Staff White Paper on Post-Implementation Review of AS 1220, Engagement Quality Review

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Abstract

AS 1220 requires an engagement quality reviewer to evaluate the significant judgments made by the audit engagement team and the related conclusions reached in forming the overall conclusion on the engagement and in preparing the engagement report, if a report is to be issued, in order to determine whether to provide concurring approval of issuance. The PCAOB adopted the standard to provide a meaningful check on the auditors' work to increase the likelihood that they will identify significant engagement deficiencies in their audits before issuing their audit reports. This paper provides new insights into changes in engagement quality review processes and audit quality over time including some empirical evidence of specific changes in the behavior of audit firms and engagement quality reviewers. In terms of the direct costs of the standard, on average, engagement quality reviewers spend more time performing their reviews post AS 1220. Relative to average total audit hours, the economic significance of this increase is small because reviewer hours comprise only a small portion of an audit. With respect to benefits, we observe some empirical evidence of improvements in audit quality post AS 1220, although we caution that direct attribution of these improvements to the rulemaking is difficult. Finally, our results generally suggest that AS 1220 did not give rise to significant unintended consequences.

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List of Abbreviations

AICPA	American Institute of Certified Public Accountants
AQI	Audit Quality Indicator(s)
ASB	Auditing Standards Board
Big Eight	Deloitte & Touche (Deloitte), Ernst & Young (EY), KPMG, PricewaterhouseCoopers (PwC), BDO, Grant Thornton (GT), Crowe Horwath (Crowe), and RSM
Big Four	Deloitte, EY, KPMG, and PwC
Big Six	Deloitte, EY, KPMG, PwC, BDO, and GT
DRI	Division of Registration and Inspections
EBP	Employee Benefit Plan
EP	Engagement Partner
EQ reviewer or reviewer	Engagement Quality Reviewer
EQR	Engagement Quality Review
ERA	Office of Economic and Risk Analysis
GNF	Global Network Firm, i.e., Big Six accounting firms
IAASB	International Auditing and Assurance Standards Board
ICFR	Internal Control over Financial Reporting
NAF	Non-Affiliate Firm
OLS	Ordinary Least Squares
PCAOB or Board	Public Company Accounting Oversight Board
PIR	Post-Implementation Review
(N)PPD	(National) Professional Practice Director
SAG	Standing Advisory Group
SEC	U.S. Securities and Exchange Commission
SECPS	Securities and Exchange Commission Practice Section

I. Executive Summary

A. Background

The PCAOB is committed to robust economic analysis, including post-implementation reviews (or PIRs) of new or amended PCAOB rules and standards. The objective of the PCAOB's PIR program is to look back at significant rulemakings, after a reasonable period of time has passed, to evaluate the overall effect of the rule or standard,[1] and to gather perspectives on whether the rule or standard could be refined or improved. The PCAOB's first PIR evaluates the overall effect of AS 1220, *Engagement Quality Review* ("AS 1220," previously AS 7). As the standard predates the inclusion of economic analysis in the rulemaking release, the staff considered the Board's overall objective in issuing the standard and the key changes that were made to prior requirements to retrospectively develop testable hypotheses and establish a basic framework for our evaluation. In conducting the review, the staff gathered and analyzed data from a number of sources including a public request for comment, information collected through the PCAOB's inspection and enforcement programs,[2] and third party data from Audit Analytics, Compustat, and S&P Capital IQ.

AS 1220 requires the EQ reviewer to perform an evaluation of the significant judgments made by the engagement team and the related conclusions reached in forming the overall conclusion on the engagement and in preparing the engagement report, if a report is to be issued, in order to determine whether to provide concurring approval of issuance.[3] The standard became effective for EQRs of audits and interim reviews for fiscal years beginning on or after December 15, 2009, superseding a concurring partner review requirement that was established by the auditing profession in the 1970s and adopted by the Board shortly after its formation, on an interim basis.[4]

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[1] This includes evaluating whether a rule or standard is accomplishing its intended purpose, as identified in the rulemaking release; identifying, wherever possible, costs and benefits; and identifying unintended consequences. Further information on the PCAOB's PIR program is on the PCAOB website, available at https://pcaobus.org/EconomicAndRiskAnalysis/pir (accessed November 27, 2018).

[2] Generally, issuer and partner data collected and retained by the PCAOB for U.S. GNFs is more extensive than data from other inspection programs. We exclude non-U.S. audit firms from the scope of our review based on the extent of the available (structured) data. Also, because AS 1220, along with other PCAOB standards, only became effective for audits of brokers and dealers and related attestation engagements with fiscal years ending on or after June 1, 2014, the staff did not include these audits and engagements in the scope of the PIR of AS 1220. For a description of the PCAOB's GNF and NAF inspection programs, *see* the Appendix in PCAOB Staff Inspection Brief Vol. 2017/3, *Information about 2017 Inspections*, August 2017, available at https://pcaobus.org/Inspections/Pages/staff-inspection-briefs.aspx (accessed November 27, 2018).

[3] *See* paragraph 2 of AS 1220, available at https://pcaobus.org/Standards/Auditing/Pages/AS1220.aspx (accessed November 27, 2018). Section II of this paper provides further background information on AS 1220.

[4] SECPS Requirements of Membership Sections 1000.08(f), *Concurring Partner Review of the Audit Report and the Financial Statements of Commission Registrants*, available at https://pcaobus.org/Standards/Archived/Pages/default.aspx (accessed November 27, 2018); and 1000.39, Appendix

B. Key Findings

Our review of AS 1220 provides new insights into changes in EQR processes and audit quality over time including some empirical evidence of specific changes in the behavior of audit firms and EQ reviewers. In terms of the direct costs of the standard, on average, engagement quality reviewers spend more time performing their reviews post AS 1220.[5] Relative to average total audit hours, the economic significance of this increase is small because reviewer hours comprise only a small portion of an audit (e.g., approximately 1 percent for audits of large domestic firms). With respect to benefits, we observe some empirical evidence of improvements in audit quality post AS 1220, although we caution that direct attribution of these improvements to the rulemaking is difficult. Finally, the results of our quantitative and qualitative analyses generally suggest that AS 1220 did not give rise to significant unintended consequences. In the discussion below we further elaborate on our findings.

- Costs: [p.17] Through interviews with audit practice leaders and partners, we learned that audit firms did not track specific costs to implement and comply with AS 1220. In the absence of systematically recorded implementation and compliance costs related to AS 1220, we examine the change in EQ reviewer hours between the pre and post AS 1220 periods. We acknowledge that there are other potential costs (e.g., training costs, costs associated with the usage of EQ reviewer assistants, etc.) but we are unable to empirically assess those based on the available data.
  - ✓ While EQ reviewers, on average, spend more time performing their reviews in the post AS 1220 period, increases in EQ reviewer hours are, overall, very small relative to average total audit hours and the average total cost of an audit.
    - For U.S. GNF audits between fiscal years 2008 and 2013, we estimate, on average, a 19 to 28 percent (approximately 10 to 16 hours per engagement) increase in reviewer hours in the post AS 1220 period. We further estimate that the average direct cost to U.S. GNFs related to changes in reviewer hours is between $2,200 and $6,400 per engagement.[6]
    - For triennially inspected U.S. NAF audits between fiscal years 2004 and 2014, we estimate, on average, up to a 23 percent (approximately 4 hours per engagement) increase in reviewer hours in the post AS 1220 period.[7] We further estimate that the

E, *Concurring Partner Review Requirement (Revised with an Effective Date of March 31, 2002)*, available at https://pcaobus.org/Standards/QC/Pages/SECPS_1000.08_appendix_e.aspx (accessed November 27, 2018).

[5] Post AS 1220 refers to the time period after AS 1220 became effective.

[6] Over the entire sample period, the average total audit hours per engagement in our U.S. GNF sample is 11,277 hours. Over the same period and among the same sample, the average total audit fees per engagement is approximately $2.8 million.

[7] With the addition of a linear time trend, we cannot differentiate the increase in reviewer hours for triennially inspected U.S. NAF audits from a general upward trend.

average direct cost to triennially inspected U.S. NAFs related to changes in reviewer hours is less than $1,600 per engagement.[8]

- ✓ As an alternative proxy for cost, we also examine changes in audit fees. Consistent with interview responses of audit partners, where only one of 74 partners interviewed recalled discussing fee increases specifically for AS 1220, our empirical results do not suggest higher audit fees in the post AS 1220 period (after controlling for issuer and auditor attributes), among either U.S. GNF or triennially inspected U.S. NAF audits.

- Benefits: [p.29] The Board expected AS 1220 to provide for a rigorous review that serves as a meaningful check on the audit work performed by an engagement team and increases the likelihood that a registered public accounting firm will catch any significant engagement deficiencies before it issues its audit report. Interviews with audit firm personnel indicate that most interviewees perceive that AS 1220 improved audit quality. To empirically assess whether the standard achieved its intended purpose, we examine longer-term trends in various AQIs.[9]
  - ✓ Overall, we find some empirical evidence of improvements in audit quality in the post AS 1220 period among both U.S. GNF and triennially inspected U.S. NAF audits, although we recognize that direct attribution of these improvements to AS 1220 is difficult.
  - ✓ Separately, for triennially inspected U.S. NAFs, we find that usage of EQ reviewers from outside the firm issuing the report (outside reviewers) is associated with fewer reviewer hours and lower quality audits.
- Other Responses: To explore the potential mechanisms through which costs and benefits may have arisen, we assess whether there is evidence of specific responses (e.g., changes in the behavior of EQ reviewers or audit firm management) along the lines of the changes the Board made in AS 1220. As discussed in more detail below, overall, we find evidence consistent with audit firms and reviewers responding to the new standard.
  - ✓ Review Process: [p.49] Compared to the predecessor standard, AS 1220 describes in more detail the objective of the review and the procedures that should be performed to meet this objective.

