
Staff White Paper

Stakeholder Outreach on the Initial Implementation of Estimates and Specialists Audit Requirements

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Michael J. Gurbutt
Acting Director, Office of Economic and Risk Analysis, PCAOB

Wei-Kang Shih, Ph.D.
Associate Director, Office of Economic and Risk Analysis, PCAOB

Carrie von Bose, Ph.D.
Senior Financial Economist, Office of Economic and Risk Analysis, PCAOB

Tasneem Raihan, Ph.D.
Financial Economist, Office of Economic and Risk Analysis, PCAOB

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I. EXECUTIVE SUMMARY

The PCAOB is committed to understanding the impact of new requirements for [auditing accounting estimates, including fair value measurements](#) (“Estimates Requirements”) and the [auditor’s use of the work of specialists](#) (“Specialists Requirements”), which became effective for audits of fiscal years ending on or after December 15, 2020. In furtherance of that commitment, staff of the Office of Economic and Risk Analysis (OERA) has studied the initial implementation of these new requirements.

This white paper presents results from surveys of audit firms, structured interviews with audit committee chairs and financial statement preparers, and a public request for comment. We examine the initial impacts of the Estimates Requirements and Specialists Requirements on each of these stakeholder groups based on analysis of qualitative and quantitative data. One important limitation on our ability to study separately the impacts of the Estimates Requirements and the Specialists Requirements is that the PCAOB adopted both new standards simultaneously, the standards took effect on the same date, and the standards themselves cover interrelated matters.² As a result, some audit firms implemented both standards together and were not able to provide disaggregated data. Where we can present disaggregated findings and find that there is a distinct impact made by one or the other of the new requirements, we report those findings separately herein. Otherwise, we present our analysis of the Estimates Requirements and Specialists Requirements on a combined basis.

This white paper is one part of OERA’s contribution to the PCAOB’s understanding of the initial impact of the Estimates Requirements and Specialists Requirements and should be read in conjunction with a set of companion documents released together with this white paper. Specifically, the PCAOB has published an [interim analysis report](#) that summarizes additional evidence on the impact of the Estimates Requirements and Specialists Requirements. Another white paper, [Econometric Analysis on the Initial Implementation of the New Specialists Requirements](#), presents results from econometric analysis on the initial effects of Estimates Requirements and Specialists Requirements implementation on audits and capital markets.

Key Findings

- **About one-third of the survey audit firms reported that the new Estimates Requirements and Specialists Requirements improved auditing practices, while others reported that effects were limited and did not significantly change how engagement teams conducted audits.**

² Specifically, the Specialists Requirements took effect at the same time as the Estimates Requirements and the effects could be attributed jointly to the two standards. But the effective date also fell during the same period when auditors of issuers that are not Large Accelerated Filers (non-LAF) were implementing the PCAOB standard requiring disclosure of Critical Audit Matters (CAMs). Moreover, contemporaneously with the auditor’s implementation of the new Specialists requirements, issuers were implementing four new accounting standards: Financial Instruments—Credit Losses (often referred to by the name of the model used — Current Expected Credit Losses, or “CECL”) (Topic 326), Intangibles—Goodwill and Other—Internal use Software (Subtopic 350-40), Compensation—Retirement Benefits—Defined Benefit Plans—General (Subtopic 715-20), and Fair Value Measurement (Topic 820). These standards may also have affected the auditor’s use of specialists. For example, CECL may increase the demand for specialists, such as when auditing CECL models, assumptions, and underlying data, independent of the new estimates and specialists audit requirements. Finally, we expect the COVID-19 pandemic affected the nature and extent of audit work performed on accounting estimates and specialist usage (e.g., due to increased risk of asset impairments and changes to expected cash flows).

Engagement partners generally reported that the Estimates Requirements and Specialists Requirements had minor, yet positive, impacts on how engagement teams conducted audits.

- Among auditors who reported that the Estimates Requirements had an impact on their audit engagements, the most commonly reported effects were (1) more focus during the planning phase of the audit on better understanding the components of accounting estimates and identifying potential risks of material misstatement within those components (i.e., methods, models, data, and assumptions) and (2) more thorough documentation of the engagement team’s risk analysis and audit procedures performed to address the identified risks.
- Among auditors who reported that the Specialists Requirements had an impact on their audit engagements, the most commonly reported effects were (1) improved coordination and communication between engagement teams and auditor’s specialists and (2) enhanced documentation of the work performed by specialists.
- Among audit firms that said that effects of the new requirements were more limited, some reported using the implementation year as an opportunity to (1) remind engagement teams of their responsibilities when auditing accounting estimates and (2) refresh dialogue around practical strategies for more effective and efficient collaboration between engagement teams and auditor’s specialists. For these firms, the new requirements may have helped to reinforce existing expectations and improved audit quality by reminding engagement teams of their responsibilities.
- Some firms reported seeing an increase in the use of auditor’s specialists by some of their engagement teams, but only one firm attributed the increase to the new Specialists Requirements.
- **The data shows that audit firms had significant variation in the amount of time they spent to support implementation of the new requirements and in training firm personnel for these new requirements, reflecting (1) differences in client portfolios, (2) differences in implementation approaches, and (3) variation in auditing practices prior to the effective date of the new requirements. At the audit engagement level, almost all in-scope firms and audit engagement partners reported that the new requirements did not result in a significant increase in audit hours or audit fees, although several firms and engagement partners observed that some engagement teams spent incremental time auditing accounting estimates, coordinating with specialists, and/or documenting risk assessments and audit procedures.**
 - Among Big Four firms, through April 2021, the average amount of time spent to support implementation of the Estimates Requirements and Specialists Requirements was 20,200 hours (37% at the partner level), and the average amount of time personnel spent attending training on these requirements was 48,700 hours (9% at the partner level). We estimate that the cost of this time per Big Four firm is, on average, approximately \$7.8 million. One of the firms reported substantially more hours than the other three. Excluding this outlier, the average amount of time spent on implementation support and personnel training by the other three firms are 8,300 hours and 23,900 hours, respectively. We estimate that the cost of this time per firm is, on average, approximately \$3.3 million.

- Among the other five annually inspected firms included in our survey, through April 2021, the average amount of time spent to support implementation of the Estimates Requirements and Specialists Requirements was 1,200 hours (52% at the partner level), and the average amount of time personnel spent attending training on these new requirements was 1,800 hours (24% at the partner level). Based on compensation data provided by three of the five firms, we estimate that the average cost incurred by each of these three firms is approximately \$413,000.
- Among the eight triennially inspected firms included in our survey,³ through April 2021, the average amount of time spent to support implementation of the Estimates Requirements and Specialists Requirements was 800 hours (76% at the partner level), while the average amount of time personnel spent attending training on these new requirements was 1,100 hours (33% at the partner level). Based on compensation data provided by seven of the eight triennially inspected firms, we estimate that the average cost incurred by each of these seven firms is approximately \$358,000. One of the firms reported substantially more hours in implementation support than the others. Excluding this outlier, the average amount of time spent on implementation support by the other seven firms was 400 hours. Based on compensation data provided by six of these triennially inspected firms, we estimate that the average cost incurred by each of these six firms is approximately \$201,000.
- Engagement partner estimates of the additional time spent by engagement teams to implement the new requirements ranged from 0% to 4% of total audit hours, with the majority of engagement partners estimating that the additional time spent was less than 1% of total audit hours.
- **All participating firms developed infrastructure and conducted training to support the implementation of the Estimates Requirements and Specialists Requirements by their audit engagement teams.**
 - Firms implemented the Estimates Requirements and Specialists Requirements through a variety of initiatives including (1) revisions to audit methodologies and guidance, (2) development of new or revised tools and work paper templates, (3) training sessions to educate personnel on implementation of the new requirements and new or revised firm supporting tools, and (4) ongoing engagement team implementation support and monitoring.
- **Audit committee chairs and preparers reported that the initial impact of the new Estimates Requirements and Specialists Requirements on issuers was limited.**
 - Most respondents reported that they did not observe any changes in their auditor's approach to auditing accounting estimates. A few observed a more in-depth process and enhanced audit procedures around accounting estimates.

³ Under the Sarbanes-Oxley Act of 2002 and as explained in detail in PCAOB Rule 4003, the PCAOB inspects annually those registered public accounting firms that issue audit reports for more than 100 issuers, while those that issue audit reports for 100 or fewer issuers are inspected at least once every three calendar years.

