower audit quality. Question 5.1 addresses the entity's financial reporting quality as measured by accruals. The level of an entity's discretionary accruals is often used to proxy for earnings quality (see Dechow, Ge, and Schrand 2010 for a review) and

24. Because of the specialized nature of these external advisors, we did not pose these questions to investors.

25. An alternative interpretation of questions 4.4–4.7 could suggest that the need for consultations could signal *decreased* audit quality. However, fewer than 6 percent of respondents indicated these consultations were associated with lower audit quality, thus this interpretation is not commonly held by auditor participants.

lower discretionary accruals has been associated with higher audit quality in prior research (Balsam, Krishnan, and Yang 2003; Francis and Michas 2012; Francis and Yu 2009; Francis et al. 1999; Kim et al. 2003; Myers, Myers, and Omer 2003). Consistent with this literature, we find that audit professionals and investors, on average, indicate that conservative reserve balances are associated with *higher* audit quality (mean scores of 6.89 and 6.62, respectively). While the groups' responses are not significantly different ($p > 0.10$), the factor analysis in Appendix 2 indicates that auditors identify conservative accruals as a *unique factor* of audit quality, while investors group conservative accruals with other outcome measures such as restatements and AAER frequency. Therefore, while our results provide some support for prior research using accruals as a proxy for audit quality, auditors' responses indicate that conservative accruals capture a single facet of audit quality, but not the entire construct. This result supports the triangulation argument (i.e., using multiple measures of audit quality) made by DeFond and Zhang (2014).

Characteristics of the audited entity: Subsequent outcomes

Because of data limitations, many audit quality studies focus on publicly observable outcomes related to the audited entity. Questions 5.2 through 5.4 address three of these outcomes: restatements, SEC enforcement actions (AAERs), and fraud. Responses to these questions provide evidence on the *outputs and opinion* portion of the audit quality framework.

Question 5.2 addresses the association between audit quality and the lack of future restatements. The majority of auditors and investors indicate that the absence of future financial statement restatements indicates higher audit quality (mean responses of 7.87 and 7.32, respectively); however, the association is weaker for investors ($p = 0.03$) than auditors. In follow-up interviews, partners agreed with these results, stating that using restatement trends as an indicator of audit quality "is not 100 percent perfect, but it's a fairly good indicator as to whether or not audit quality is improving."[26] Similarly, AAER's have been used in prior research to proxy for extremely low audit quality (Carcello and Nagy 2004; Lennox and Pittman 2010a). Responses indicate that auditors and investors report that a lack of SEC enforcement actions indicates higher audit quality (mean responses of 7.66 and 7.26, respectively). In untabulated results, we find that for auditors, the association between SEC enforcement actions and audit quality is significantly *lower* than the association between restatements and audit quality ($p = 0.05$), which is surprising given the potentially more severe consequences of AAERs. Consistent with commentary in DeFond and Zhang (2014), one partner attributed this difference to the infrequent occurrence of AAERs: "Very few partners ever deal with an SEC enforcement action, but almost every [partner], at some time in their career, has dealt with a restatement or two."

Finally, question 5.4 addresses the association between the lack of future *fraud* identification and audit quality. Consistent with responses regarding restatements and SEC enforcement actions, investors associate the lack of future fraud identification with higher audit quality (mean score 7.30). The fact that investors' average response regarding fraud is not stronger is somewhat surprising considering investors' high expectations of auditors to identify fraud (Hogan, Rezaee, Riley, and Velury 2008; McEnroe and Martens 2001). While restatements, AAERs, and fraud are strong indicators of lower audit quality, it is important to keep in mind that these events are frequently not known until years later, potentially limiting the ability of these ex post signals to inform investors' investment decisions. In addition, because of the binary nature of these outcomes they provide little information on the variability in audit quality.

26. We further discuss restatements as a signal of audit quality in section 7.

Characteristics of the audited entity: Committee meetings

The final two questions in Table 5 address the association between audit quality and the number of audit committee and board of directors meetings held by the audited entity each year, which, at least in the case of audit committee meetings, relates to the *processes* portion of the audit quality framework. Audit committees are receiving increasing attention from regulators, researchers, and the financial press (PCAOB 2012b,c; Weil 2012) and audit committee oversight is generally viewed as an important component of the audit process. Both audit professionals and investors agree with this view and indicate a positive association between the number of audit committee meetings and audit quality (mean scores 7.65 and 7.11, respectively). However, investors' mean response is significantly different from auditors' ($p < 0.05$). Investors' views about audit committees are consistent with recent concerns about the lack of transparency into audit committees' role in the audit process (CAQ 2013b,c). Auditors' and investors' association between the number of *board of directors* meetings and higher audit quality is positive, but investors' mean score is not significantly different from the midpoint. Responses to questions 5.5 and 5.6 indicate important differences between audit professionals' and investors' views about the impact that audit committee and board meetings have on the *processes* portion of the audit quality framework.