[8] Over the entire sample period the average total audit hours per engagement in our triennially inspected U.S. NAF sample is 824 hours. Over the same period and among the same sample, the average total audit fees per engagement is approximately $156,000.

[9] We examine AQIs based on PCAOB proprietary data (i.e., PCAOB Part I Findings, audit firm internal inspection ratings, and waived audit adjustments) and AQIs based on publicly available data (i.e., reissuance restatements, commonly referred to *BigR* restatements; issuance of going concern explanatory paragraphs; timely reporting of ICFR material weaknesses; and various accruals-based measures). *See* Section V.B for further discussion.

- On average, EQ reviewers spend more time performing EQRs in the post AS 1220 period. We also observe a smaller variation in EQ reviewer hours among audits in the post AS 1220 period, perhaps suggesting a more consistent approach by reviewers toward EQRs.

- One of the key changes in AS 1220 is for the EQ reviewer to evaluate the significant judgments made by the engagement team that relate to engagement planning. For inspected issuer audits of U.S. Big Eight audit firms,[10] we estimate, on average, a 1.8 percentage point increase[11] in the proportion of reviewer hours spent in the *Preliminary Review/Planning* phase in the post AS 1220 period. [12,13] This corresponds to an estimated increase of approximately 3.4 hours per engagement in the time spent in this phase of the audit.[14] We also find a similar, although smaller, increase in the proportion of reviewer hours spent in the *Interim Field Work* phase of the audit post AS 1220.

✓ Qualifications: [p.51] AS 1220 strengthens requirements related to the qualifications of the EQ reviewer, in particular regarding the level of expertise required and, for a reviewer from within the firm, regarding his or her level of authority. We examine aggregate-level changes in EQR assignments and changes in the observable characteristics of EQ reviewers.[15]

- Our descriptive analyses provide evidence of variation across U.S. GNFs and over time in EQR assignment practices. Some firms have taken steps to reassess the size of the partner pool performing EQRs and/or changed the number of EQR assignments given to each EQ reviewer. Moreover, U.S. GNFs have continued to make changes to their EQR assignment processes well into the post AS 1220 period.

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[10] For this analysis, in addition to the inspected issuer audits of U.S. GNFs included in our analysis of costs, we also include Crowe Horwath LLP (formerly known as Crowe Chizek and Company LLC) and RSM US LLP (formerly known as McGladrey LLP or McGladrey & Pullen LLP) to increase the sample size.

[11] The *percentage point* change is the change in the percentages. For example, the percentage change from 5 percent to 6 percent is a 20 *percent* increase but a 1 *percentage point* increase. *See* Appendix A.3 of Wooldridge (2016).

[12] Audit hours by phase is available in the inspection data for issuers selected for PCAOB inspection. The audit phases are: *Preliminary Review/Planning*, *Interim Field Work*, *Final Field Work to Issuance of Report*, *After Issuance of Report*, and *Total Quarterly Review*.

[13] In our sample, the average proportion of reviewer hours spent in the *Preliminary Review/Planning* phase is approximately 11.1 percent in the pre AS 1220 period.

[14] The average hours spent in the *Preliminary Review/Planning* phase in our sample is approximately 6.2 hours in the pre AS 1220 period.

[15] Our analysis of qualifications considers only the direct effects of AS 1220 in that it does not account for potential tradeoffs that could arise between assigning high quality personnel to EQRs versus other important roles, including as EPs or National Office resources.

- Although we observe some evidence of changes in the experience profile of EQ reviewers, in particular a decrease in the percentage of EQ reviewers with up to five years of partner experience, our results are generally not indicative of significant changes in observable EQ reviewer characteristics around AS 1220.[16]

✓ Standard of Care: [p.56] AS 1220 makes clear that a reviewer cannot evade responsibility because, as a result of an inadequate review, he or she did not discover a problem that a reasonably careful and diligent review would have revealed.

- Audit practice leaders of some U.S. GNFs said that they analyze negative quality events to ascertain the adequacy of the EQR and that these analyses are used in partner evaluation and compensation determinations.[17]
- Consistent with interview responses of audit practice leaders, we observe some evidence that, on average, U.S. GNFs hold EQ reviewers accountable for deficient EQRs. In particular, we find, on average, a greater decrease in the quality ratings of EQ reviewers on audits with both Part I Findings and Part II-EQR Findings relative to reviewers assigned to audits that received Part I Findings and for which the EQR was not flagged as deficient.[18]

✓ Applicability: [p.58] AS 1220 applies to all PCAOB-registered firms whereas the predecessor standard applied only to registered firms that were members of the AICPA's SECPS as of April 2003. Given this expansion of applicability, we compare changes in EQ reviewer hours and audit quality measures between SECPS and non-SECPS member firms around AS 1220.

- Among triennially inspected U.S. NAFs, we find no empirical evidence of non-SECPS member firm audits showing a larger change in direct costs and audit quality measures than SECPS member firm audits in the post AS 1220 period. This result could be explained by the observation that many non-SECPS member firms voluntarily performed concurring partner reviews for their audits in the pre AS

[16] We note that it is possible that EQ reviewers assigned to audits in the post AS 1220 period are no different than their predecessors across the characteristics we can observe but are in fact of higher quality due to other unobservable factors (e.g., knowledge gained from training).

[17] Leaders of some triennially inspected U.S. NAFs indicated that their firms have not implemented specific programs to incentivize EQ reviewers to perform better reviews and that their implementation of AS 1220 has not led to significant changes in the way partners are evaluated and compensated.

[18] Deficiencies related to EQRs are discussed in Part II (the nonpublic portion) of PCAOB inspection reports. *See* discussion in PCAOB Staff Inspection Brief Vol. 2017/3, *Information about 2017 Inspections*, August 2017, p. 9, available at https://pcaobus.org/Inspections/Documents/inspection-brief-2017-3-issuer-scope.pdf (accessed November 27, 2018); and PCAOB Release No. 2012-003, *Information for Audit Committees About the PCAOB Inspection Process*, August 1, 2012, p. 8, available at https://pcaobus.org/Inspections/Documents/Inspection_Information_for_Audit_Committees.pdf (accessed November 27, 2018).

1220 period, despite the fact that the standard did not require it.[19] Another interpretation is that other forces (e.g., institutional or resource constraints) restrict changes in reviewer hours and audit quality measures among non-SECPS member firm audits in the post AS 1220 period.

- Impact of PCAOB Oversight: [p.62] The PCAOB's efforts to improve audit quality can be viewed as a package, where standard setting is only one part of the overall approach to make audits more robust. Any changes in auditor and audit firm behavior could be, among other things, a joint function of changes in requirements, such as those brought about by AS 1220, and the impact of inspections and enforcement.
  - ✓ Preliminary evidence from contemporaneous research conducted on inspections data from before and after the effective date of AS 1220 suggests that EQ reviewers respond to PCAOB inspection findings by subsequently increasing their hours.[20]
- Unintended Consequences: [p.63] The results of both our empirical analyses and qualitative information from interviews with audit firm personnel and our public request for comment generally suggest that AS 1220 did not give rise to significant unintended consequences.
  - ✓ In the few instances where firms and interviewees cited unintended consequences, the issues related to the impact of AS 1220 on the relationship between EQ reviewers and engagement teams, increased complexity of partner assignment processes, consistency of EQRs, and increased time pressure on reviews. Firms that reported unintended consequences generally said that they were able to take steps to address them.[21]
- Potential Opportunities for Improvement: [p.65] In general, the results of interviews and our public request for comment suggest that AS 1220 is working well.
  - ✓ Suggestions for improvement related to the application of the principles-based framework of AS 1220, the impact of firm monitoring actions, and audit committee interactions.
- Conclusion: [p.67] Our review of AS 1220 represents the PCAOB's first PIR and provides valuable insights to help facilitate future reviews. Although this paper provides new descriptive evidence and facts about the EQR process, as in other studies on the impact of

[19] Among the triennially inspected NAF audits, concurring partner reviews were performed in approximately 91 percent of the non-SECPS member firm audits in the pre AS 1220 period.

[20] Aobdia (2018a) finds that financial reporting quality also eventually improves for inspected engagements with Part I Findings, with the probability of restatements going down two years ahead. However, additional tests in the paper find that audit firm remediation of Part II Findings may be driving this improvement.

[21] As a matter of practice, unintended consequences and suggestions for improvement identified through PIRs are considered as part of the staff's ongoing monitoring of current and emerging audit issues. Further information on this process is included in the PCAOB's standard-setting research agenda, available at https://pcaobus.org/Standards/Pages/About-Standard-Setting-Process.aspx (accessed November 27, 2018).

regulatory changes, we faced significant difficulties in establishing causation and measuring and quantifying incremental effects.[22]

- ✓ Some of the challenges we faced in isolating and quantifying incremental effects stem from the way AS 1220 was implemented (effective at a single point in time for all registered firms). Where appropriate, alternative implementation schemes could be considered for new or amended rules and standards, including phased implementation schedules,[23] which can assist in measuring impact.[24]
- ✓ Our analysis of the impact of AS 1220 was also limited by data availability, and the lack of ex-ante economic analysis in the proposing and adopting releases to assist in developing testable hypotheses and establishing a baseline.[25] Accordingly, in anticipation of future reviews, it is important to consider early on the data that would be required to evaluate the overall effect of a rule or standard. Future reviews will also benefit from the existence of economic analysis in more recent PCAOB rulemaking releases.