- Most preparers and audit committee chairs did not identify any change in their auditor’s use of specialists. A few respondents observed more in-depth auditor questioning of company specialists.
- No respondents reported an increase in audit fees due to the new Estimates Requirements and Specialists Requirements.
- **Overall, a majority of the audit firms we surveyed did not report unintended consequences or significant challenges when implementing the new Estimates Requirements and Specialists Requirements.** Among the few participating firms that reported implementation challenges, four non-Big Four firms reported that they and their issuer clients encountered constraints in the pool of available specialists, although these firms generally attributed these constraints to environmental factors (e.g., the COVID-19 pandemic, mergers and acquisitions activity) rather than the new Specialists Requirements. Three participating firms also raised questions regarding application of the new Estimates Requirements, such as scalability of the requirements and definition or scope of what is considered an accounting estimate. However, these questions were not thematic or indicative of widespread implementation issues. Staff of the PCAOB’s Office of the Chief Auditor reviewed the questions and concluded that no additional guidance or Q&As are necessary at this time.

II. SCOPE AND ANALYTICAL FRAMEWORK

In this paper, we analyze data collected from various stakeholder groups to develop an initial understanding of how auditors implemented the Estimates Requirements and Specialists Requirements as well as audit committee and preparer experiences with auditors’ implementation efforts. We also evaluate whether early evidence from initial implementation of the Estimates Requirements and Specialists Requirements is suggestive of significant costs, benefits, or unintended consequences.

We collected data for our analysis through the following efforts:

- Audit Firm Survey: We conducted voluntary surveys of 17 audit firms to examine the impact of the initial implementation of the Estimates Requirements and Specialists Requirements on auditors and the audit process.⁴

⁴ The 17 audit firms that participated in our survey comprise the U.S. affiliates of the Big Four audit firms, five other annually inspected U.S. audit firms, and eight triennially inspected U.S. audit firms. Big Four firms are Deloitte & Touche LLP; Ernst & Young LLP; KPMG LLP; and PricewaterhouseCoopers LLP. The five other annually inspected U.S. audit firms are BDO USA LLP; Crowe LLP; Grant Thornton LLP; Moss Adams LLP; and RSM US LLP. The eight triennially inspected U.S. audit firms are Baker Tilly US LLP; BKD LLP; CohnReznick LLP; Dixon Hughes Goodman LLP (DHG); EisnerAmper LLP; Mayer Hoffman McCann P.C. (MHM); Plante & Moran, PLLC; and WithumSmith + Brown, PC. WithumSmith + Brown, PC became an annually inspected firm in late 2020. However, it was a triennially inspected firm during the period of data collection. Therefore, for the purpose of our analysis, we have grouped it with other triennially inspected firms. It should be noted here that BKD LLP and DHG merged together and began joint operations on June 1, 2022 as a new firm called FORVIS LLP.

To perform the auditor outreach, we approached 18 audit firms to gather their insights into the initial impact of estimates and specialists audit requirements as well as the impact of CAM requirements. Please see staff white paper “Second Stakeholder Outreach on the Initial Implementation of CAM Requirements” for further information about our outreach on CAMs. One firm completed the firm survey on CAM requirements but did not complete the firm survey on Estimates Requirements and Specialists Requirements.

- Structured Interviews of Audit Engagement Partners: We conducted voluntary interviews of 31 audit engagement partners to obtain information on the initial impact on audit engagements of the Estimates Requirements and Specialists Requirements.
- Structured Interviews of Audit Committee Chairs and Preparers: We conducted structured interviews with 12 audit committee chairs and 9 financial statement preparers to understand their experiences with initial auditor implementation of the Estimates Requirements and Specialists Requirements.
- Public Request for Comment: We reviewed 14 responses to a public request for comment soliciting feedback on the Estimates Requirements and Specialists Requirements.

III. AUDITOR OUTREACH

In June–July 2021, we conducted a voluntary survey of 17 audit firms to examine the impact of the initial implementation of the Estimates Requirements and Specialists Requirements on auditors and the audit process. In April–May 2022, we engaged with the same set of 17 audit firms to obtain information on the results from any ongoing monitoring activities as they related to these new requirements. We selected these 17 firms by considering prior PCAOB inspections data to determine which firms were most likely to be impacted by the Estimates Requirements and Specialists Requirements. These 17 firms included all 10 annually inspected firms and seven triennially inspected firms. The seven triennially inspected firms were chosen from among the larger triennially inspected firms inspected by PCAOB. We selected these seven firms by considering prior PCAOB inspections data to determine which firms’ inspected engagements involved the use of a specialist. We targeted these larger firms with more extensive specialist use and more complex accounting estimates to assist in our analysis. We acknowledge that this is not a random sample, and we caution against extrapolating from the results to other audit firms in the market that fall outside the scope of this research. The survey was administered via a Word document sent electronically to a point of contact at each firm. A copy of the survey is provided at Appendix C.

We also conducted voluntary interviews of 31 audit engagement partners of the 17 in-scope audit firms between August 2021 and February 2022 to obtain information on the initial impact on audit engagements of the Estimates Requirements and Specialists Requirements. Engagement partner interviews were designed to provide detailed information on engagement-specific effects of the new requirements. The engagement partners that participated in interviews were responsible for audit engagements that involved more extensive use of the work of specialists and more complex accounting estimates.⁵ In some sense, the findings can then be thought of as an “upper bound” on the engagement-level impact of the Estimates Requirements and Specialists Requirements. The selected engagements

⁵ To select the partners for participation in this study, we identified an initial sample of engagements using information communicated in critical audit matters. Next, for each of these engagements, we asked participating firms to provide data on whether the engagement involved: (1) the use of auditor-employed specialists, (2) the use of auditor-engaged specialists, (3) the use of work performed by company specialists as audit evidence, and (4) the use of third-party pricing information. Using this information, we finalized interview selections by selecting two engagement partners from each participating firm with a focus on attempting to ensure representation of different issuer industry sectors and market capitalizations. We did not select engagement partners from one participating firm that did not provide the requested data, and an engagement partner from another firm declined to participate in the interview. Overall, we interviewed eight engagement partners from Big Four firms, eight from annually inspected non-Big Four firms, and another 15 from triennially inspected firms.

are not representative of all audit engagements, and the findings cannot be extrapolated to the larger population.

We used a structured interview guide to conduct the interviews. The interview format is well-suited to gathering data about the Estimates Requirements and Specialists Requirements because their impacts were expected to be subtle and somewhat esoteric. Interviewing the engagement partners allowed us to obtain open-ended, nuanced responses and follow up on comments relating to specific audit situations to gain a more holistic understanding of how the requirements were implemented. Interviews were conducted via conference calls. All interviews took place from August 2021 through February 2022. The research team and RAND, a non-profit research organization, took detailed notes on each interview. A copy of our interview guide is provided at Appendix D.

Firm-Level Processes

Firms in our survey implemented the Estimates Requirements and Specialists Requirements through a variety of initiatives including (1) revisions to audit methodologies and guidance, (2) development of new or revised tools and work paper templates, (3) training sessions to educate personnel on implementation of the new requirements and new or revised supporting tools, and (4) ongoing engagement team implementation support and monitoring.

- **All firms reported making changes to their methodologies, guidance, tools, and/or templates.** Some firms reported making changes on an ongoing basis prior to the effective date of the requirements in response to both internal and PCAOB inspection results or evolving market conditions. Big Four firms and other annually inspected firms typically made changes directly to their internally developed audit methodologies and supporting tools (e.g., practice aids, audit software), whereas triennially inspected firms generally implemented revisions via auditing tools sourced from third-party vendors. Some annually inspected firms, including one Big Four firm, reported combining implementation of the Estimates Requirements and Specialists Requirements with implementation of ISA 540, *Auditing Accounting Estimates and Related Disclosures*, a related standard released by the International Auditing and Assurance Standards Board (IAASB).⁶
- **All firms rolled out training sessions on the new Estimates Requirements and Specialists Requirements, including live virtual courses and self-study sessions. The majority of the Big Four firms and triennially inspected firms reported that they began training their personnel in 2019 to build knowledge in advance of the effective date. In contrast, all of the other annually inspected firms conducted their trainings in 2020.** In addition to sessions focused directly on the Estimates Requirements and Specialists Requirements, some non-Big Four firms also addressed the new requirements as specific modules within training sessions on new accounting requirements (e.g., the CECL accounting standard).
- **During the implementation process, firms provided various forms of support to audit engagement teams.** The type of support provided varied. For example, some annually inspected firms, including one Big Four firm, extended support that included access to subject matter experts or audit firm national offices to discuss implementation questions. Some triennially

⁶ ISA 540 (Revised), *Auditing Accounting Estimates and Related Disclosures*, became effective for accounting periods beginning on or after December 15, 2019.

inspected firms set up (1) coaching programs to assist audit engagement teams in designing testing approaches for accounting estimates and (2) internal websites dedicated to the new requirements.