In summary, results in Table 5 indicate that financial statement outcomes and governance structures are relevant in evaluating audit quality and relate to both the *processes* and the *outputs and opinion* portions of the audit quality framework. In general, discretionary accruals, the lack of restatements, and the lack of SEC enforcement actions and their association with audit quality is consistent between the two groups and provides substantial support for earlier research using these measures as indicators of the output-related aspect of audit quality. These measures also indicate some overlap between the constructs of financial reporting quality and audit quality. While the groups' responses are consistent in most respects, we note that the difference of opinions regarding the importance of audit committees is consistent with concerns recently raised regarding the lack of investor insight into the role the audit committee plays in the audit process (CAQ 2013b,c).

6. PCAOB inspections and audit firm quality

The results from Tables 3–5 relate to the quality of an individual audit engagement. However, financial statement users, audit committees, and regulators are also interested in audit firm quality *as a whole*. To this end, the PCAOB's board and inspection staff has access to information that potentially provides indicators of audit *firm* quality. PCAOB communications about regulatory oversight, inspection and enforcement processes and findings, and how these communications relate to audit quality has been the focus of numerous research studies (Abernathy, Barnes, and Stefaniak 2013; Carcello, Hollingsworth, and Mastrolia 2011; Church and Shefchik 2012; DeFond 2010; Glover, Prawitt, and Taylor 2009; Glover, Taylor, and Wu 2015b; Glover, Prawitt, and Drake 2015; Griffith, Hammersley, and Kadous 2015; Lennox and Pittman 2010b).

In a release to Audit Committee members on the purpose of PCAOB inspection reports, the PCAOB states that "the Board ... cautions against judging the relative quality of firms' audit practices solely based on the number of deficiencies described in the public portions of inspection reports" (PCAOB 2012b, 3). Thus, the PCAOB warns that the number of deficiencies reported in their inspection reports should not be used as a measure of overall audit firm quality. Several partners reiterated this stance in their interviews, with one stating that the sample of engagements selected for inspection by the PCAOB "doesn't start as a representative sample, it doesn't purport to be a representative sample, and we know it doesn't end up as a representative sample." Another partner stated, "it's very

tempting to do a simple deficiency count across Part 1 findings ... and in the absence of other metrics it's tempting to do that. However, it's potentially very misleading as a result of how the inspection process works and how the engagements are selected."

Participants' responses in Table 6 indicate that in spite of the PCAOB's warning, the majority of audit professionals and investors associate fewer deficiencies listed in PCAOB Part 1 inspection reports with higher audit firm quality. The mean response for investors (7.90) was significantly higher ($p < 0.01$) than the mean response for auditors (6.99), indicating that investors place greater weight on Part 1 reported deficiencies than intended by the PCAOB.[27] While prior research finds that PCAOB inspections do not impact audit firms' market shares (Lennox and Pittman 2010b), and thus may not impact *audit committees*' retention decisions, interviews generally confirmed that, on the margin, investors view PCAOB inspection reports as a valid signal of audit firm quality. However, one investor voiced concern that in his management role, he observed auditors "perform a quality audit and then add more work just out of fear of the PCAOB. It's more to ensure compliance than to increase quality." This notion of auditors' response to "inspection risk" (Glover and Prawitt 2014) is consistent with recent research related to PCAOB inspections (Glover, Taylor, and Wu 2015a; Glover, Prawitt, and Drake 2015) and is an area that deserves future researchers' attention.

Several partners expressed concern about investors interpreting the number of PCAOB deficiencies as an indicator of audit firm quality. One partner stated that, "I don't believe that fewer deficiencies are necessarily indicative of higher firm quality. I think it's a problem for our profession that investors over-rely on something that might not be a great measure." Another partner agreed, stating, "it's an educational process trying to help users understand what the reports actually mean. The [Board's reports contain] that caveat, but at the end of the day the investors take those numbers and look at them and have a different view regardless of what the PCAOB might say." Irrespective of whether investors' interpretation of inspection reports is correct, responses to these questions provide support for archival studies that use PCAOB inspection reports as a proxy for perceived audit quality (e.g., Bills, Dreher, and Myers 2013).