II. Background on AS 1220 and Analytical Framework

A. Background on AS 1220

The Sarbanes-Oxley Act of 2002 directed the Board to include in the auditing standards that it adopts requirements that a qualified person associated with the public accounting firm provide a concurring partner or second partner review and approval of issuance of audit reports filed with the SEC.[26] The Board adopted AS 1220 in July 2009 and the standard became effective for EQRs of audits and interim reviews for fiscal years beginning on or after December 15, 2009.[27]

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[22] For a discussion of common challenges in regulatory impact analysis, see Section 2.2 of Leuz and Wysocki (2016).

[23] Phased implementation is featured in the final standard on the auditor's reporting model, which the Board adopted on June 1, 2017 and the SEC approved on October 23, 2017. *See* PCAOB Release No. 2017-001, *The Auditor's Report on an Audit of Financial Statements When the Auditor Expresses an Unqualified Opinion and Related Amendments to PCAOB Standards*, June 1, 2017, p. 3, and the additional details on the rulemaking docket available at: https://pcaobus.org/Rulemaking/Pages/Docket034.aspx (accessed November 27, 2018).

[24] It is important to note that not all issues related to evaluating the impact of regulatory changes can be addressed through the use of treatment and control groups from phased implementation. For further discussion, see Section 2.2 of Leuz and Wysocki (2016).

[25] The PCAOB published staff guidance on economic analysis in PCAOB standard setting in 2014, after the Board adopted AS 1220. *See* PCAOB, *Staff Guidance on Economic Analysis in PCAOB Standard Setting*, February 14, 2014 ("2014 PCAOB Staff Guidance"), available at https://pcaobus.org/Standards/pages/05152014_guidance.aspx (accessed November 27, 2018).

[26] *See* Section 103(a)(2)(A)(ii) of the Sarbanes-Oxley Act of 2002.

[27] PCAOB Release No. 2009-004, *Auditing Standard No. 7 – Engagement Quality Review and Conforming Amendment to the Board's Interim Quality Control Standards*, July 28, 2009, p. 22. *See also* AS 1220: *Engagement*

The standard superseded a concurring partner review requirement that was established by the auditing profession in the 1970s and adopted by the Board shortly after its formation, on an interim basis.[28]

AS 1220 requires the EQ reviewer to perform an evaluation of the significant judgments made by the engagement team and the related conclusions reached in forming the overall conclusion on the engagement and in preparing the engagement report, if a report is to be issued, in order to determine whether to provide concurring approval of issuance.[29] The Board expected AS 1220 to provide for a rigorous review that serves as a meaningful check on the audit work performed by an engagement team and increases the likelihood that a registered public accounting firm will catch any significant engagement deficiencies before it issues its audit report.[30] To achieve this objective the Board made a number of changes to the predecessor standard, the most significant of which are outlined below.

- Review Process: AS 1220 describes procedures that the EQ reviewer is required to perform that are more specific than those previously required under the SECPS concurring partner review requirements. Although the SECPS requirements did lay out a number of procedures that the reviewer was required to perform, the overall objective of the concurring partner review was described in terms of reviewing significant auditing, accounting and financial reporting matters that come to the reviewer's attention.[31]

- Qualifications: AS 1220 strengthens requirements related to the qualifications of the EQ reviewer, in particular regarding the level of expertise required and, for a reviewer from within the firm, regarding his or her level of authority.

- Standard of Care: AS 1220 makes clear that a reviewer cannot evade responsibility because, as a result of an inadequate review, he or she did not discover a problem that a reasonably careful and diligent review would have revealed.[32] Prior to AS 1220, auditors were already required to exercise due professional care in discharging their responsibilities; nevertheless comments received during the development of AS 1220 appeared to reflect some confusion among audit firms about the applicable standard of care for a review performed under the SECPS requirements.

Quality Review, available at https://pcaobus.org/Standards/Auditing/Pages/AS1220.aspx (accessed November 27, 2018).

[28] *See* SECPS Sections 1000.08(f) and 1000.39, Appendix E.

[29] *See* paragraph 2 of AS 1220.

[30] Paragraph 12 of AS 1220 notes that "[a] significant engagement deficiency in an audit exists when (1) the engagement team failed to obtain sufficient appropriate evidence in accordance with the standards of the PCAOB, (2) the engagement team reached an inappropriate overall conclusion on the subject matter of the engagement, (3) the engagement report is not appropriate in the circumstances, or (4) the firm is not independent of its client."

[31] *See* SECPS Section 1000.39, Appendix E.

[32] PCAOB Release No. 2009-004, p. 19.

- Applicability: AS 1220 applies to all PCAOB-registered firms whereas the predecessor standard applied only to registered firms that were members of the AICPA's SECPS as of April 2003. Registered firms that were not members of the SECPS – generally non-U.S. firms and some U.S. NAFs – were not subject to the predecessor standard.

B. Analytical Framework

The release accompanying AS 1220 does not contain economic analysis as more recent PCAOB rulemaking releases do.[33] Therefore, to retrospectively develop testable hypotheses and establish a basic framework for our evaluation, we considered the Board's overall objective in issuing the standard and the key changes that were made to prior requirements. In analyzing each topic we discuss results of empirical tests that use data collected through PCAOB oversight activities and/or third party data. These empirical analyses are complemented by interviews of audit practice leaders, EPs, and EQ reviewers,[34] and comments received in response to a public request for comment.[35]

The remainder of this paper is organized as follows. Section III discusses challenges and limitations encountered in performing the PIR of AS 1220. Section IV discusses prior academic research on EQRs and the 2013 Board General Report on audit firm implementation of and compliance with AS 1220 in the first year of the standard. Section V reports the findings from our PIR of AS 1220. Section VI concludes and discusses opportunities to help facilitate future PIRs.[36]

III. Challenges and Limitations

As in other studies on the impact of regulatory changes, we faced a number of difficulties in performing our review of AS 1220.[37] While the analysis in this paper provides important insight into changes in the EQR process and audit quality over time, establishing causation and measuring and quantifying incremental effects is challenging.

In some respects, AS 1220 did not introduce fundamentally new concepts – concurring partner

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[33] The PCAOB published staff guidance on economic analysis in PCAOB standard setting in 2014, after the Board adopted AS 1220. *See* 2014 PCAOB Staff Guidance.

[34] *See* Appendix E for further details.

[35] *See* responses to the public request for comment, available at https://pcaobus.org/EconomicAndRiskAnalysis/CEA/Pages/post-implementation-review-AS7-engagement-quality.aspx (accessed November 27, 2018).

[36] Appendices contain data definitions, tables, a summary of prior work, a list of enforcement actions involving violations of the predecessor standard and/or AS 1220, and details on interviews of audit practice leaders, EPs, and EQ reviewers.

[37] For a discussion of common challenges in regulatory impact analysis, *see* Section 2.2 of Leuz and Wysocki (2016).

reviews were required under the predecessor standard and incentives existed for EQ reviewers to perform them with some degree of rigor (e.g., due to PCAOB oversight activities).[38] As a result, the potential benefits of AS 1220 are perhaps most likely to be observed only in certain circumstances (i.e., in situations in which financial reporting quality, audit quality, and performance under the predecessor standard are all low). Empirically identifying these circumstances is difficult.

We also acknowledge that there are many factors that could potentially confound our analysis, and it is likely that the changes we observe are driven by a combination of these factors, rather than AS 1220 alone. Of particular note, AS 1220 became effective in 2009, shortly after the recession prompted by the financial crisis of 2007-2008 and shortly before adoption of the PCAOB's risk assessment standards in 2010. Separating the incremental effect of AS 1220 from these events is not straightforward.

More broadly, as early as October 2003, then PCAOB Chairman McDonough publicly stated that the PCAOB was working on new requirements for second partner reviews.[39] If auditors took action in anticipation of the adoption of AS 1220, measuring the impact of the new standard based only upon observed differences before and after its effective date could underestimate effects.[40] It is also possible that changes in requirements coupled with a focus on compliance by PCAOB inspectors impacted the incentives of firms and EQ reviewers to comply with AS 1220, and/or the incentives of engagement teams to perform high quality audits.[41] Given these factors, it is possible that changes in EQRs could have occurred gradually, both before and after the effective date of the standard, and effects could have differed by firm. In our analysis, we aim to control for effects that could differ over time and by firm. However, for the reasons described above, we also recognize the difficulty in attributing the changes we observe in our review exclusively to AS 1220. Finally, we note that our analysis of the impact of AS 1220 is also limited by data availability, and the lack of ex-ante economic analysis in the proposing and adopting releases to assist in developing testable hypotheses and establishing a baseline.

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[38] PCAOB Release No. 2008-002, *Proposed Auditing Standard – Engagement Quality Review and Conforming Amendment to the Board's Interim Quality Control Standards*, February 26, 2008, pp. 2-5.

[39] *See* William J. McDonough, Chairman, PCAOB, *Testimony Concerning the PCAOB*, testimony before the U.S. Senate Committee on Finance, October 21, 2003, available at https://pcaobus.org/News/Speech/Pages/10212003_McDonoughPCAOBTestimony.aspx (accessed November 27, 2018). Over the next six years various SAG meetings and rule proposals signaled the PCAOB's continued intent to move forward with new EQR requirements.

[40] At the same time the PCAOB was working to develop a new standard on EQR, the ASB and the IAASB issued and then revised requirements for EQRs. These developments could also have resulted in changes to the way in which auditors approached EQRs.

[41] We consider the impact of PCAOB oversight in the scope of our review (*see* Section V.D).

IV. Prior Work

Archival academic research regarding EQRs is rare because the EQR process, its effects on the audit and inspection results related to EQRs are largely unobservable.[42] As a result, academic researchers have typically used experimental or survey techniques, or publicly available data on SEC and PCAOB enforcement actions. Appendix C discusses prior academic research on EQRs and summarizes findings from the 2013 Board General Report on audit firms' implementation of and compliance with AS 1220 in the first year of the standard. Our PIR of AS 1220 complements the Board General Report, in particular by more broadly evaluating, over a longer period of time, the overall effect of AS 1220, including through economic and statistical analysis of internal and external data relating to periods both before and after the effective date of the standard.