- **Firms generally reported performing ongoing monitoring activities, including internal inspections, to evaluate the implementation of the new requirements by audit engagement teams.** In addition, one Big Four firm and one triennially inspected firm reported that they directed engagement quality reviewers to focus on engagement team implementation of the new requirements during their reviews of audit areas involving significant or higher risk accounting estimates.

Firm-Level Costs

Each of the 17 surveyed audit firms reported the number of hours spent on firm-level activities to support implementation of the new Estimates Requirements and Specialists Requirements (see **Table 1**), as well as the number of hours its personnel spent attending training directly related to the new requirements (see **Table 2**).⁷ Additionally, firms provided information on the impact of the new requirements on audit hours and fees.

Firms estimated implementation hours by listing the activities involved and having project personnel estimate the level of effort for each. To estimate the number of hours spent on training, firms identified specific courses or portions of courses that focused on the Estimates Requirements and Specialists Requirements and multiplied the length of the courses by the number of participants enrolled. Some firms noted that other contemporaneous developments (e.g., adoption of ISA 540, adoption of CECL, and risks related to the COVID-19 pandemic) created challenges in estimating the time spent on implementation activities for the Estimates Requirements and Specialists Requirements.

- **Big Four firms reported spending the most time on implementation and training related to the Estimates Requirements and Specialists Requirements compared to the other annually inspected firms and the triennially inspected firms in our sample.** Differences in time spent developing processes and procedures to support implementation and training firm personnel between the Big Four firms, the other annually inspected firms, and the triennially inspected firms that participated in our survey likely reflect differences in client portfolios,⁸ implementation strategies, and staffing models across firms.
 - **Among Big Four firms, through April 2021, the average amount of time spent to support implementation of the Estimates Requirements and Specialists Requirements was 20,200 hours (37% at the partner level), while the average amount of time personnel spent attending training on these requirements was 48,700 (9% at the partner level).** We estimate that the cost of this time per Big Four firm is, on average,

⁷ Tables are provided at Appendix A.

⁸ As of March 31, 2021, we estimate that: (1) Big Four firms each have an average of 818 issuer clients and an average aggregate issuer market capitalization of \$11 trillion; (2) the other five annually-inspected firms that participated in our survey each have an average of 162 issuer clients with an average aggregate issuer market capitalization of \$176 billion; and (3) the eight triennially-inspected firms that participated in our survey each have an average of 84 issuer clients with an average aggregate issuer market capitalization of \$27 billion. Data on the number of issuers is based on Form AP filings for issuers with a fiscal year end between April 1, 2020 and March 31, 2021. Data on market capitalization is as of March 31, 2021 and is collected from S&P CapitalIQ. Issuer counts exclude employee benefit plans and investment companies.

approximately \$7.8 million.⁹ Excluding one outlier, the average amount of time spent by the other three Big Four firms to support implementation of the Estimates Requirements and Specialists Requirements was 8,300 hours (34% at the partner level), while the average amount of time personnel spent attending related trainings was 23,900 hours (7% at the partner level). Using publicly available data, we estimate that the cost of this time per firm is, on average, approximately \$3.3 million.

- **Among the other five annually inspected firms included in our survey, through April 2021, the average amount of time spent to support implementation of the Estimates Requirements and Specialists Requirements was 1,200 hours (52% at the partner level), while the average amount of time personnel spent attending training on these new requirements was 1,800 hours (24% at the partner level).** Based on compensation data provided by three of the five firms, we estimate that the average cost incurred by each of these three firms is approximately \$413,000.
- **Among the eight triennially inspected firms included in our survey, through April 2021, the average amount of time spent to support implementation of the Estimates Requirements and Specialists Requirements was 800 hours (76% at the partner level), while the average amount of time personnel spent attending training on these new requirements was 1,100 hours (33% at the partner level).** Based on compensation data provided by seven of the eight triennially inspected firms, we estimate that the average cost incurred by each of these seven firms is approximately \$358,000. Excluding an outlier,¹⁰ and another firm that did not report monetized costs, for the remaining six triennially inspected firms included in our survey, the average amount of time spent to implement the Estimates Requirements and Specialists Requirements was 400 hours (79% at the partner level), while the average amount of time personnel spent attending training on these new requirements was 1,100 hours (36% at the partner level). Based on compensation data provided by these six triennially inspected firms, we estimate that the average cost incurred by each of these six firms is approximately \$201,000.
- **Firms of similar sizes reported spending significantly different amounts of time implementing the Estimates Requirements and Specialists Requirements and training firm personnel. Differences in time spent on firm-level implementation activities suggest variation in practice across audit firms prior to implementation.**
 - Among Big Four firms, the total number of firm-level hours to support implementation ranged from 7,700 to 55,900 and the total number of hours spent training firm personnel ranged from 15,900 to 122,800.

⁹ The firm survey asked firms to monetize the cost of total hours by multiplying total hours by an estimated “blended” hourly compensation rate that takes into account estimates of: (1) the annual gross compensation of individuals that participated in implementation efforts (excluding fringe benefits) and (2) the mix of personnel involved. Big Four firms chose not to provide this data. Therefore, we used an estimation process to derive an approximate cost. For a step-by-step explanation of the method used to estimate the cost, see Appendix B, “Monetization of Costs of Additional Time for Big Four Firms.” Additionally, one Big Four firm reported external costs (\$2.3 million) to support implementation of the Estimates Requirements and Specialists Requirements.

¹⁰ This firm advised that it began to use auditor-engaged specialists when auditing the valuation of issuer investment portfolios (the firm’s prior approach was to use a pricing service). It is possible that this change resulted in additional time spent at the firm level to support implementation of the new approach.

- Among the other five annually inspected firms included in our survey, the total number of firm-level hours to support implementation ranged from 280 to 1,900, and the total number of hours spent training firm personnel ranged from 450 to 3,400.
- Among the eight triennially inspected firms included in our survey, the total number of firm-level hours to support implementation ranged from 16 to 3,500 and the total number of hours spent training firm personnel ranged from 100 to 4,000.

Engagement-level Processes

At the individual audit engagement level, the initial effects of the Estimates Requirements and Specialists Requirements varied by audit firm and audit engagement. Some firms and engagement partners reported that the new requirements improved auditing practices. Others reported that the effects of the Estimates Requirements and Specialists Requirements were limited and did not significantly change how engagement teams conducted audits. These firms and engagement partners generally asserted that their prior policies, procedures, and methodology were already largely aligned with the new requirements. Overall, the responses imply some variation in practice across audit firms prior to implementation of the new requirements that the new requirements may help to address.

Auditing Accounting Estimates

- **The new Estimates Requirements may have had a positive impact on the planning process of some audit engagements.**
 - Some firms stated that the new Estimates Requirements led engagement teams to devote greater effort upfront during the planning phase of the audit. They observed that the new estimates standard focused engagement teams on: (1) better understanding the components of accounting estimates, including methods, models, data, and assumptions; and (2) identifying, earlier in the audit, specific risks of material misstatement within the different components. In some cases, engagement teams designed and performed more specific audit procedures to address specific risks.
 - Some engagement partners reported that the new requirements increased the engagement team's focus on potential areas of risk and management bias, particularly during the planning process. Some engagement partners noted examples of more junior auditors providing greater and more specific input during engagement team brainstorming sessions on risks of management bias. For instance, one engagement partner said, "Maybe it was just my team, but the younger folks in our fraud brainstorming session — one of the youngest on the team brought up the new PCAOB guidance. As we were discussing, this person said based on that we need to have a more robust discussion on bias by management...I believe the PCAOB standard is what ultimately got this individual and the younger folks in on the fraud brainstorming process and made it less perfunctory."
- **There is evidence that the Estimates Requirements led to improved documentation of the engagement team's discussions and processes.**
 - Some firms reported that the process of identifying all accounting estimates and their significant components and assessing risk at the component level resulted in more

thorough documentation of (1) the engagement team’s understanding and analysis of risk and (2) how audit procedures performed address the identified risks.