7. Publicly available signals of low audit quality

The analyses in sections 4–6 discuss various measures and attributes of audit quality, some of the strongest of which are currently unobservable to investors. Because of audit engagement team and audit process data limitations, researchers and investors are frequently left to rely on other publicly available sources of information to determine whether audit quality was high or low. To better understand which signals are used, we asked participants to provide up to four publicly available signals of low audit quality. We received 393 responses.[28] After reviewing the responses, the author team created 60 categories for signals of low audit quality into which two independent raters categorized all responses. The Cohen's Kappa measure was 0.86, an agreement level that is significantly different from zero ($p < 0.01$) and indicates significant inter-rater agreement. The raters later resolved all coding differences, and the results reported in Table 7 represent their consensus.

27. Part of the difference between groups may be caused by the fact that investors were asked the extent to which the quality of an audit firm as a whole is "*related to*" having fewer PCAOB deficiencies, whereas auditors were asked the extent to which firm quality is "*impacted by*" having fewer deficiencies.

28. The total number of references in Table 7 differs from the number of participants because participants could provide more than one definition and we only list the most frequent responses. The 17 categories represented in Table 7 capture 73 percent of participants' responses. The remaining 27 percent of responses are spread among 43 categories, none of which was mentioned more than four times. For brevity, these categories are not listed.

TABLE 7
Publicly available signals of low audit quality

Indicators of low audit quality	Auditor rank (# references)	Investor rank (# references)
Restatements	1 (47)	1 (16)
SEC comment letters and enforcement actions	2 (19)	25 (2)
PCAOB reports of deficiencies	3 (18)	20 (3)
Negative news about the company's finances	4 (10)	6 (8)
Financial statement policies/earnings trends inconsistent with industry and other benchmarks	4 (10)	4 (12)
Frequent change in audit firm	4 (10)	3 (13)
Poorly written, confusing, or inadequate disclosures	7 (9)	2 (14)
Unusually low audit fees	7 (9)	10 (5)
Lawsuits against the audit firm	7 (9)	8 (6)
Negative analyst reports that raise questions about performance	10 (5)	32 (1)
Small audit firm/low levels of industry experience	10 (5)	5 (11)
Identification of material weaknesses	10 (5)	25 (2)
No turnover of audit firm	48 (0)	7 (7)
Material write-offs/accounting for intangibles	13 (4)	8 (6)
Bankruptcy of client with clean audit opinion	13 (4)	10 (5)
Client liquidity concerns	27 (1)	10 (5)
Turnover of client executives	17 (2)	10 (5)

Notes:

Participants were asked to provide up to four publicly available signals of low audit quality. Rankings above are based on the number of times each definition was given by each group. We provide auditors' 10 most-frequently provided signals, as well as any additional signals from investors' 10 most-frequently provided signals. The summed number of references in Table 7 differs from the number of participants because participants could provide more than one definition and because we only list the most frequent responses. Shaded rows indicate a definition that was frequently mentioned (i.e. Top 10) by one group, but not the other.

Table 7 reports the 10 most frequently provided signals of lower audit quality from each group, sorted in order of auditors' rankings; cells shaded gray highlight indicators mentioned frequently by either auditors or investors, but not both groups. Consistent with responses to question 5.2, both audit professionals and investors mention financial statement restatements as the number one publicly available signal of low audit quality. In response to using restatements as an indicator of low audit quality, one partner agreed with the survey findings, saying, "... even if it's not the most frequent signal, a subsequent restatement would be a strong signal of low audit quality." In explaining his stance, the partner referenced the concept of materiality. "I look at a restatement, and it's obviously material; if it weren't material, it wouldn't be restated. For us, a restatement is referred to as the 'R' word—we just don't want them unless it's absolutely necessary." Another partner responded to the findings by stating that "[the results] are dead on point and it gets back to what the purpose of an audit is—to avoid having to restate something. The statements need to be right." While partners acknowledged that not all restatements are created equal or are due to low audit quality, there was a general consensus that, as one partner stated, "if there's a restatement, it's probably indicative that

something could have been improved in the audit process that could have identified the error."