V. PIR of AS 1220 – Engagement Quality Review

A. Costs

Potential Effects

We commence our review by assessing the direct costs incurred by audit firms to implement and comply with AS 1220. Through interviews with audit firm practice leaders and partners, we learned that audit firms did not track costs to implement and comply with the new standard. In the absence of systematically recorded implementation and compliance costs related to AS 1220, we consider EQ reviewer hours a reasonable proxy to estimate direct costs. We acknowledge that there are other potential costs (e.g., training costs, costs associated with the usage of EQR assistants,[43] etc.) but we are unable to empirically assess those based on the available data. As an alternative proxy for cost, we also examine changes in audit fees between the pre and post AS 1220 periods, but with the important caveat that we do not have the information to attribute the portion of any observed change to AS 1220.

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[42] Deficiencies related to EQRs are discussed in Part II (the nonpublic portion) of PCAOB inspection reports. *See* discussion in PCAOB Staff Inspection Brief Vol. 2017/3, *Information about 2017 Inspections*, August 2017, p. 9, available at https://pcaobus.org/Inspections/Documents/inspection-brief-2017-3-issuer-scope.pdf (accessed November 27, 2018); and PCAOB Release No. 2012-003, *Information for Audit Committees About the PCAOB Inspection Process*, August 1, 2012, p. 8, available at https://pcaobus.org/Inspections/Documents/Inspection_Information_for_Audit_Committees.pdf (accessed November 27, 2018).

[43] AS 1220 specifically allows an EQ reviewer to use assistants in performing the review. As part of the 2015 inspection cycle, DRI asked EQ reviewers whether they use assistants and if so, how they divide up and oversee the work. Based on these interviews, the use of assistants in EQRs appears to vary across U.S. GNFs. Partners of triennially inspected U.S. NAFs generally said that they do not use assistants in performing an EQR. The interview responses also suggest that, when assistants are used, the manner in which they are utilized and supervised varies. Some EQ reviewers said that using assistants can be especially helpful on multi-location or very large engagements and can allow the EQ reviewer to focus his or her review on higher risk items.

Data

We obtain EQ reviewer hours for all issuer audits of U.S. GNFs collected annually by the PCAOB between inspection years 2010 and 2015 (largely corresponding to fiscal year 2008 through 2013 audits). Details of our sample selection processes can be found in Panels A and B of **Table 1** in Appendix B. The final sample contains 8,846 issuer-year observations of operating company issuer audits with reviewer hours in consecutive years across all pre and post AS 1220 periods (U.S. GNFs Sample 1, see Panel A of **Table 1** in Appendix B). Given the limited number of observations in the pre AS 1220 period for U.S. GNFs Sample 1, as a robustness check, we also obtain reviewer hours from inspection documents for those 2004-2007 fiscal year-end issuer audits selected for PCAOB inspection. We then construct an alternative sample (U.S. GNFs Sample 2) restricted to issuers that have reviewer hours data in both the 2004-2007 period and the 2008-2013 period.[44] The final sample of U.S. GNFs Sample 2 contains 2,279 issuer-year observations (see Panel B of **Table 1** in Appendix B). Panel C in **Table 1** (U.S. GNFs Sample 3) presents a sample to examine the long-term trend of various AQIs and is discussed in Section V.B.

For U.S. NAFs, the data contains information on all issuer audits of triennially inspected audit firms between fiscal years 2004 and 2014. Our analysis focuses on audits of triennially inspected U.S. NAFs because annually inspected U.S. NAFs have minimal pre AS 1220 observations. Our final sample comprises 3,454 issuer-year observations from audit firms with both pre and post AS 1220 observations (Tri. U.S. NAFs Sample). Details of our sample selection processes can be found in Panel D of **Table 1**.

In all of the samples, the final issuer-year observations also have publicly available information on other issuer-level control variables from Compustat, S&P Capital IQ, and Audit Analytics.[45]

Descriptive Analyses

Panels A and B in **Table 2** present descriptive statistics for U.S. GNFs Sample 1 and U.S. GNFs Sample 2 audits, respectively. For the U.S. GNFs Sample 1 (U.S. GNFs Sample 2), the average reviewer hours per engagement is 66 (68) hours, comprising approximately 1 percent of total audit hours. The data shows that EQ reviewers tend to spend more time on larger audits. For the U.S. GNFs Sample 1 (U.S. GNFs Sample 2), the average reviewer hours per engagement for issuers with average market capitalization less than $700 million, between $700 million and $5

[44] Given the relatively small number of issuer audits selected for PCAOB inspection each year at U.S. GNFs, we do not require issuers in this sample to have consecutive years of observations as in U.S. GNFs Sample 1.

[45] Compustat and S&P Capital IQ databases contain financial information of most publicly traded companies around the globe. Further information on these data sources is available at https://marketintelligence.spglobal.com/client-solutions/ (accessed November 27, 2018). We use the issuer level financial information from these databases to construct variables used in regression analysis (see Appendix A). We also obtain total audit fees data from Audit Analytics, a company providing research and data related to public company audits. For further information, see http://www.auditanalytics.com/ (accessed November 27, 2018).

billion, and over $5 billion are 53 (51), 67 (59), and 103 (99), respectively.[46] In Panel A of **Figure 1**, we observe that the average EQ reviewer hours of U.S. GNFs Sample 1 audits trend up over the sample period with the largest increase occurring in the first year immediately after the effective date of AS 1220. In Panel B, for the subset of issuers with extended pre AS 1220 period data in U.S. GNFs Sample 2, average reviewer hours also depict an upward trending behavior starting from the beginning of the sample period. We also observe that, in both samples, the proportion of reviewer hours to total audit hours increases through the first year after AS 1220 and declines thereafter. This implies a larger relative increase in total audit hours as compared to EQ reviewer hours from 2011 onwards, coinciding with implementation of the PCAOB's risk-assessment standards.[47] The upward trending behavior of reviewer hours do not appear to be driven by the extremes as **Figure 2** shows that the distribution of reviewer hours also shifted up in both samples.

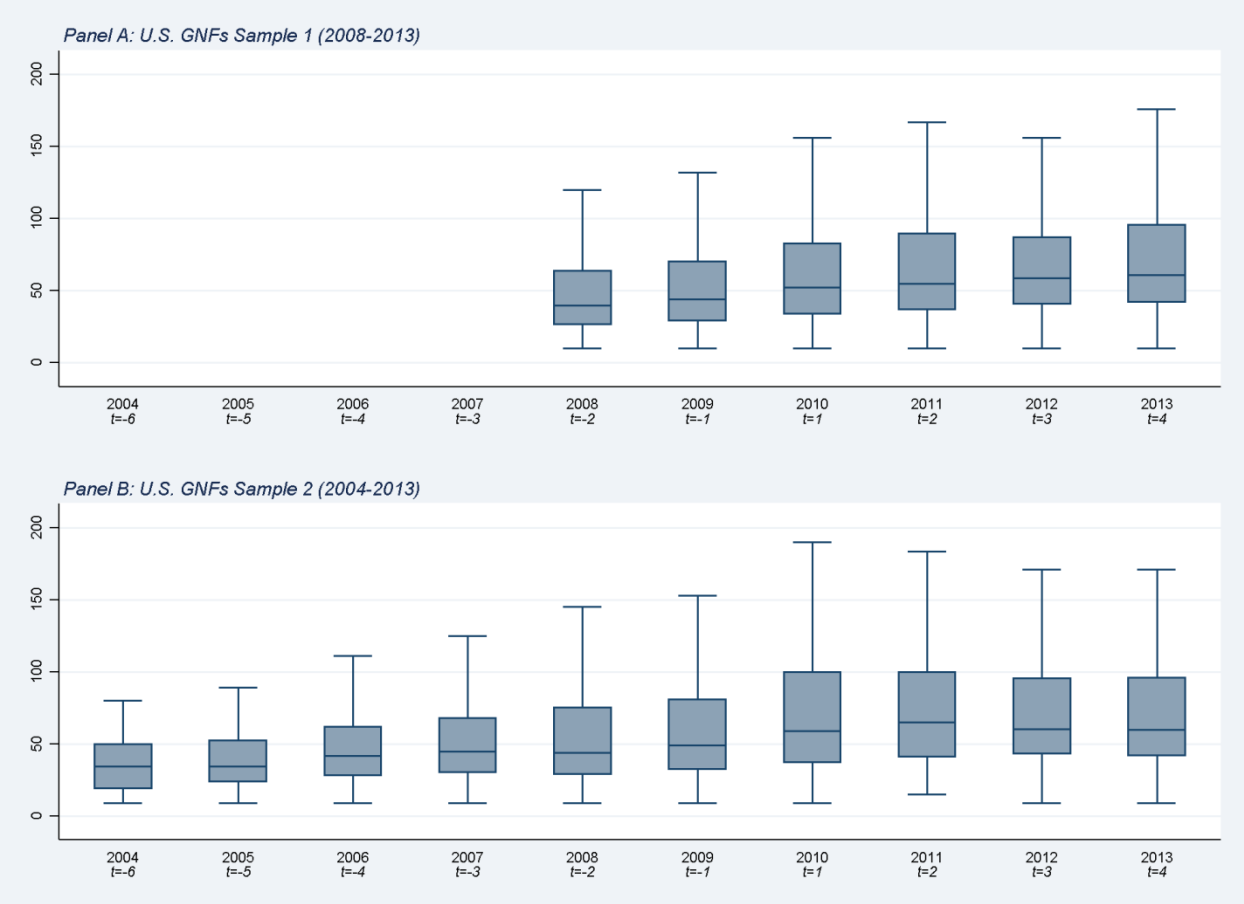
[46] Each issuer is classified into the three size groups according to its average market capitalization in the pre AS 1220 period. Note that because the filer status of a given issuer could change between years, our classification may differ from its actual filer status at a given point in time.