- Some engagement partners said that the new requirements led engagement teams to document procedures and thought processes that were previously part of the audit but would not have been recorded in the work papers in the absence of the new Estimates Requirements. For example, one engagement partner noted, “With estimates, a lot more documentation that we went through to make sure we had a full population of where estimates came into play, the different factors in use from the form the national office went through to winnow it down to most significant.”
- **Some firms and engagement partners reported that the Estimates Requirements did not significantly change their auditing practices.**
 - Among audit firms that said that effects of the new requirements were more limited, some reported using the implementation year as an opportunity to remind engagement teams of their responsibilities when auditing accounting estimates.
 - Some engagement partners indicated that they welcomed the consolidation of the three prior PCAOB standards that addressed auditing accounting estimates and fair value measurements into a single revised standard that aligns with the PCAOB’s risk assessment standards.

Using the Work of Specialists

- **Among auditors who reported that the Specialists Requirements had an impact on their audit engagements, the most commonly reported effect of the new Specialists Requirements was improved coordination and communication between engagement teams and auditor’s specialists.**
 - Some engagement partners stated that the new requirements facilitated earlier involvement, clearer division of responsibility, improved coordination, and enhanced dialogue between the core audit team and auditor’s specialists. For example, one engagement partner said, “[W]e changed procedures...Involving specialists earlier on in the risk assessment process and throughout the audit and making sure they were fully integrated in the audit... talking fully about the business and understanding where the risk in the evaluation might be. There was a lot more dialogue and set meetings with the specialist compared to before and that translated to the documentation we have.”
 - Likewise, some firms reported that their engagement teams involved auditor’s specialists earlier in the audit process, including in upfront discussions related to identifying risks within the different components of an accounting estimate.
 - Among audit firms that said that effects of the new requirements were more limited, some reported using the implementation year as an opportunity to refresh dialog around practical strategies for more effective and efficient collaboration between engagement teams and auditor-employed specialists.

- **The new Specialists Requirements may have led to enhanced documentation around the work performed by specialists.**
 - Some firms reported that the new requirements increased the amount of documentation obtained from auditor’s specialists regarding their evaluation of management’s valuation models, including the underlying methodologies and assumptions.
 - Some engagement partners reported enhanced documentation of the work of specialists by the engagement team due to the new requirements. One engagement partner stated, “I would say the level of documentation clearly increased as a result of the new standard and how the firm addressed it. We had done some testing before, but for each specialist that had come in there was now a specific step required. It included four primary areas, from understanding to evaluating and everything in between.”
 - Some engagement partners also reported that the Specialists Requirements led them to obtain more documentation from issuers relating to the work of the company’s specialists. For example, one engagement partner noted, “Initially, the issuer would provide us with their valuation report, and we would go through the normal exercise which we outlined earlier. This year we had them document to us a little more how they came up with those assumptions. Before it was just the CFO passing stuff on and us sensitizing it separately. Now, we wanted to understand more what meetings they had, what information they looked at, and how did they come up with the assumptions in the valuation report itself.” Another engagement partner also noted requiring their clients to enhance their documentation of the processes used to evaluate their company specialists. This partner said “We as a firm, even with the prior standard, had went above and beyond what was in there. The one, maybe nuance of the standard we recently pushed back onto the client more was having them document more in their processes for evaluating their specialist.”
- **Some firms reported seeing an increase in the use of auditor’s specialists by some of their engagement teams.** However, only one (triennially inspected) firm attributed the increase to the new Specialists Requirements.
 - Other reasons cited by firms for the increase in the use of auditor’s specialists in audits included (1) an increase in the number of clients with financial instruments requiring fair value measurements, (2) the COVID-19 pandemic, (3) asset impairments, (4) adoption of CECL, and (5) other industry-specific factors.
- **Some firms reported making refinements to their processes around information provided by third-party pricing vendors.** These refinements included more frequent and formalized interactions with pricing vendors, and new procedures to evaluate whether the pricing service changed its valuation process between interim and period end.

Engagement-Level Costs

- **At the individual audit engagement level, almost all surveyed firms and audit engagement partners reported that the new Estimates Requirements and Specialists Requirements did not result in a significant increase in audit hours or audit fees,** although some firms and

engagement partners observed that some engagement teams spent incremental time auditing accounting estimates, coordinating with specialists, and/or documenting risk assessments and audit procedures.

- Engagement partner estimates of the additional time spent by engagement teams to implement the new requirements ranged from 0% to 4% of total audit hours, with the majority of engagement partners estimating that the additional time spent was less than 1% of total audit hours.¹¹
 - None of the audit engagement partners we interviewed reported increasing audit fees due to the new requirements.
 - Additionally, one triennially inspected audit firm reported a modest increase in engagement-level costs from more extensive use of external specialists when auditing its clients' debt security portfolios.¹²
- **Audit firms and audit engagement partners reported that various factors affected audit fees including the new Estimates Requirements and Specialists Requirements, the COVID-19 pandemic, and the new CECL standard.**
 - They reported that these factors made it difficult to isolate the impact of the Estimates Requirements and Specialists Requirements on audit fees, but all agreed that the impact on audit hours and fees was marginal. For example, one engagement partner said, “We had a significant change in methodology or standards related to how we measure credit losses on financial assets with the adoption of the CECL standard that became effective in the same period. As we try to sit back and kind of isolate what our incremental lift was, particularly as it related to our testing of the allowance for credit losses, it’s really hard to bifurcate how much incremental work was related to adopting the accounting standard vs. how much was related to complying with the new and revised audit standards.”

Challenges and Unintended Consequences

A majority of the firms (76%), including two Big Four firms, reported that they did not experience any significant challenges while implementing the new Estimates Requirements and Specialists Requirements. Among these firms, three of them (all large annually inspected non-Big Four firms) specifically mentioned that the reason for not experiencing any significant challenges was that their previous policies and methodologies already were already aligned closely with the new Estimates Requirements and Specialists Requirements. Among the few firms that reported implementation challenges, their feedback is summarized below.

¹¹ We interviewed engagement partners responsible for audits that involved more extensive use of the work of specialists and more complex accounting estimates. Accordingly, the impact of the Estimates Requirements and Specialists Requirements on audit hours is likely to be greater for these engagements.

¹² This firm estimated that audit costs grew by roughly \$1,000-\$5,000 per engagement for its financial services sector issuer clients. For context, the average audit fee for the most recent fiscal year for the firm’s financial services sector issuer clients is more than a hundred times as large.

Auditing Accounting Estimates

- **Three participating firms raised questions and identified some challenges regarding the application of the new Estimates Requirements. These questions and challenges were not thematic or indicative of widespread implementation issues.**¹³
- Among the questions raised and challenges identified, one Big Four firm noted difficulties with determining the level of risk assessment and documentation necessary for less complex estimates, discerning whether qualitative assessments should be treated as accounting estimates, and how to treat certain aspects of models prepared by company specialists. Further, one annually inspected non-Big Four firm reported that the concurrent adoption of the Estimates Requirements and ISA 540 presented some challenges in identifying differences in the two standards and harmonizing firm policies and guidance accordingly. Other operational implementation challenges encountered by firms included developing risk assessment and scoping tools for engagement teams to use, and scaling testing and documentation work aids for both higher and lower risk estimates.

Using the Work of Specialists

- **Two annually inspected and two triennially inspected firms included in the survey reported that they and their issuer clients were encountering constraints in the pool of available specialists, and valuation specialists in particular.** These firms generally attributed these constraints to environmental factors (e.g., the COVID-19 pandemic, mergers and acquisitions activity) rather than the new Specialists Requirements.

IV. INTERVIEWS OF AUDIT COMMITTEE CHAIRS AND FINANCIAL STATEMENT PREPARERS

We conducted interviews with 12 audit committee chairs and nine financial statement preparers (whose titles included Chief Financial Officer, Chief Accounting Officer, and Controller) from a total of 13 audit engagements (representing four LAFs and nine non-LAFs). The interviews were designed to provide an in-depth understanding of preparer and audit committee chair perspectives and experiences with their auditors' implementation of the Estimates Requirements and Specialists Requirements.¹⁴

We used a structured interview guide to conduct the interviews. The interview format is well-suited to gathering data about the Estimates Requirements and Specialists Requirements because their impacts were expected to be subtle and somewhat esoteric. Interviewing the audit committee chairs and financial statement preparers allowed us to obtain open-ended, nuanced responses and follow up on comments relating to specific audit situations to gain a more holistic understanding of how the

¹³ Staff of the PCAOB's Office of the Chief Auditor develops guidance to assist in the implementation of PCAOB standards and rules. See Staff Guidance on Auditing Accounting Estimates (Aug. 22, 2018), which is available at [Auditing Accounting Estimates, Including Fair Value Measurements](#).