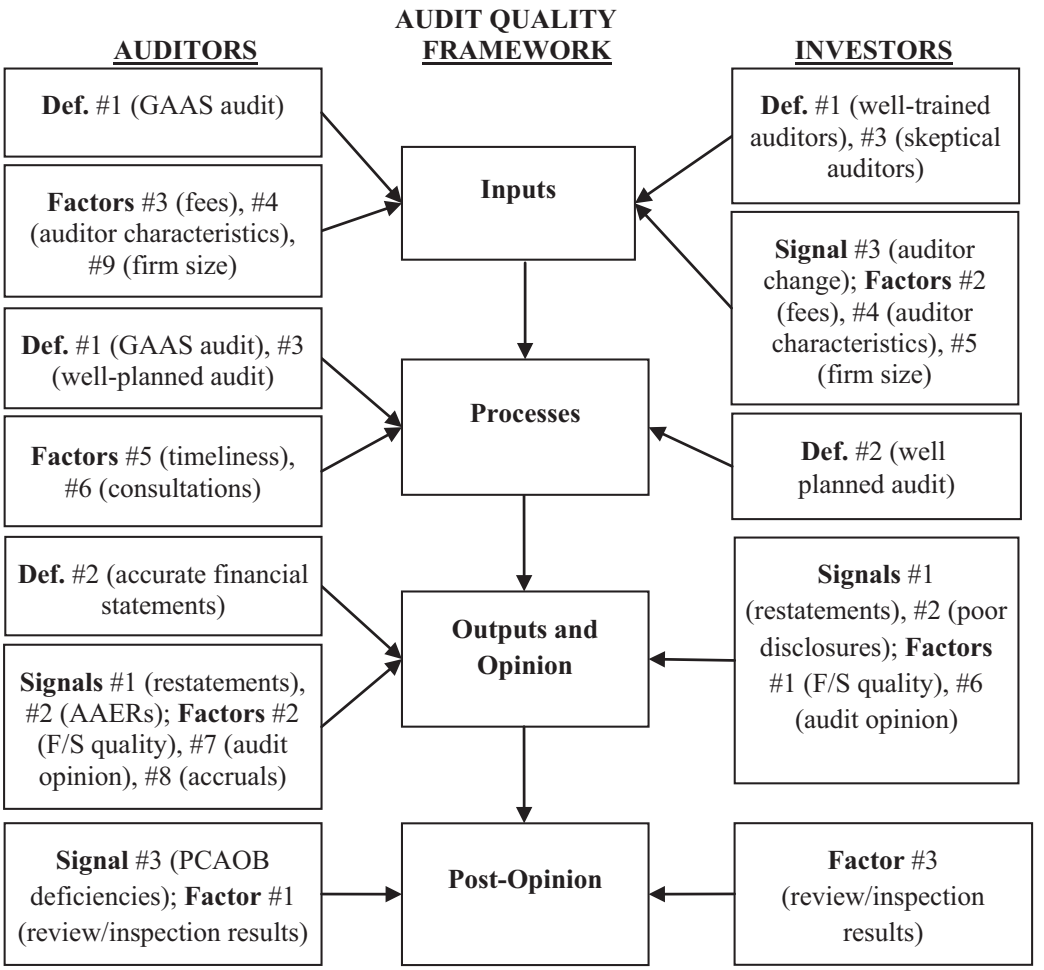
Prior research indicates a decreasing market reaction to restatements over time (Scholz 2008), suggesting perhaps that restatements are no longer meaningful indicators of low audit quality. However, it is important to distinguish between financial reporting quality as perceived by the market and the quality of the audit of those financial statements. While the constructs of financial reporting quality and audit quality are certainly related, they are not synonymous. Considering that auditors are tasked with opining as to the material fairness of the financial statements, a subsequent restatement would indicate that to some extent the audit was of lower quality irrespective of the market's reaction, which may be tempered because of investor reliance on other sources of information such as analyst forecasts (Hail 2013). Taken together, responses to question 5.2, open-ended responses in Table 7, and comments from interview participants provide support for the use of restatements as a proxy for audit quality (Kinney, Palmrose, and Scholz 2004; Schmidt 2012; Stanley and DeZoort 2007) and provide evidence that relates to the *outputs and opinion* portion of the audit quality framework.

The second and third most frequently mentioned publicly available signals of low audit quality by auditors were SEC comment letters and enforcement actions (ranking #2) and PCAOB reports of deficiencies (ranking #3), which relate to the *outputs and opinion* and the *post-opinion* portions of the framework, respectively. Investors, on the other hand, rank these indicators as 25th and 20th, respectively. While responses from Table 6 suggest that investors find fewer PCAOB deficiencies an indicator of higher *firm* quality, the inability to link inspection results to individual clients limits their usefulness to investors as an indicator of lower engagement-specific audit quality, thus explaining investors' infrequent reference to PCAOB inspections in Table 7. Instead, investors rank poorly written, confusing, or inadequate disclosures as a primary indicator of low audit quality (investor rank #2).