[47] The PCAOB's risk-assessment standards became effective for audits of fiscal years beginning on or after December 15, 2010.

Figure 1 Trend in EQ reviewer hours by year – U.S. GNFs

Panels A and B show the average EQ reviewer hours (line) and the average proportion of EQ reviewer hours to total audit hours (bars) for U.S. GNFs Sample 1 and U.S. GNFs Sample 2, respectively. The year on the x-axis is constructed based on the effective date of AS 1220. Year 1 (2010) represents fiscal year-ends during the first year that AS 1220 was effective, i.e., December 14, 2010 through December 13, 2011. Year 2 represents the fiscal year-ends during the second year that AS 1220 was effective, i.e., December 14, 2011 through December 13, 2012, and so on. This notation applies to all figures in this paper unless noted otherwise.

Figure 2 Distribution of EQ reviewer hours by year – U.S. GNFs



The upper hinge and lower hinge of the box represent the 75th and 25th percentile of the distribution, respectively. The median is indicated by the horizontal line within the box. The two vertical lines above and below the box are terminated by the small horizontal line called the fences. The upper (lower) fence is the highest (lowest) value of the distribution that is smaller (greater) than or equal to the third (first) quartile plus (minus) 1.5 times interquartile range.

It is important to note that the changes observed in **Figure 1** and **Figure 2** could be due to factors other than AS 1220. For example, one would expect EQ reviewer hours to change in response to changes in the fundamental characteristics of issuers (e.g., companies growing larger through merger and acquisition or becoming more complex because of changes in capital structure). Moreover, the upward trend in reviewer hours in the pre AS 1220 period could be a result of audit firms refining their processes in response to the renewed emphasis on the importance of such reviews.[48] Finally, we note that, over the sample period, it is not unusual for U.S. GNFs to

[48] *See* PCAOB Standing Advisory Group Agenda, *Potential Standard —Engagement Quality Reviews (Also known as Concurring or Second Partner Review)*, June 21–22, 2004, pp. 1-2, available at https://pcaobus.org/News/Events/Documents/06212004_SAGMeeting/Agenda%20item%209.pdf (accessed November 27, 2018).

receive PCAOB inspection criticisms with respect to their systems of quality control.[49] Audit firm remediation of any such criticisms, especially those related to second partner reviews, may also be associated with an increase in reviewer hours (*see* discussion in Section V.D). To assess the change in reviewer hours between the pre and post AS 1220 periods, we control for issuer and auditor attributes by using a regression. Empirically, we estimate the following model (shown without issuer and time subscripts):

$$LogEQRHours = \alpha + \beta_1 Post\_AS1220 + \sum \beta_i Controls_i + \sum \beta_j FE_j + \varepsilon \quad (1)$$

The dependent variable *LogEQRHours* represents the logarithm of reviewer hours; [50] *Post_AS1220* is an indicator variable for post AS 1220 effective date audits; and the coefficient of interest β_1 indicates the estimated percentage change in reviewer hours between the pre and post AS 1220 periods, holding other factors constant. *Controls* denote a set of issuer-level variables which prior literature identifies as having a potential impact on audit quality or audit fees (Francis et al., 2005; Hay et al., 2006; DeFond and Zhang, 2014; Aobdia, Siddiqui, and Vinelli, 2018). [51] Descriptions of our control variables are provided in Appendix A. All continuous variables are winsorized at the 1st and 99th percentiles to limit the impact of the outliers. *FE* represents audit firm fixed effects and issuer industry fixed effects. [52] We also replace the *Post_AS1220* indicator with a series of year indicators to trace out the change in reviewer hours over time and assess the time trend.

The patterns in Panels A and B of **Figure 3** are similar to those in **Figure 1**, suggesting an increase in reviewer hours in the post AS 1220 period after controlling for other issuer and auditor attributes. As discussed above and later on in Section V.D, remedial actions undertaken by audit firms could have affected EQR processes and could contribute to the upward trending behavior in EQ reviewer hours shown in **Figure 3**. As a result, we include a linear time trend to control for audit firm remedial actions and other potentially confounding events in a second

[49] As noted by the PCAOB, "[i]t is not unusual for an inspection report, particularly a report on one of the large, annually inspected firms, to include nonpublic criticisms of several aspects of a firm's system of quality control…" PCAOB Release No. 2012-003, *Information for Audit Committees about the PCAOB Inspection Process,* August 1, 2012, p. 9.

[50] We follow the general methodology in academic research and take the natural logarithm of the dependent variables (EQ reviewer hours and audits fees) so that the estimated coefficients of the regression are directly interpretable as approximate percentage changes, holding other factors constant. Further discussion on logarithmic transformation in data analysis can be found in Gelman and Hill (2007).

[51] Given the limited prior academic research on audit hours, we include control variables that have been extensively used in the literature in audit fee and audit quality models. Such control variables capture the potential impact from client issuer size (e.g., total assets, cash flow from operations, sales growth), profitability (e.g., loss indicator), leverage (e.g., leverage ratio, quick ratio), complexity (e.g., indicators for BigR restatement announcement, multinational corporation, merger and acquisition, and corporate restructuring), internal control (e.g., material weakness indicator), and probability of bankruptcy (e.g., Altman's Z score). We also include indicator variables for December year-end audits and new clients.

[52] We include industry fixed effects (based on the Fama-French industry groups) and audit firm fixed effects to control for any issuer industry and audit firm characteristics that remain constant over the sample period.

specification. While omitting a linear time trend from the model potentially overestimates the change in reviewer hours associated with AS 1220, we note that including it could underestimate the change if effects associated with AS 1220 occur gradually through time. The regression results in column (1) of Panel A in **Table 3** indicate, on average, a 28 percent (approximately 16 hours per engagement) increase in reviewer hours post AS 1220 in U.S. GNFs Sample 1.[53,54] With the addition of a linear time trend to further control for audit firm remediation of PCAOB inspection critiques and other potentially confounding events, results in column (2) indicate, on average, a 19 percent (approximately 10 hours per engagement) increase in reviewer hours in the post AS 1220 period.[55] We also find a statistically significant increase in reviewer hours in U.S. GNFs Sample 2 as indicated by the results in columns (3) and (4). Assuming an accounting firm's average hourly compensation to an EQ reviewer is $226-$401 per hour, we estimate that the direct cost to U.S. GNFs related to changes in reviewer hours in the post AS 1220 period is between $2,200 and $6,400 per engagement among audits in U.S. GNFs Sample 1.[56] Overall we consider the increases in EQ reviewer hours to be very small relative to total audit hours and the total cost of an audit.[57]

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[53] The percentage increase of EQ reviewer hours from the pre to the post AS 1220 period is calculated as 100×[exp(*Post_AS1220*)-1]. Given that the average reviewer hours per engagement is 55.1 hours in the pre AS 1220 period, the approximate increase in the post AS 1220 period is about 16 hours (55.1×28.3%).

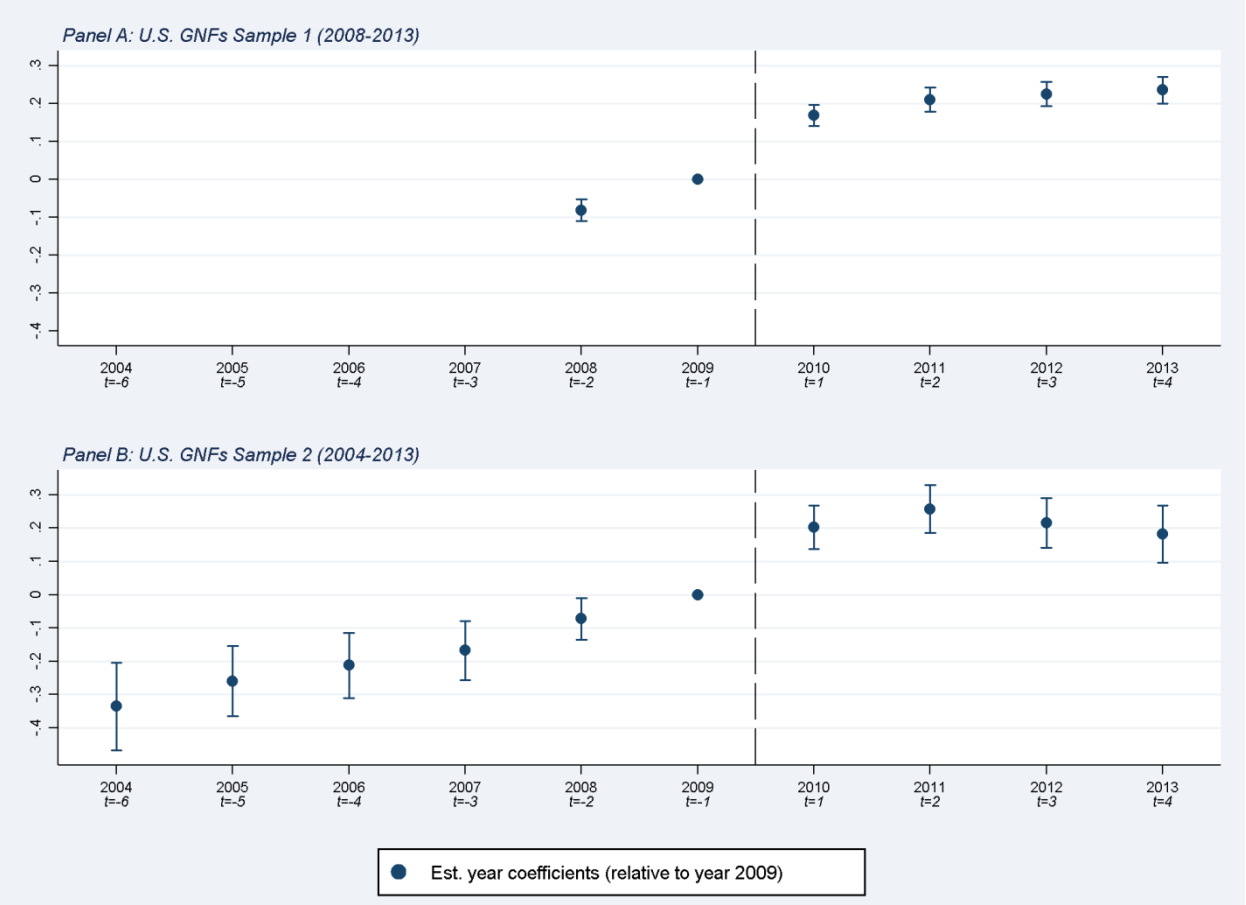
[54] Over the entire sample period, the average total audit hours per engagement in our U.S. GNF sample is 11,277 hours.