¹⁴ We interviewed these same participants in conjunction with the 2021-2022 outreach effort for critical audit matters (CAMs) requirements (see "Second Stakeholder Outreach on the Initial Implementation of CAM Requirements"). To make the most efficient use of time, we asked the interviewees questions on both CAM requirements and the Estimates Requirements and Specialists Requirements during the same interviews.

requirements were implemented. Interviews were conducted via conference calls. All interviews took place from September 2021 through March 2022. The research team and RAND took detailed notes on each interview. These notes were thematically coded and analyzed using the NVivo software platform. A copy of the interview guide is provided at Appendix E.

Perspectives on the new Estimates Requirements and Specialists Requirements

In general, our interview findings suggest that the overall initial impact of the new Estimates Requirements and Specialists Requirements on issuers was limited. For example, participants from both LAFs and non-LAFs did not experience any increase in audit fees due to the new requirements, most participants did not observe changes in their auditor's approach to either auditing accounting estimates or use of the work of specialists, and most observed no significant impact of the new requirements on the nature of discussions with the audit committee.

Effects on Audit Approach – Estimates Requirements

- **Most preparers and audit committee chairs reported that they did not identify any changes in their auditor's approach as a result of the new Estimates Requirements.**
 - Thirteen respondents reported that they did not observe any changes in their auditor's approach to accounting estimates, and four reported that there was a change. One audit committee chair stated, "We were told about the changes in the rules, which weren't extensive or dramatic, in normal flow. I didn't notice any dramatic change in audit process."
 - Of the respondents who reported that they observed a change in their auditor's approach, one noted that a specific valuation process was performed earlier, two noted a more in-depth process in audit work over accounting estimates in the most recent audit, and the fourth observed a more in-depth process over the past five years. For example, one preparer of a non-LAF stated, "Without question the precision of review has been a major change that I've noticed. Not about signing-off on something, but documenting what was reviewed, that was major change." Another preparer of a non-LAF stated, "It seems as though they may have expanded. They may have added a few more hours here and there on certain topics that involved management's estimates — be it taxes, impairment, obsolescence or third-party inventory, fixed assets. It was probably a few hours or whatever and it's just something that nobody took notice of. They maybe enhanced their audit procedures to some degree."

Effects on Audit Approach – Specialists Requirements

- **Overall, most preparers and audit committee chairs reported that they did not identify any changes in their auditor's approach as a result of the new Specialists Requirements.**
 - Sixteen respondents reported that they did not observe any changes in their auditor's use of auditor's specialists. Two respondents reported that there was a change, although they did not directly attribute the change to the new Specialists Requirements.

Of those, one reported that auditor’s specialists were engaged earlier in the fiscal year to perform the same valuation work they had done in the past. The second observed that the auditor’s use of auditor’s specialists increased over the past two years.

- Sixteen respondents reported that the issuer used the work of a specialist in preparing company financial statements. Of these, two reported an increase in the company’s use of specialists. Finally, a few preparers observed more in-depth auditor questioning of company specialists.

Costs to Issuers

- **Respondents generally reported that any costs to the issuer due to the new Estimates Requirements and Specialists Requirements were negligible.**
 - Eleven respondents indicated that there was no increase in audit fees due to the new requirements, and six reported that audit fees increased but that the increase was not specifically related to the new requirements.
 - No respondents reported an increase in audit fees due to the new requirements. One audit committee chair, in this regard, noted, “Our fees did go up I think in large part because our business grew, additional presence in Europe which required additional work...Nothing as a result of these audit requirements.”
 - Two respondents said that the new Estimates Requirements and Specialists Requirements resulted in additional costs to issuers other than audit fees. One preparer of an LAF cited additional time from issuer personnel as an increased cost of the new requirements. Another preparer of a non-LAF cited the cost of using a valuation specialist that the issuer otherwise would not have used, stating, “In general cost of valuations have gone up because of increased audit questions. I think back a few years, they have a call, handful of questions.”

V. PUBLIC REQUEST FOR COMMENT

The PCAOB issued a public request for comment (RFC) to provide a mechanism for all interested parties to provide information on initial experiences with implementation of the Estimates Requirements and Specialists Requirements.¹⁵ The RFC was published on the PCAOB’s website on April 12, 2022, and the comment letter period closed on June 10. The PCAOB received 14 comment letters from a variety of stakeholder groups, including audit firms, industry associations, financial service providers, and academics.¹⁶ To analyze the responses, we categorized the comment letters by stakeholder type,

¹⁵ See PCAOB, News Release, *PCAOB Requests Comments on Impact of Auditing Requirements Related to Estimates and Specialists* (Apr. 12, 2022), at <https://pcaobus.org/news-events/news-releases/news-release-detail/pcaob-requests-comment-on-impact-of-auditing-requirements-related-to-estimates-and-specialists>.

¹⁶ Nine letters were from auditors and auditor associations, one was from a valuation service provider, one was from an industry association representing financial statement preparers, one was from two academics who surveyed valuation specialists, and one was from an individual. Out of the nine letters received from auditors and auditor associations, eight came from audit firms that also participated in our 2021 auditor outreach. We also received one letter from a non-profit sustainability advocacy organization that works with investors and companies to address the economic impact of climate change. This comment letter mainly focused on company and auditor disclosures of climate-related financial risks in the annual reports. Due

organized the content by topic (corresponding to questions presented in the RFC and other topics that arose), and summarized the key points within each topic area.

The input received from commenters was generally consistent with findings from our other outreach and data analysis efforts. Commenters generally expressed a positive view of the Estimates Requirements and Specialists Requirements, although they also stated that the impact on auditors and companies, if any, was relatively minor. Overall, the comment letters did not identify significant unintended consequences from auditors' initial implementation of the Estimates Requirements and Specialists Requirements.

Many commenters stated that the effects of the Estimates Requirements and Specialists Requirements were limited since audit firms' previous policies and methodologies aligned well with the new requirements. Most changes reported were marginal improvements to previous auditing practices. One audit firm noted, "[T]he new and amended standards served as a strong reminder of the leading practices and policies we had in place and prompted engagement teams to rechallenge their practices and audit execution on their engagements." However, two academics who conducted a survey of 30 specialists reported in a comment letter that because of the new Specialists Requirements, audit teams are now more likely to rely on auditor specialists than on company specialists to comply with the new requirements.

In some instances, commenters stated that the new audit requirements led to minor improvements in audit processes that increased audit quality. Commenters cited specific aspects of the Estimates Requirements and Specialists Requirements that resulted in positive changes.

- With regard to the Estimates Requirements, commenters cited increased attention to applying professional skepticism, better alignment with ISA 540, and increased rigor in financial instrument reviews.
- With regard to the Specialists Requirements, commenters cited the scalability and risk-based approach of the standard as well as increased detail in the due diligence process when using a specialist.

Some commenters reported that the Estimates Requirements and Specialists Requirements led to increased auditor effort to understand and document assumptions underlying accounting estimates. For example:

- One valuation service provider noted that since audit teams requested more documentation and transparency in the valuation process, the company provided more robust pricing information. According to that company, "Audit teams used this additional information to better document valuation methodologies, assess variances and evaluate the observability of the inputs."
- One audit firm also responded, "[W]e emphasized the importance of...understanding and documenting management's process for developing accounting estimates (including identifying

to the focus on public disclosures, this letter is discussed in the staff white paper "Second Stakeholder Outreach on the Initial Implementation of CAM Requirements". Comment letters are available at <https://pcaobus.org/oversight/standards/economic-analysis/pir/comment-letters-post-implementation-review-as2501-auditing-accounting-estimates-fair-value-measurements-auditors-use-work-specialists>.

and evaluating significant assumptions) and evaluating management bias and changes in estimates as part of assessing the risk of material misstatement as a result of fraud.”

Most commenters reported that the Estimates Requirements and Specialists Requirements did not have a significant impact on communication between auditors, audit committees, and financial statement preparers; however, some commenters noted that the new audit requirements led to enhanced discussions on some topics.