Other identified signals of low audit quality viewed similarly by auditors and investors include frequent audit firm changes (auditor ranking #4, investor #3); unusually low audit fees (auditor ranking #7, investor #10); and small and/or inexperienced audit firms (auditor ranking #10, investor #5). These three signals are consistent with prior research findings that frequent audit firm changes can reduce audit quality (Ghosh and Moon 2005; Myers et al. 2003); that fee pressure may reduce audit quality (Christensen, Omer, Sharp, and Shelley 2014; Ettredge, Fuerherm, and Li 2014); and that smaller firms may not have the resources to audit large companies. Commenting on frequent audit firm turnover, one partner explained that "too frequent turnover could be an indication that you've got somebody that's difficult to deal with and is pushing the envelope, and a good quality firm is not willing to go along with that." Investors also mentioned frequent audit firm turnover in interviews and indicated that audit firm turnover was viewed by one investor as "a significant red flag," while another stated that "audit firm tenure of less than five years is not enough for the firm to understand the client." Finally, investors viewed *infrequent* firm turnover as a potential indicator of lower quality (ranking #7); however, audit professionals did not mention this concern. While some signals from Table 7 may have limited relevance in international settings (e.g., restatements), several of the signals relating to audit firm tenure, auditor expertise, and financial reporting quality are readily available.

Auditors' and investors' most frequently mentioned signals of low audit quality are consistent with responses to open-ended and scale-based questions. Figure 3 summarizes our results from Table 7 and relates our main findings to the general audit quality framework in Figure 1.

Figure 3 Mapping of auditor and investor findings to audit quality framework



Note:

Summary findings combine Figure 1 (Framework) with participants' responses from Figure 2 (Definitions), Table 7 (Signals), and Appendix 2 (Factors). *Definitions (Def.)*: Auditors' top three definitions of audit quality are 1) an audit performed in accordance with GAAS; 2) an audit that results in ex post accurate financial statements; and 3) an audit that is well planned. Investors' top three definitions of audit quality are 1) an audit performed by well-trained individuals; 2) an audit that is well planned; and 3) an audit performed by independent, skeptical auditors. *Signals*: Auditors' top three signals of low audit quality are 1) restatements; 2) SEC enforcement; and 3) PCAOB deficiencies. Investors' top three signals of low audit quality are 1) restatements; 2) poorly-written disclosures; and 3) frequent change in auditor. *Factors*: Auditor-identified factors are 1) review/inspection results; 2) financial statement quality; 3) fees and governance; 4) auditor characteristics; 5) timeliness of audit procedures; 6) consultations; 7) audit opinion; 8) accruals; and 9) large/conservative audit firm. Investor-identified factors are 1) financial statement quality; 2) fees and governance; 3) review/inspection results; 4) auditor characteristics; 5) large/conservative audit firm; and 6) audit opinion.

8. Supplemental evidence on audit quality

One area of audit quality given special emphasis by the PCAOB in recent years has been auditors' treatment of accounting estimates. Recent research indicates that auditors may be in the difficult situation of opining on financial statements that contain material amounts of estimation uncertainty (Cannon and Bedard 2014; Christensen, Glover, and Wood 2012; Glover, Taylor, and Wu 2015a,b; Peecher, Solomon, and Trotman 2013; SEC 2011). Because of the impact this setting may have on audit quality, we asked participants to evaluate the extent to which the size of the reasonable range and the number of estimates with significant estimation uncertainty affect audit quality. In untabulated analysis, 75.0 percent of auditors and 80.6 percent of investors indicate that high levels of estimation uncertainty significantly affect auditors' ability to provide the requisite level of audit assurance. These responses are applicable to recent proposals by the PCAOB to change estimate-related audit standards and provide further evidence regarding the *processes* portion of the audit quality framework (PCAOB 2014b). One partner we interviewed agreed with the findings, stating that "there are multiple instances where [reducing the reasonable range to within audit materiality] literally cannot be done. You can have minimal changes in the inputs that result in a substantial difference." Responses suggest that it is problematic for auditors to provide high assurance for a reported point estimate when the estimate is associated with an irreducible reasonable range of uncertainty that is beyond the bounds of quantitative audit materiality. On the other hand, partners also recognize the practical realities they face. Unless auditing standards change, auditors are prepared to continue doing their best to provide the desired level of assurance.