[55] In an untabulated analysis, we also compare the change in EQ reviewer hours around AS 1220 between groups of issuers of different sizes and find no statistically significant differences. Among issuers in U.S. GNFs Sample 1, the increase in reviewer hours in the post AS 1220 period among issuers with average market capitalization less than $700 million, between $700 million and $5 billion, and over $5 billion are 18.8 percent, 18.8 percent, and 15.5 percent, respectively. Although larger issuers appear to have a lower increase than their smaller counterparts, the difference is not statistically significant.

[56] To assess the potential cost of Regulation S-X Rule 2-06, *Retention of Records Relevant to Audits and Reviews*, the SEC estimated that a partner's annual compensation was $500,000 as of January 2003. Using the CPI Inflation Calculator from the Bureau of Labor Statistics, we estimate the annual compensation for a partner as $646,153 as of December 2014 (the end of sample period). Assuming the average weekly work hours of a partner is between 50 and 55 hours, a partner's total work hours per year is between 2,600 (50×52) and 2,860 (55×52), or 1,612 (50×52×62%) to 1,773 (55×52×62%) billable hours (based on the average partner utilization rate of 62 percent in the data provided to the PCAOB). We further estimate the hourly compensation of a partner to be as low as $225.9 ($646,153/2,860; by using total work hours from a 55-hour week as the divisor) and as high as $400.8 ($646,153/1,612; by using total billable hours from a 50-hour week as the divisor). Applying the range of estimated hourly compensation to the EQ reviewer hours increase of 10 and 16 hours per engagement among audits in U.S. GNFs Sample 1, we estimate that the direct cost to U.S. GNFs related to changes in reviewer hours in the post AS 1220 period is between $2,259 ($225.9×10) and $6,413 ($400.8×16). *See* U.S. Securities and Exchange Commission, *Retention of Records Relevant to Audits and Reviews*, January 27, 2003, at footnote 75, available at https://www.sec.gov/rules/final/33-8180.htm (accessed November 27, 2018); and Bureau of Labor Statistics, CPI Inflation Calculator, available at https://www.bls.gov/data/inflation_calculator.htm (accessed November 27, 2018).

[57] In U.S. GNFs Sample 1, the average proportion of EQ reviewer hours to total audit hours per engagement is approximately 0.8 percent in the pre AS 1220 period. In an untabulated analysis, regression results suggest an approximately 0.1 to 0.2 percentage point increase (statistically significant at the conventional levels) in this proportion in the post AS 1220 period. The *percentage point* change is the change in the percentages. For example,

Figure 3 Trend in EQ reviewer hours – U.S. GNFs (regression coefficients)



We estimate equations similar to columns (1) and (3) in Panel A of **Table 3** but replace the single *Post_AS1220* indicator with separate indicator variables, each representing one year over the sample period.[58] We use year 2009 (*t*=-1) as the benchmark and thus omit it in the estimation (i.e. it has a coefficient value of zero and no confidence interval). Panels A and B plot the estimated coefficient of the year indicators (circle marker) with the 95% confidence interval (solid line above and below the marker). The estimated coefficients for the year indicators are statistically different from the benchmark year if the 95% confidence interval does not include zero (the implied coefficient for the benchmark year omitted from the estimation).

the percentage change from 5 percent to 6 percent is a 20 percent increase but a 1 percentage point increase. See Appendix A.3 of Wooldridge (2016).

[58] The model specification is (without issuer and time subscripts):

$$LogEQRHours = \alpha + \sum \beta_t Year_t + \sum \beta_i Controls_i + \sum \beta_j FE_j + \varepsilon$$

Controls and *FE* are the sets of control variables and fixed effects defined in Equation (1). We use similar model specifications in all figures in the paper that depict the estimated year coefficients of the dependent variables over the respective sample period.

As for triennially inspected U.S. NAF audits, Panel B of **Figure 4** contains the estimated year coefficients[59], and the regression results in column (1) of Panel B in **Table 3** indicate on average a 23 percent (approximately 4 hours per engagement) increase in reviewer hours in the post AS 1220 period.[60] However, as indicated by results in column (2) in **Table 3**, we cannot differentiate this increase from a general upward trend in reviewer hours.[61,62] As such, we estimate that the direct cost to triennially inspected U.S. NAFs related to the change in reviewer hours is less than $1,600 per engagement.[63] Similar to U.S. GNFs, we also consider these changes in reviewer hours very small relative to average total audit hours and the average total cost of an audit.[64]

Separately, about 7 percent of audits in the Tri. U.S. NAFs Sample use an outside EQ reviewer.[65] Regression results in **Table 3** suggest that when an audit team uses an EQ reviewer from outside the audit firm, the reviewer spends less time on the review (approximately 12 percent lower) than a reviewer from within the audit firm. In the next section, we also examine how the usage of an outside reviewer correlates with audit quality.

[59] Year-to-year comparisons need to be viewed with caution because each year does not contain the same composition of issuers as the adjacent year given the nature and frequency of triennial U.S. NAFs inspections. In an unreported figure, we examine the distribution of reviewer hours by year for triennially inspected U.S. NAFs and find that the other parts of the distribution exhibit similar patterns to those shown in **Figure 4**.

[60] In the pre AS 1220 period, the average EQ reviewer hours per engagement is 18.5 hours in the sample. Therefore, the approximate increase in EQ reviewer hours per engagement in the post AS 1220 period is about 4 hours (18.5×23.5%).

[61] Efforts to address quality control criticisms resulting from PCAOB inspections in the sample period could contribute to the upward trend in reviewer hours. For further discussion of U.S. NAF remediation efforts, see PCAOB Release No. 2007-010, *Report on the PCAOB's 2004, 2005, and 2006 Inspections of Domestic Triennially Inspected Firms*, October 22, 2007, pp. 18-20; PCAOB Release No. 2013-001, *Report on 2007-2010 Inspections of Domestic Firms that Audit 100 or Fewer Public Companies*, February 25, 2013, pp. 39-40.

[62] Over the entire sample period, the average total audit hours per engagement in our triennially inspected U.S. NAF sample is 824 hours.

[63] Using the upper bound of estimated hourly compensation to an EQ reviewer in footnote 56, we estimate that the direct cost to triennially inspected U.S. NAFs related to the average increase in reviewer hours of 4 hours is $1,603 per engagement ($400.8×4). Generally, we expect partners at U.S. NAFs to have higher utilization rates and lower compensation than the partners at U.S. GNFs; therefore, our estimated dollar value can be viewed as an upper bound.

[64] For triennially inspected U.S. NAF audits in the pre AS 1220 period, the average proportion of EQ reviewer hours to total audit hours per engagement is approximately 2.9 percent. In an untabulated analysis, we find an approximately 0.3 to 0.5 percentage points increase (statistically significant at the conventional levels) in this proportion in the post AS 1220 period.

[65] In the Tri. U.S. NAFs Sample, audits that use outside EQ reviewers tend to be smaller. The average audit fees of engagements that use outside reviewers is about $130,000 compared to $158,000 for engagements that use EQ reviewers from within the firm. Moreover, the proportion of audits that use outside EQ reviewers are similar between the pre and post AS 1220 period (6.8 percent in the pre and 7.2 percent in the post AS 1220 period) and the difference is not statistically significant.