- For example, regarding the Estimates Requirements, one audit firm wrote, “We have not conducted a comprehensive analysis of the impacts of the requirements on communications and dialog between auditors, audit committees, and preparers, but anecdotal evidence suggests that the final standard may have facilitated more granular discussions about certain accounting estimates, including critical accounting estimates, by focusing those discussions on elements of the estimates (i.e. methods, assumptions, and data) that more significantly contributed to the assessed risks of material misstatement.”
- Similarly, the comment letter from two academics quoted a specialist saying, “The new [Estimates] standards enhance the requirement for auditors to apply professional skepticism to valuation specialists on their own audit team. This will likely enhance the communication from those individuals with management’s outside specialists.” Another survey participant noted the benefit of having communication earlier in the audit process. The participant commented, “The improved need for communication up front will likely have some benefits in avoiding unplanned communication late in the audit.”

Commenters did not note any significant impact of the new audit requirements on audit fees or other costs.

- An industry association noted that some companies may have incurred minor indirect costs associated with increased documentation for existing general estimation controls under the Estimates Requirements. The same commenter also noted some instances in which the companies experienced minor upfront costs due to revised documentation to align with auditors’ expectations under the Specialists Requirements.
- The comment letter from two academics reported their survey findings that the new requirements resulted in an increase of both audit fees and valuation fees. There was no discussion of the magnitude of the increase in fees in the comment letter.

APPENDIX A: TABLES

TABLE 1: Time Spent to Support Implementation of Estimates Requirements and Specialists Requirements¹⁷

Calendar year	Average hours for implementation				
	Big Four firms	Big Four firms (excluding outlier)	Other annually inspected firms	Triennially inspected firms	Triennially inspected firms (excluding outlier)
2019 and prior	2,585	3,447	287	224	156
2020	15,914	3,623	870	458	274
Through April 2021	1,694	1,220	36	145	16
Total	20,192	8,290	1,191	828	446
Percentage of hours by personnel level ¹⁸					
Partner	37%	34%	52%	76%	81%
Manager	63%	65%	42%	21%	16%
More junior staff	1%	1%	6%	3%	4%

TABLE 2: Time Spent by Firm Personnel Attending Training Related to Estimates Requirements and Specialists Requirements

Calendar year	Average hours for attending training				
	Big Four firms	Big Four firms (excluding outlier)	Other annually inspected firms	Triennially inspected firms	Triennially inspected firms (excluding outlier)
2019 and prior	5,603	2,407	502	317	355
2020	42,458	21,350	1,302	696	645
Through April 2021	589	183	27	132	144
Total	48,650	23,940	1,831	1,145	1,144
Percentage of hours by personnel level ¹⁹					
Partner	9%	7%	24%	33%	34%
Manager	22%	20%	40%	38%	38%
More junior staff	70%	73%	36%	28%	29%

¹⁷ Hours reported here are estimated by the firms and include time spent to support implementation of the new Estimates Requirements and Specialists Requirements: (1) developing, implementing, or revising firm-level audit policies, procedures, methodology, tools, guidance, review processes, and other infrastructure, (2) developing training, (3) engaging in discussions or consultations related to the new audit requirements with engagement teams (if hours were not charged to individual audit engagements), and (4) monitoring implementation of the new audit requirements by individual engagement teams (if hours were not charged to individual audit engagements). Hours do not include time recorded at the individual engagement level (e.g., engagement team hours spent implementing the new audit requirements, national office hours spent on the new audit requirements and recorded at the engagement level).

¹⁸ Percentages may not add up to 100% due to rounding.

¹⁹ Percentages may not add up to 100% due to rounding.

APPENDIX B: MONETIZATION OF COSTS OF TIME FOR BIG FOUR FIRMS

We calculated cost estimates associated with (1) the time spent by Big Four firms on firm-level activities to implement the Estimates Requirements and Specialists Requirements and (2) the time Big Four firm personnel spent attending training directly related to the Estimates Requirements and Specialists Requirements. We developed cost estimates by using adjusted compensation estimates from a U.S. Securities and Exchange Commission (SEC) release. To assess the potential cost of Regulation S-X Rule 2-06, Retention of Records Relevant to Audits and Reviews, the SEC estimated that annual compensation was \$500,000 and \$125,000 for a partner and a non-partner firm personnel, respectively, as of January 2003. Using the Employment Cost Index (ECI) from the Bureau of Labor Statistics, the estimated annual compensation for a partner and a non-partner firm personnel is approximately \$773,574 and \$193,394, respectively, as of October 2021.²⁰

To estimate the average cost of firm-level hours spent by Big Four firms to implement the Estimates Requirements and Specialists Requirements and time spent by personnel to attend training, we multiply average hours by estimated hourly compensation rates. Assuming average annual compensation of \$773,574 (\$193,394) for a partner (non-partner firm personnel), and 2,600 work hours per year (50 hours per week and 52 weeks per year), the estimated hourly compensation rate of a partner (non-partner firm personnel) is \$298 (\$74). Using these rates, we estimate that the average cost of firm-level activities to implement the Estimates Requirements and Specialists Requirements is approximately \$3.2 million per firm ($20,192 \times 37\% \times \$298 + 20,192 \times 63\% \times \74), and the average cost for personnel to attend training on the Estimates Requirements and Specialists Requirements is approximately \$4.6 million per firm ($48,650 \times 9\% \times \$298 + 48,650 \times 91\% \times \74). Therefore, the average total cost is \$3.2 million + \$4.6 million = \$7.8 million per firm.

Excluding one firm that is an outlier, the average cost of firm-level activities to implement the Estimates Requirements and Specialists Requirements is approximately \$1.2 million per firm ($8,290 \times 34\% \times \$298 + 8,290 \times 66\% \times \74), and the average cost for personnel to attend training on the Estimates Requirements and Specialists Requirements is approximately \$2.1 million per firm ($23,940 \times 7\% \times \$298 + 23,940 \times 93\% \times \74). Therefore, the average total cost per firm, excluding the outlier firm, is \$1.2 million + \$2.1 million = \$3.3 million.

²⁰ See U.S. Securities and Exchange Commission, *Retention of Records Relevant to Audits and Reviews* (Jan. 27, 2003), at note 75, available at <https://www.sec.gov/rules/final/33-8180.htm> (accessed October 14, 2021) and Bureau of Labor Statistics, Employment Cost Index, Financial activities industry, available at <https://www.bls.gov/web/eci/echistrynaics.pdf> (accessed October 14, 2021).

APPENDIX C: AUDIT FIRM SURVEY DATA COLLECTION INSTRUMENT

Introduction

Thank you for your participation in this data collection effort. This study is being conducted by staff of the Public Company Accounting Oversight Board (PCAOB). By participating, you will help the PCAOB understand the impact of new requirements for auditing accounting estimates and using the work of specialists (E&S) on auditors.²¹ Given that the requirements were effective at the same time and their impact may be interrelated, we generally refer to both rulemakings in tandem. We understand, however, that firms may have put in place distinct implementation processes for each. In your responses below, please clarify which requirements you are referring to in cases where implementation efforts or impact were different.

This questionnaire is NOT associated with an audit inspection conducted by PCAOB's Division of Registration and Inspections. Participation in this study is voluntary. The questionnaire will help inform the PCAOB's overall evaluation of the impact of the new requirements.

Survey responses will not be reported at the individual or firm level in any publication resulting from this study.

Questionnaire

1. Firm name:
2. Please briefly describe the firm's overall approach to implementation of the E&S audit requirements. Please describe:
 - Key changes to the firm's audit policies, procedures, methodology, tools, guidance, consultation requirements, and review processes
 - Development and roll-out of training courses on the new requirements
 - Support provided to engagement teams to assist with implementation
 - Processes developed to monitor implementation of the new requirements by engagement teams
 - Other significant activities undertaken to support implementation of the new requirements

For each of the above, please describe the associated timeframe. If activities related to implementation of the E&S audit requirements were distinct, please describe the activities undertaken for each.