9. Conclusion

The definition, measurement, and composition of audit quality continue to be subjects of interest and debate and have recently received additional focus from the PCAOB (2013, 2014a) and CAQ (2013a, 2014). Our study responds to Francis's (2011) call for more research on the inputs to the audit process as well as DeFond and Zhang's (2014) call for further investigation of the archival proxies for audit quality. In order to provide additional insights on audit quality, we survey both auditors and investors—two key groups in financial statement auditing whose differing views in the past have been described as an expectations gap (e.g., Church et al. 2008; Maijoor et al. 2002; Mock et al. 2012). Rather than viewing audit quality as a singular measure or construct, the literature provides theoretical frameworks suggesting that audit quality is a multifaceted construct (Bedard et al. 2010; Francis 2011; Knechel et al. 2013). Our results add empirical evidence to these theoretical frameworks by providing possible definitions, factors, and signals associated with the different components in the framework and providing a comprehensive overview of the construct of audit quality.

We find that both auditors and investors consider the *inputs* to the audit quality framework important and that investors, more than auditors, emphasize an audit performed by well-trained, competent individual auditors (e.g., who is on the team and whether the team has the right experience and expertise). Both auditors and investors view individual auditor characteristics as some of the strongest determinants of audit quality, suggesting that disclosure of some auditor characteristics, particularly for the members of the engagement leadership team, may be beneficial. Given the relative paucity of research regarding how individual auditor characteristics and audit team composition relate to audit quality, survey results suggest that this may be a fruitful area for future research. Considering the audit *firm* as a key input, we find that both groups associate audit firm size with higher audit quality and that investors view frequent audit

firm change as an impediment to audit quality. Finally, we identify differences between the groups regarding the importance of the audit committee and its association with audit quality.

Regarding the actual audit procedures or *processes*, audit professionals primarily define a high-quality audit as one complying with professional auditing standards. Audit professionals also view the timely completion of audit planning and fieldwork as important attributes of a high-quality audit. Further, both groups define audit quality in terms of planning adequacy, suggesting that disclosure of information regarding the planning stage and its timely completion, either by the firms or by the PCAOB, may provide valuable information to investors about audit quality. Finally, although engagement team members perform the audit, auditor survey responses indicate that consultations with individuals external to the engagement team increase audit quality, although counsel from individuals within the firm (e.g., internal specialists) is viewed as superior to counsel from external experts.

Because of data limitations, much of the existing literature focuses on the *outputs and opinion* portion of the audit quality framework. Both groups view financial statement restatements as the most readily available indicator of low audit quality. While participants agreed that not all restatements are created equal, evidence from scale-based questions, open-ended responses, and follow-up interviews all support the use of restatements as a signal of low audit quality. Responses also provide support for other observable indicators of low audit quality such as SEC enforcement actions, aggressive accruals, and opaque financial reporting. With regard to the audit opinion itself, both groups, but in particular investors, associate offering an unqualified opinion to a client that subsequently declares bankruptcy with *lower* audit quality, but associate adding a going-concern paragraph to the audit report of a client that does not declare bankruptcy with *higher* audit quality. Taken together, these results support using several ex post indicators as proxies for audit quality. However, it is important to emphasize that while readily available and easier to measure, these ex post indicators do not necessarily provide users of financial statements with timely information about varying levels of an individual *engagement's* audit quality. They may, however, generalize across audit firms' portfolios of audit clients and thus provide timely information on other clients.

Finally, we consider *post-opinion* measures such as PCAOB, peer, and internal inspections. Both groups associate fewer identified audit deficiencies with higher audit quality. In spite of the PCAOB's attempts to inform the public regarding the use of PCAOB inspection reports, both auditors and investors associate a lower number of PCAOB deficiencies with higher engagement quality. In addition, investors view the number of deficiencies as an indicator of overall *firm* quality, indicating continuing confusion about the intended use of PCAOB inspection reports by investors.

When evaluated together, our results present insights into the definition and measurement of audit quality based on the views of auditors and investors. Survey responses provide clear definitions of perceived audit quality and, as outlined in Appendix 1, provide empirical evidence regarding many of the audit quality indicators being considered by the PCAOB. Additionally, we provide nine (six) distinct factors of audit quality identified from auditors' (investors') responses that underscore the importance of discussing and approaching audit quality as a multifaceted construct. Our results contribute to understanding the construct of audit quality in the post-Sarbanes-Oxley era and add substance to the theoretical frameworks that describe audit quality in the current literature (e.g., Bedard et al. 2010; Knechel et al. 2013). In addition, our study responds to the call in Francis (2011) for research on the key inputs to the audit quality process, and provides support for archival proxies of audit quality discussed in DeFond and Zhang (2014).