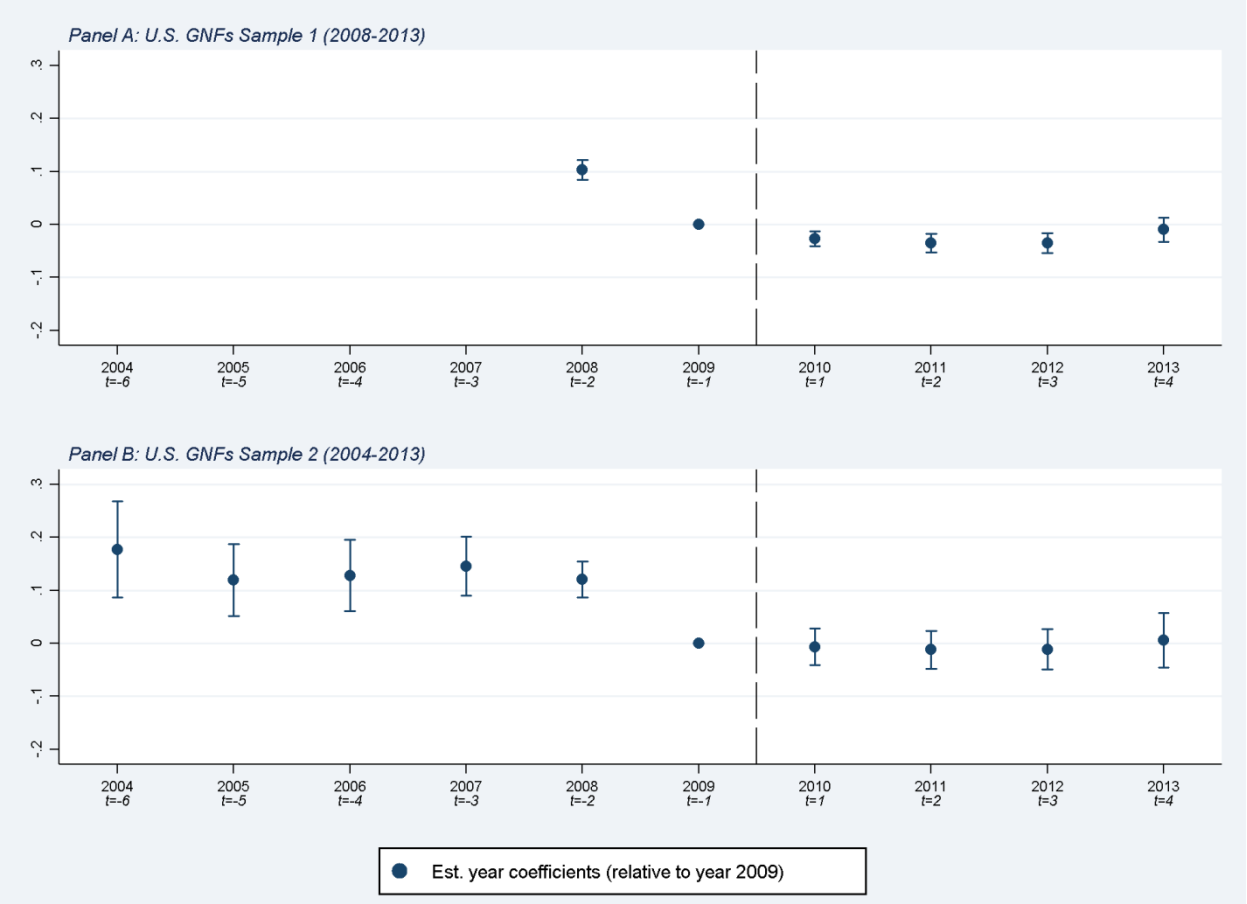
Figure 4 Trend in EQ reviewer hours – triennially inspected U.S. NAFs

Panel A shows trends in the average EQ reviewer hours (line) and the average proportion of EQ reviewer hours to total audit hours (bars). To obtain the coefficients in Panel B, we estimate an equation similar to column (1) in Panel B of **Table 3** but replace the single *Post_AS1220* indicator with separate indicator variables, each representing one year over the period 2004 (*t*=-6) to 2014 (*t*=5). We use year 2009 (*t*=-1) as the benchmark and thus omit it in the estimation (i.e. it has a coefficient value of zero and no confidence interval). Panel B plots the estimated coefficient of the year indicators (circle marker) with the 95% confidence interval (solid line above and below the marker). The estimated coefficients for the year indicators are statistically different from the benchmark year if the 95% confidence interval does not include zero (the implied coefficient for the benchmark year omitted from the estimation).

As an alternative proxy for cost, we also examine changes in audit fees. Given that EQ reviewer hours represent only a very small portion of total audit hours, we do not expect to detect an increase in audit fees in the post AS 1220 period as a result of the increase in reviewer hours. This is also consistent with qualitative information obtained through audit firm partner interviews where only one of the 74 partners recalled discussing fee increases specifically for AS 1220, and this partner said that the increases were nominal, less than 1 percent. In our analysis, **Figure 5** and results in columns (1) and (2) in Panel A of **Table 4** suggest on average a 6 to 8

percent (approximately $169,000 to $207,000 per engagement) decrease in audit fees,[66] after controlling for issuer and auditor attributes and including a linear time trend, in the post AS 1220 period for U.S. GNFs Sample 1.[67] The decline in audit fees around the adoption of AS 1220 period may have been driven by various factors. [68] Nevertheless, one of the primary objectives of a PIR is to identify any unintended consequences (such as an unexpected increase in audit fees post AS 1220) and we find no quantitative or qualitative evidence for that. For triennially inspected U.S. NAF audits, **Figure 6** and the results in columns (1) and (2) of Panel B in **Table 4** also do not suggest higher audit fees in the post AS 1220 period.

Figure 5 Trend in audit fees – U.S. GNFs (regression coefficients)



We estimate equations similar to columns (1) and (3) in Panel A of **Table 4** but replace the single *Post_AS1220* indicator with separate indicator variables, each representing one year over the sample period. We use year 2009 (*t*=-

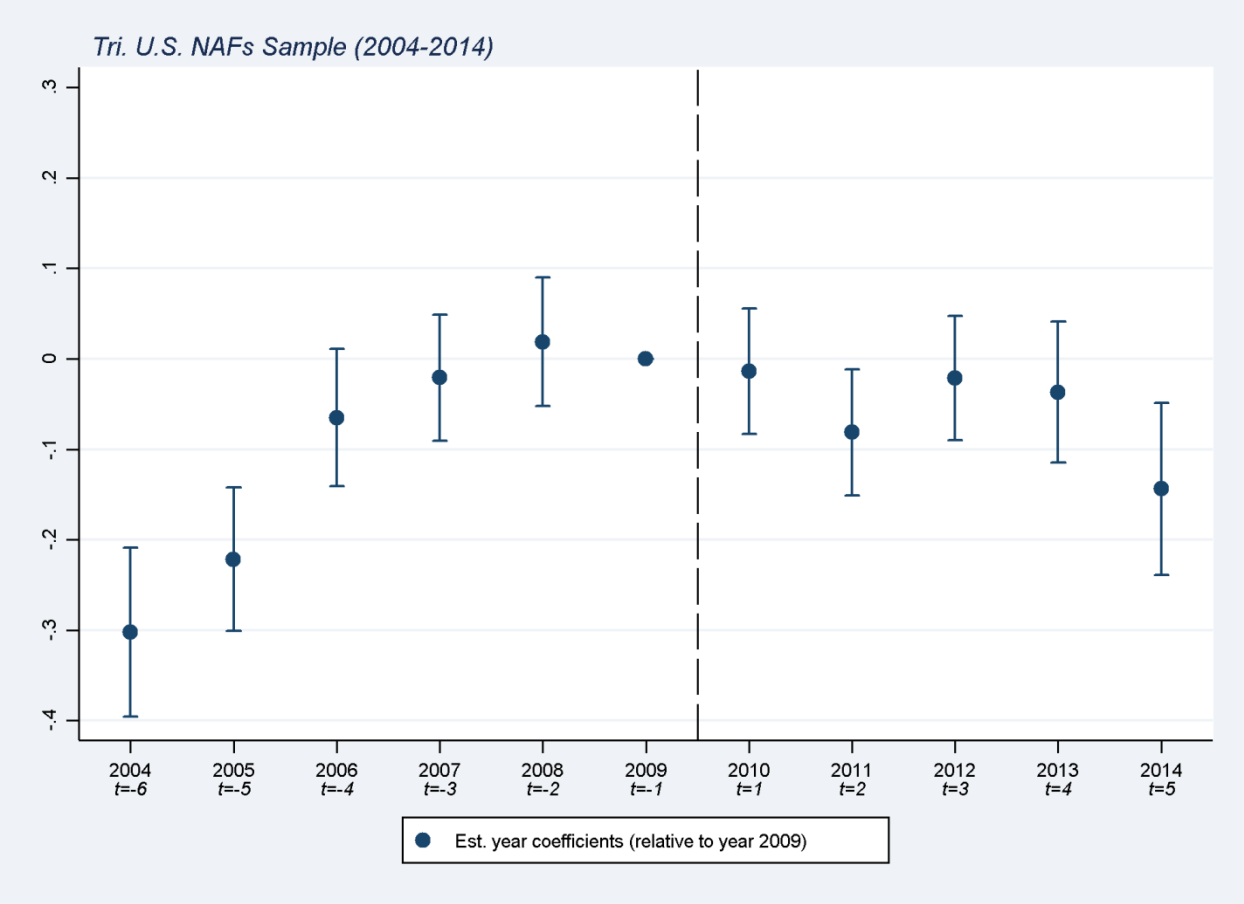
[66] Given the average audit fee per engagement is $2,683,155 in the pre AS 1220 period, the approximate decrease in the post AS 1220 period is between $169,039 ($2,683,155 × 6.3%) and $206,603 (2,683,155 × 7.7%).

[67] Regression results in columns (3) and (4) in Panel A of **Table 4** also suggest a decrease in audit fees in the post AS 1220 period among audits in U.S. GNFs Sample 2.

[68] Our finding of a decline in audit fees around the adoption of AS 1220 is also consistent with observations by regulators and practitioners at that time (e.g., PCAOB, 2010; Reason, 2010).

1) as the benchmark and thus omit it in the estimation (i.e. it has a coefficient value of zero and no confidence interval). Panels A and B plot the estimated coefficient of the year indicators (circle marker) with the 95% confidence interval (solid line above and below the marker). The estimated coefficients for the year indicators are statistically different from the benchmark year if the 95% confidence interval does not include zero (the implied coefficient for the benchmark year omitted from the estimation).

Figure 6 Trend in audit fees – triennially inspected U.S. NAFs (regression coefficients)



We estimate an equation similar to column (1) in Panel B of **Table 4** but replace the single *Post_AS1220* indicator with separate indicator variables, each representing one year over the period 2004 (*t*=-6) to 2014 (*t*=5). We use year 2009 (*t*=-1) as the benchmark and thus omit it in the estimation (i.e. it has a coefficient value of zero and no confidence interval). The figure plots the estimated coefficient of the year indicators (circle marker) with the 95% confidence interval (solid line above and below the marker). The estimated coefficients for the year indicators are statistically different from the benchmark year if the 95% confidence interval does not include zero (i.e., the implied coefficient for the benchmark year omitted from the estimation).