²¹ The Board amended two existing auditing standards, AS 1105, *Audit Evidence*, and AS 1201, *Supervision of the Audit Engagement*. The Board also retitled and replaced AS 1210, *Using the Work of a Specialist*, with a new AS 1210, *Using the Work of an Auditor-Engaged Specialist*. See <https://pcaobus.org/oversight/standards/implementation-resources-PCAOB-standards-rules/auditors-use-work-specialists>

See AS 2501, *Auditing Accounting Estimates, Including Fair Value Measurements* <https://pcaobus.org/oversight/standards/implementation-resources-PCAOB-standards-rules/auditing-accounting-estimates-fair-value-measurements>

3. Did the firm encounter any significant challenges in implementing the new E&S audit requirements? If so, please describe and, if applicable, please reference specific requirements that caused challenges.
4. Please provide (1) the total firm-level hours incurred, and (2) any external costs for implementing the new E&S audit requirements. If your firm did not specifically track these hours, please provide your best estimate. Please include costs for:
 - Developing, implementing, or revising firm-level audit policies, procedures, methodology, tools, guidance, consultation requirements, review processes, and other infrastructure directly related to the new E&S audit requirements
 - Developing and conducting training directly related to the new E&S audit requirements (please exclude time spent by individuals attending the training)
 - Engaging in discussions or consultations with engagement teams on application of the new E&S audit requirements, if hours were not charged to individual audit engagements
 - Monitoring implementation of the new E&S audit requirements by individual engagement teams, if hours were not charged to individual audit engagements
 - Other significant activities undertaken to directly support implementation of the new requirements

Please do NOT include costs recorded at the individual engagement level (e.g., engagement team hours, national office hours recorded at the engagement level).

Calendar Year	Hours Incurred	Cost (external spend only)
2019 and prior		
2020		
Through April 2021		
Total hours		
Monetized cost of total hours*		

* To monetize the cost of total hours, please multiply total hours by an estimated “blended” hourly compensation rate that takes into account estimates of: (1) the annual gross compensation of individuals that participated in implementation efforts (excluding fringe benefits) and (2) the mix of personnel involved.

5. Of the aggregate hours included in your response to question 4, please describe the main activities on which this time was spent.
6. Of the aggregate hours included in your response to question 4, what percent would you estimate, on average, were performed by personnel at the following levels? Please include within “a. Partner” both equity and non-equity partners (e.g., Managing Director, Director etc.)
 - a. Partner

- b. Manager
 - c. More junior staff
7. Please provide the total amount of time firm personnel spent attending training directly related to the new requirements. If your firm did not specifically track these hours, please provide your best estimate. Please do NOT include costs recorded at the individual engagement level.

Calendar Year	Training Hours
2019 and prior	
2020	
Through April 2021	
Total hours	
Monetized cost of total training hours*	

* To monetize the cost of total training hours, please multiply total training hours by an estimated “blended” hourly compensation rate that takes into account estimates of: (1) the annual gross compensation of individuals that participated in the training (excluding fringe benefits) and (2) the mix of personnel involved.

8. Of the aggregate training hours included in your response to question 7, what percent would you estimate, on average, were performed by personnel at the following levels?
- a. Partner
 - b. Manager
 - c. More junior staff
9. Please describe your process for developing any estimates in your responses to questions 4 - 8. Please describe challenges you encountered or assumptions you made in responding to those questions.
10. To what extent have the new requirements led to changes in the way in which the firm conducts its audits? What were the most significant ways in which the new requirements have changed practice and why? Did the nature, timing, or extent of audit procedures change? Please describe any changes and provide your perspectives on any implications for audit quality. Please also reference the specific requirements or provisions that led to the changes.
11. Has the firm observed any changes in time spent by engagement teams auditing accounting estimates or using the work of specialists? Please provide comments on:
- The specific requirement(s) that caused the change
 - Whether specialist usage changed
 - Implications for audit fees, if any

- The extent to which any changes in audit effort, specialist usage, and audit fees vary with the size of the audit engagement and/or the industry of the audit engagement
- The extent to which any changes in audit effort, specialist usage, or audit fees can be attributed to the new E&S audit requirements versus other contemporaneous factors (e.g., changes to financial reporting frameworks, changes in macroeconomic conditions, or the coronavirus pandemic)

12. Have the new requirements for E&S prompted engagement teams to reallocate audit effort or realize any efficiencies? If yes, please briefly describe.

13. Has the firm encountered any unintended consequences in implementing the new requirements? Where possible, please reference specific requirements or provisions and describe how it led to an unintended consequence. For example:

- Have the new requirements caused your firm to accept fewer engagements that would require the use of an auditor's specialist?
- Have the new requirements caused your firm to lose existing audit engagements that require the use of an auditor's specialist?
- Has your firm encountered any shortage or strains on the pool of qualified auditor's specialists? If so, do you attribute any shortage to the new requirements or to other environmental factors (e.g., changes in accounting requirements or the coronavirus pandemic)?
- Has your firm changed its approach to using pricing information provided by third-party pricing sources?

APPENDIX D: AUDIT ENGAGEMENT PARTNER INTERVIEW GUIDES

1. I'd like to start by asking for your overall opinion on the effects of the new requirements. Overall, what would you say was the most significant impact of the new requirements on auditing accounting estimates and using the work of specialists on your audit of [ISSUER]?
 - a. Overall, do you think that the new requirements affected in any way the engagement team's mindset or attitude toward auditing management estimates? Why?
 - b. Same question for specialists. Overall, do you think that the new requirements affected in any way the engagement team's mindset or attitude toward evaluating the work of specialists? Why?
2. Were there any specific challenges that the engagement team experienced in applying the new requirements for the first time on this audit?
3. Next I would like to ask about how the engagement team used auditor-employed and/or auditor-engaged specialists (as defined in PCAOB standards) on the audit of [ISSUER]. In what areas of the audit did you use an auditor-employed or auditor-engaged specialist in this year's audit?
 - a. How were they used?
4. Did you use an auditor's specialist for the first time this year or in a different way than in past audits?
 - a. [IF YES] Which types of auditor's specialists did the engagement team use for the first time/in a different way? In which areas?
 - b. [IF YES] What are some of the reasons why the engagement team decided to use an auditor's specialist of this type/in a different way in the current audit year but not in prior years?
5. [Confirm if the engagement team used any auditor-engaged specialists. If so:]
 - a. What process did the engagement team follow to review the background of auditor-engaged specialists to ensure that they would meet the requirements of independence and competence? Were there any changes in that process as compared to prior year audits?
 - b. Could you describe the process the engagement team used to supervise and review the work of auditor-engaged specialists? Was the process different this year compared to prior year audits?
 - c. Roughly how many hours did the engagement team spend reviewing the background of potential auditor-engaged specialists to ensure they would meet requirements of independence and competence?
 - d. Was that more, less, or roughly the same as the prior year?

- e. Roughly how many hours did the engagement team spend supervising auditor-engaged specialists and reviewing their work?
 - f. Was that more, less, or roughly the same as the prior year?
 - g. Did communication with auditor-engaged specialists change compared to prior year audits and, if so, how?
 - h. [IF NEEDED] What was the cause of the differences?
6. [Confirm if the engagement team used any auditor-employed specialists. If so:]
- a. Could you describe the process the engagement team used to supervise and review the work of auditor-employed specialists? Was the process different this year compared to prior year audits?
 - b. Roughly how many hours did the engagement team spend supervising auditor-employed specialists and reviewing their work?
 - c. Was that more, less, or roughly the same as the prior year?
 - d. Did communication with auditor-employed specialists change compared to prior year audits and, if so, how?
 - e. [IF NEEDED] What was the cause of the differences?
 - f. Overall, how would you say the new requirements for using the work of auditor's specialists affected the likelihood of detecting misstatements?
7. Now I'd like to ask you about the work of company specialists. In what financial statement areas, if any, does [ISSUER] use specialists as defined in PCAOB standards in preparing its financial statements?
8. In the last year, have you observed a change in the extent to which [ISSUER] uses specialists in preparing its financial statements? For example, did [ISSUER] use specialists for the first time this year or in a different way than in previous fiscal years?
- a. [IF NEEDED] Overall, has the issuer's use of company specialists increased or decreased?
 - b. [IF CHANGE] What are some of the reasons why [ISSUER]'s use of specialists changed?
 - c. [IF CHANGE] Did that have any implications for your audit of [ISSUER]?
9. For the most recent audit, did the engagement team use any of the work of company specialists as audit evidence?
- a. [IF YES] Has your use of that work changed in any way as compared to prior year audits?
 - b. [IF USE OF COMPANY SPECIALIST'S WORK CHANGED] What are some of the reasons why your use of that work changed?