Our study is subject to several limitations. First, because our audit professional respondents were from six of the largest accounting firms, their responses may not generalize to smaller firms. Second, while we sought to be comprehensive in our examination of the possible attributes of audit quality, some measures of audit quality were not included in our survey (e.g., magnitude of nonaudit fees relative to audit fees, reported material weakness over internal control). We also did not include some client-specific attributes that would impact the nature, timing, and extent of audit procedures (e.g., internal audit involvement). We suggest this may be an area for future research. Finally, while our investor participants have investing experience that is equivalent to or greater than those used in previous studies (e.g., Maines and McDaniel 2000), their responses may not generalize to those who invest professionally and whose perceptions are important to the broader investor population. Future research can investigate how these and other stakeholders (e.g., audit committees, corporate managers) define and view audit quality.

Appendix 1

Proposed PCAOB audit quality indicators and corresponding survey results

PCAOB audit quality indicator	Survey findings
Average years of experience Industry expertise and proficiency	100 percent of auditors and investors associate appropriate auditor expertise and experience with higher audit quality
Trainings hours per audit professional	100 percent of auditors and investors associate well-trained auditors with higher audit quality
Number of accounting and auditing consultations	69.9 percent of auditors associate the number of consultations with the national office with higher audit quality
Specialist hours as a percentage of overall engagement hours	82.9 percent of auditors associate consultations with internal specialists with higher audit quality
Partner, manager, engagement quality reviewer hours relative to total audit effort	78.4 percent of auditors associate the number of hours billed by the EQRP with higher audit quality
Number and nature of internal quality review findings	70.9 percent of auditors and 70.7 percent of investors associate fewer deficiencies identified through internal quality review with higher audit quality
Number and nature of PCAOB inspection findings	75.3 percent of auditors and 65.4 percent of investors associate fewer inspection findings by the PCAOB with higher audit quality
Compensation to ensure adequate financial incentive and resources	72.0 percent of auditors and 52.9 percent of investors associate the payment of reasonable audit fees with higher audit quality
Frequency and market impact of financial statement restatements for errors	75.3 percent of auditors and 62.8 percent of investors associate the lack of subsequent financial statement restatement with higher audit quality
Number of audit reports including a going-concern opinion which did not have a subsequent bankruptcy	39.8 percent of auditors and 53.0 percent of investors associate this situation with higher audit quality
Number of audit reports lacking a going-concern opinion which had a subsequent bankruptcy	44.4 percent of auditors and 69.6 percent of investors associate this situation with *lower* audit quality

(The Appendix is continued on the next page.)

Appendix 1 (continued)

PCAOB audit quality indicator	Survey findings
Trends in the frequency, magnitude and results of litigation against auditors	30.2 percent of auditors and 49.0 percent of investors associate the lack of subsequent litigation with higher audit quality
Frequency, nature and market impact of reported frauds	62.8 percent of investors associate the lack of subsequent fraud with higher audit quality
Trends in PCAOB and SEC Enforcement actions	70.9 percent of auditors and 62.7 percent of investors associate the lack of subsequent SEC enforcement actions with higher audit quality

Notes:

PCAOB audit quality indicators included in this table are based on the briefing paper for May, 2013 SAG meeting. Percentages above reflect the number of participants who responded above/below the midpoint and thus reflect responses indicating higher/lower audit quality.

Appendix 2

Factor analysis

We use a factor analysis to provide support for our grouping of survey questions reported in Tables 3–5. Further, DeFond and Zhang (2014, 100) call for research to provide more conceptual guidance in distinguishing between the many proxies for audit quality. Our factor analysis provides evidence regarding how various proxies for audit quality relate to one another. Because of differences reported between auditors' and investors' responses, and because not all questions were posed to both groups, we run the factor analysis separately by participant group. We perform the analysis using a principal component extraction method with varimax rotation to identify orthogonal constructs with eigenvalues greater than 1.