10. [IF USED THE WORK OF A COMPANY SPECIALIST AS AUDIT EVIDENCE:] Who reviewed the work of the company's specialist? Was most of the review performed by the auditor's specialists or non-specialist auditors on the engagement team?
 - a. Could you describe the process the engagement team used to evaluate the work of the company's specialists?
 - b. Were the processes different this year compared to prior year audits?
 - c. [IF NEEDED] Can you tell me more about why those processes changed? Was it because of the new PCAOB requirements or for some other reason?
 - d. Roughly how many hours did your team devote to reviewing the work of the company's specialist? How does that amount of time compare to the time spent in prior year audits?
 - e. [IF NEEDED] What were the main reasons for the change in the amount of time spent reviewing the work of company specialists?
11. Overall, how would you say the new requirements for evaluating the work of a company's specialist affected the likelihood of detecting misstatements?
12. Now I'd like to ask you about the engagement team's approach to auditing accounting estimates. For the most recent audit, what changes, if any, did the engagement team make in its process to determine which accounts involved accounting estimates in significant accounts and disclosures?
13. Did your process for identifying and addressing risks of material misstatement and management bias in accounting estimates change compared to prior year audits? If so, how?
 - a. Did the engagement team identify potential sources of misstatements or management bias that were not identified in prior years?
14. What would you say represent the most significant and complex accounting estimates within [ISSUER]'s financial statements?
 - a. For those estimates, did your audit approach or audit procedures change in any way this year? If so, how?
15. More generally, and thinking about all of [ISSUER]'s accounting estimates, did the engagement team's process to evaluate estimates change in any other ways compared to prior year audits? If so, how?
 - a. [IF NEEDED] Were audit resources redirected to different activities compared to prior year audits?
 - b. [IF NEEDED] Can you tell me more about the reasons for those changes?
16. Did you make use of any third-party pricing information in performing your audit?

- a. [IF YES] Compared to prior year audits, how, if at all, did your audit approach change in relation to the use of third-party pricing information?
 - b. [IF CHANGED] What were the reasons for the change in your audit approach?
17. Overall, how would you say the new estimates requirements affected the likelihood of detecting misstatements?
18. Overall, did the changes to the audit of [ISSUER] that we've discussed today change in any way the nature of your communications with the audit committee? If so, how?
 - a. [IF YES] Do you think that those changes enhanced discussion or improved the audit committee's understanding of audit risks and the audit approach?
19. When comparing this year's audit with prior year audits, were there additional audit hours associated with the engagement team's use of the work of specialists and audit work over accounting estimates?
 - a. [IF YES] Approximately how many additional audit hours were associated with the new requirements?
 - b. [IF YES] To what extent were those additional hours related to the PCAOB's new requirements versus other contemporaneous environmental changes (for example, changes in the issuers business, macro-economic factors, new accounting standards, or new risks arising from the coronavirus pandemic).
 - c. [IF YES] What were the main activities on which the additional time was spent, and who mainly performed those additional hours?
 - d. [IF YES] Was there an impact on audit fees associated with the new requirements?
 - e. [IF YES] By how much did fees increase?
 - f. [IF YES] To what extent was the increase in fees due to the PCAOB's new requirements versus other contemporaneous environmental changes?
 - g. Are you aware of any other additional costs to [ISSUER] associated with the new requirements?
20. Did you encounter any unintended/unexpected outcomes from your implementation of the new requirements?
21. Is there anything else you would like to share with us about your experience implementing the new requirements?

APPENDIX E: AUDIT COMMITTEE CHAIR AND FINANCIAL STATEMENT PREPARER INTERVIEW GUIDES

Audit Committee Chair Interview Protocol

1. Overall, what would you consider are the most complex accounting estimates in [ISSUER's] financial statements?
2. For the most recent audit, did [AUDITOR] discuss with you any changes in its audit approach over accounting estimates?
 - a. [IF CHANGE AND IF NEEDED] What were the nature of those changes?
 - b. [IF CHANGE AND IF NEEDED] Could you describe for me that nature of the discussions the audit committee had with [AUDITOR] regarding those changes?
 - c. [IF CHANGE AND IF NEEDED] What information did [AUDITOR] share with you regarding the reasons for those changes?
 - d. [IF CHANGE] What are your perspectives on how those changes may have affected audit or financial reporting quality?
 - e. Did they walk you through the revisions to the audit requirements?
3. Turning now to specialists. For the most recent audit, did [AUDITOR] discuss with you any changes in how it used either the work of company specialists as audit evidence or the work of auditor-employed or engaged specialists?
 - a. [IF CHANGE AND IF NEEDED] What were the nature of (those) change(s)?
 - b. [IF CHANGE AND IF NEEDED] Could you describe for me that nature of the discussions the audit committee had with [AUDITOR] regarding those changes?
 - c. [IF CHANGE AND IF NEEDED] What information did [AUDITOR] share with you regarding the reasons for (those) change(s)?
 - d. [IF CHANGE] What are your perspectives on how (those) change(s) may have affected audit or financial reporting quality?
4. Are you aware of any costs that [ISSUER] incurred because of the PCAOB's new audit requirements for auditing accounting estimates and using the work of specialists?
 - a. [IF COST WAS TIME] Could you provide me a sense for the types and amount of time costs that were involved?
5. Did you experience any change in audit fees because of these new requirements?
 - a. [IF YES] Do you recall the amount?

- b. [IF APPLICABLE] To what extent were the additional fees due to the new PCAOB audit requirements on specialists and estimates versus broader challenges [AUDITOR] may have encountered in auditing accounting estimates this year? For example, any new complexities that may have arisen due to the coronavirus pandemic or due to other changes at [ISSUER]?
6. That wraps up all the questions I have for you today. Before we finish, is there anything else that you'd like to share with me on the topic of estimates and specialists?

Financial Statement Preparer Interview Protocol

1. In terms of specialist usage, are there any areas in which [ISSUER] uses the work of a specialist in preparing the financial statements?
 - a. Can you think of any areas in which [ISSUER] used a specialist in preparing the financial statements for the 2019 fiscal year but chose not to do so (or chose to use a specialist to a lesser extent) in preparing the 2020 fiscal year financial statements?
 - b. [IF CHANGE] What were the main reasons for that change?
 - c. [IF CHANGE] Did that decision have any implications for [AUDITOR] in terms of the audit approach?
 - d. [IF CHANGE AND IF NEEDED] What did [AUDITOR] do differently?
2. Are you aware of any audit areas in which [AUDITOR] used a specialist for the first time or in a different way in auditing the 2020 financial statements?
 - a. [IF CHANGE AND IF NEEDED] In which audit areas did [AUDITOR] use a specialist for the first time or in a different way?
 - b. [IF CHANGE] Do you know the reasons for that (those) change(s)?
 - c. [IF CHANGE] What are your perspectives on how that (those) change(s) may have affected audit or financial reporting quality?
3. Thinking more broadly now beyond just specialist usage, are you aware of any other changes to how [AUDITOR] approached audit work over accounting estimates during the most recent audit of [ISSUER]?
 - a. [IF CHANGE AND IF NEEDED] What were the nature of (those) change(s)?
 - b. [IF CHANGE AND IF NEEDED] What information did [AUDITOR] share with you regarding the reasons for (those) change(s)?
 - c. [IF CHANGE] What are your perspectives on how (those) change(s) may have affected audit or financial reporting quality?
4. Thinking back to discussions you may have observed between [AUDITOR] and the audit committee around audit work over accounting estimates and [AUDITOR's] use of the work of specialists, did you

notice any changes in the nature of discussions between [AUDITOR] and the audit committee this year?

- a. [IF NEEDED] What changes did you observe?
 - b. Did [AUDITOR] discuss the new PCAOB audit requirements with the audit committee?
5. Turning now to the topic of costs, overall, for [ISSUER], what would you say were the main costs, if any, related to the new PCAOB audit requirements for estimates and specialists?
6. Did you experience a change in audit fees because of these new requirements?
- a. [IF YES] Do you recall the amount?
 - b. [IF APPLICABLE] To what extent were the additional fees due to the new PCAOB audit requirements on specialists and estimates versus broader challenges [AUDITOR] may have encountered in auditing accounting estimates this year? For example, any new complexities that may have arisen due to the coronavirus pandemic or due to other changes at [ISSUER]?
7. Did [AUDITOR's] implementation of the new requirements for estimates and specialists have any significant implications in terms of the amount of time the financial reporting team spent interacting with [AUDITOR]? For example, responding to auditor inquiries and requests.
- a. [IF YES] How much additional time would you estimate they spent?
 - b. [IF YES] What was that time mainly spent on?
8. That wraps up all the questions I have for you today. Before we finish, is there anything else that you'd like to share with me on the topic of estimates and specialists?