Panel A: Auditors

Factor	Factor name	Eigenvalue	Question numbers (factor loadings)
1	Review/Inspection Results	3.1	3.5 (0.79); 3.6 (0.80); 3.7 (0.92); 3.8 (0.81)
2	Financial Statement Quality	2.3	5.2 (0.90); 5.3 (0.90)
3	Fees and Governance	2.1	3.12 (0.51); 4.8 (0.44); 5.5 (0.71); 5.6 (0.79)
4	Auditor Characteristics	2.0	4.1 (0.62); 4.2 (0.86); 4.3 (0.69)
5	Timeliness of Audit Procedures	1.9	3.9 (0.89); 3.10 (0.75); 4.4 (0.48)
6	Consultations	1.8	3.11 (−0.48); 4.5 (0.65); 4.6 (0.88); 4.7 (0.60)
7	Audit Opinion	1.6	3.2 (0.65); 3.3 (0.75)
8	Accruals	1.5	5.1 (0.86)
9	Large/Conservative Audit Firm	1.3	3.1 (−0.52); 3.4 (0.72)

Panel B: Investors

Factor	Factor name	Eigenvalue	Question numbers (factor loadings)
1	Financial Statement Quality	2.7	3.11 (0.52); 5.1 (0.52); 5.2 (0.68); 5.3 (0.67); 5.4 (0.89)
2	Fees and Governance	2.4	3.12 (0.58); 4.8 (0.48); 5.5 (0.81); 5.6 (0.85)

(The Appendix is continued on the next page.)

Appendix 2 (continued)

Panel B: Investors

Factor	Factor name	Eigenvalue	Question numbers (factor loadings)
3	Review/Inspection Results	2.4	3.6 (0.73); 3.7 (0.87); 3.8 (0.86)
4	Auditor Characteristics	2.2	4.1 (0.51); 4.2 (0.90); 4.3 (0.85)
5	Large/Conservative Audit Firm	1.9	3.1 (0.45); 3.2 (0.62); 3.4 (0.83)
6	Audit Opinion	1.2	3.3 (0.89)

As reported in Appendix 2 Table, panel A, nine distinct factors result from the 25 questions posed to auditors and reported in Tables 3, 4, and 5.[29] Results generally support our assigned groups: Factors 1, 2, 4, 7, and 8 are composed of questions consistent with our grouping and analysis. However, there are differences, specifically factors 3, 5, 6, and 9 provide slightly different question groups. Factor 3 combines questions 3.12 and 4.8, relating to audit fees and engagement profitability, with questions 5.5 and 5.6, which address board governance. Given the involvement of boards in the audit fee decision, factor 3 reflects a meaningful combination of questions. Factor 5 combines questions 3.9 and 3.10, relating to the timeliness of audit procedures, with question 4.4, which examines the impact of engagement review partner hours. Given the important role of the engagement review partner in the planning and completion stages of the audit, factor 5 also appears to reflect a meaningful combination of questions and addresses the *processes* portion of the framework. Factor 6 combines questions 4.5, 4.6, and 4.7, relating to consultations with individuals outside the core engagement team, with question 3.11, which examines the lack of eventual lawsuits against the auditor. When we consider the role of consultations with those outside the day-to-day operations of the engagement team in assisting the team with more complicated transactions, the combination of consultations with a lawsuit-related question appears to be appropriate. Finally, factor 9 combines question 3.1, relating to the size of the audit firm, with question 3.4, which examines the impact of issuing a going-concern paragraph to a client that remains solvent. This combination does not appear as meaningful as the other factors. However, this analysis generally supports our grouping of questions to reflect various aspects of the audit engagement and audit quality.

As reported in Appendix 2 Table, panel B, six distinct factors result from the 19 questions posed to investors (Tables 3–5).[30] Consistent with auditor responses, results generally support our assigned groups; Factors 3, 4, 5, and 6 are composed of questions consistent with our groupings. With respect to the differences related to factors 1 and 2, factor 1 combines questions 5.1, 5.2, 5.3, and 5.4, related to financial statement outcomes, with question 3.11, related to a lack of litigation against the auditor. This combination of questions appears logical considering all questions relate to the *outputs and opinion* portion of the framework. Identical to factor 3 in from the auditor questions, factor 2 from the investor questions combines 3.12 and 4.8, relating to fees and profitability, with questions 5.5 and 5.6, which address board governance.

Taken together, the nine auditor-identified and six investor-identified factors provide a concise summary of our analysis and provide a framework for a potential "balanced

29. These nine factors explain 71 percent of the variance; only four of 25 questions had cross-loading greater than 0.35, in which case we assigned the question based on its strongest factor loading.

30. These six factors explain 68 percent of the variance; only three of 19 questions had cross-loadings greater than 0.35, in which case we assigned the question based on its strongest factor loading.

scorecard" approach to evaluating audit quality (Franzel 2013). Further, this analysis provides some evidence of the extent to which different proxies for audit quality capture similar (different) facets of this multidimensional construct. While the factors identified in our analysis may not represent all facets of audit quality, they provide support for prior research investigating the effects of audit quality, suggest avenues for additional investigation, and contribute to the ongoing public discussion of audit quality.

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