B. Benefits

Potential Effects

In this section we assess whether AS 1220 achieved its intended purpose. The Board expected AS 1220 to provide for a rigorous review that serves as a meaningful check on the audit work performed by an engagement team and increases the likelihood that a registered public accounting firm will catch any significant engagement deficiencies before it issues its audit report.[69] Interviews of audit partners and audit practice leaders indicate that most of these individuals perceive that AS 1220 improved audit quality.[70]

Given the available data, we are unable to observe whether AS 1220 is associated with an increase in problems identified by EQ reviewers (and addressed by engagement teams) prior to report issuance. Therefore, to empirically assess whether the standard achieved its intended purpose, we use PCAOB proprietary data and publicly available data to examine trends in various commonly used AQIs in the literature. We focus on longer-term trends because AS 1220 became effective toward the end of the most recent U.S. recession period. A shorter-term pre-post comparison of AQIs around the effective date of AS 1220 could be affected by the turmoil during these crisis years.

Although the analysis in this section focuses on evaluating whether AS 1220 is accomplishing its intended purpose, we recognize that there could also be other unintended effects. We consider whether the quantitative and qualitative evidence is indicative of unintended consequences in Section V.E.

AQIs based on PCAOB data

This group of AQIs includes: (1) PCAOB Part I Findings, (2) audit firm internal inspection ratings, and (3) waived audit adjustments.

Overall, we consider PCAOB Part I Findings to be a good AQI because they are based on an established and standards-based definition of an audit deficiency.[71] Moreover, Part I Findings explicitly focus on audit quality and, as compared to other AQIs, are not as much confounded by issuer reporting choices. *A priori*, one could expect the stronger requirements of AS 1220 to lower the Part I Findings rate. Alternatively, given the evolution of the PCAOB's inspection program and more specific audit requirements in the post period (including new requirements in

[69] Paragraph 12 of AS 1220 notes that "[a] significant engagement deficiency in an audit exists when (1) the engagement team failed to obtain sufficient appropriate evidence in accordance with the standards of the PCAOB, (2) the engagement team reached an inappropriate overall conclusion on the subject matter of the engagement, (3) the engagement report is not appropriate in the circumstances, or (4) the firm is not independent of its client."

[70] Some interviewees acknowledged that it is difficult to separate the impact of AS 1220 from other quality initiatives of their firm.

[71] Part I Findings are "audit deficiencies where inspection staff found that the auditor failed to gather sufficient audit evidence to support an audit opinion." PCAOB Release No. 2012-003, *Information for Audit Committees About the PCAOB Inspection Process*, August 1, 2012, p. i.

the PCAOB's risk assessment standards), one could also expect an increase in Part I Findings in the post AS 1220 period. As a result, we do not hypothesize the direction of change in the Part I Findings rate in the post AS 1220 period. We define *PartIFinding* as an indicator variable equal to one if the inspected issuer audit received a Part I Finding.

Given the scope of AS 1220, we acknowledge that even a well-performed EQR would not be expected to identify all audit deficiencies that may be identified in an inspection. To address this issue, we examine the trend in Part I Findings for which the EQR is also deficient. We define *PartIEQR* as an indicator variable equal to one if the inspected issuer audit received a Part I Finding for which EQR is also deficient.[72]

Next, we examine audit firm internal inspection ratings. As Aobdia (2018c) finds, despite some differences in outcomes of inspections conducted by the audit firms and the PCAOB, unsatisfactory internal inspection ratings and PCAOB Part I Findings are positively correlated. Although the scope and depth of PCAOB and audit firm internal inspections are different, we consider audit firm internal inspection ratings an alternative proxy for audit quality. Similar to the discussion on Part I Findings, we do not hypothesize the direction of change in audit firm internal inspection ratings in the post AS 1220 period. We define *InternalRating_Unsatisfactory* as an indicator variable equal to one if the internally inspected issuer audit received an *Unsatisfactory* rating.

Finally, we examine waived audit adjustments. Audit adjustments represent errors the auditor detects and reflect potential improvements in financial reporting as a result of the audit. Client management determines which audit adjustments are recorded or waived and the audit committee reviews this decision.[73] The study by Choudhary et al. (2018a) finds that waiving audit adjustments has negative implications for financial reporting reliability as it can be predictive of material errors.[74] Consequently, in our analysis we examine the longer-term trend in waived audit adjustments. Following Choudhary et al. (2018a), we define *Waived_Adj* as the total waived audit adjustments scaled by materiality.[75] We caution that waived audit adjustments

[72] We based our methodology on DRI's internal analysis. We do not perform this analysis for inspections conducted in the pre AS 1220 period because of the different requirements of the predecessor standard. We do not provide further details on this analysis to preserve the confidentiality of the PCAOB inspection process. We also exclude U.S. NAFs from this analysis based on the extent of available (structured) data.

[73] In interviews, audit firm personnel described various instances in which audit adjustments were identified or refined through the EQR process. Of the 74 partners interviewed, 13 were able to recall a specific instance in which an audit adjustment was identified as a result of an EQR. Others said that EQ reviewers may contribute to audit quality in more subtle ways (e.g., through participating in audit planning or refining audit adjustments already identified by the engagement team).

[74] *See also* prior research for further descriptive evidence on audit adjustments (e.g., Bell and Knechel, 1994; Kinney and Martin, 1994; Icerman and Hillison, 1991) and analyses on variation in waived audit adjustments (e.g., Nelson et al., 2002; Brown-Liburd and Wright, 2011; Joe et al., 2011) in the U.S. context.

[75] As noted in Choudhary et al. (2018a), PCAOB audit adjustment data are typically expressed as a percentage of ending balances of each account. We calculate the absolute dollar amount of waived audit adjustments aggregated across individual accounts.

and other AQIs discussed below can be considered a joint function of financial reporting quality and audit quality (where high financial reporting quality does not necessarily imply high audit quality).[76,77]

AQIs based on publicly available data

Following the extant academic literature, we also examine longer-term trends in AQIs based on publicly available data. These AQIs include: (1) reissuance restatements (commonly referred to as *BigR* restatements), (2) issuance of going concern opinions,[78] (3) timely reporting of ICFR material weaknesses, and (4) various accruals-based measures. As noted above, some of these AQIs can be considered a joint function of financial reporting quality and audit quality.

BigR restatements could be considered a good proxy for poor audit quality because they indicate that auditors issued an unqualified opinion on materially misstated financial statements (DeFond and Zhang, 2014). If AS 1220 is associated with an improvement in audit quality, we expect to observe a reduction in the rate of *BigR* restatements in the post AS 1220 period. We define *BigR* as an indicator variable equal to one if the year-end financial statements of a given issuer is subsequently restated (and filed with an 8-K item 4.02) due to accounting or fraud related reasons, and zero otherwise.

The issuance of a going concern opinion by an auditor is another potential AQI. The academic literature has presented mixed theoretical views and empirical evidence on the use of going concern opinions as AQIs.[79] Consequently, we do not hypothesize the direction of change in the rate of issuance of going concern opinions in the post AS 1220 period. We follow prior literature (DeFond et al., 2002; Aobdia, 2018c) and restrict our sample to distressed issuers only (i.e., issuers with negative cash flows from operations or negative income before extraordinary items) and define *GC* as an indicator variable equal to one if a going concern opinion is issued, and zero otherwise.

Auditor attestation on management assessments of ICFR can also be used to measure audit quality. Failure to report ICFR material weaknesses on a timely basis potentially indicates poor audit quality as the reliability of financial reporting for external purposes is undermined

[76] Further discussion of the strengths and weaknesses of commonly used audit quality measures can be found in Francis (2011), Knechel et al. (2013), DeFond and Zhang (2014), and Gaynor et al. (2016).

[77] Audit adjustments (and waived audit adjustments) could also be affected by the adoption of the PCAOB's risk assessment standards after which some auditors may have transitioned from using separate *de minimis* thresholds for posting audit adjustments to balance sheet and income statement to a single *de minimis* threshold.

[78] Throughout this paper, a *going concern opinion* refers to the explanatory paragraph added to the audit report to reflect the auditor's conclusion that substantial doubt about the entity's ability to continue as a going concern for a reasonable period of time exists.

[79] If auditors face pressure to issue unqualified opinions, the issuance of a going concern opinion may indicate good audit quality. On the other hand, the issuance of a going concern opinion could also indicate poor audit quality if auditors issue unwarranted going concern opinions to reduce litigation risk. *See* further discussion in Carson et al. (2013).

(PCAOB, 2015). If AS 1220 is associated with an improvement in audit quality, we expect ICFR material weaknesses to be disclosed in a more timely manner in the post AS 1220 period. Since our focus is on timely reporting of the material weakness in the auditor's report on ICFR, rather than the existence of the material weakness, similar to Rice and Weber (2012) we restrict our sample to *BigR* restatements where there was a related material weakness. More specifically, we use Audit Analytics material weakness codes and restatement codes to find restatements with a related material weakness. Among this sample, we define *TimelyMW* as an indicator variable equal to one if the material weakness was disclosed prior to the restatement announcement date, and zero otherwise.

Finally, we examine various accruals-based AQIs that have been widely used in the prior literature (Reynold and Francis 2000; Balsam et al. 2003; Lim and Tan 2008; Francis 2011; Lawrence et al. 2011). Because high quality audits could be expected to keep earnings management by issuers in check, one might expect accruals measures to be lower in the post AS 1220 period if AS 1220 is associated with an improvement in audit quality. Compared to discrete AQIs such as *BigR* and *GC*, the continuous nature of accruals-based measures of audit quality has the potential to capture variations in audit quality in samples where binary events (such as restatements) have infrequent occurrence (DeFond and Zhang, 2014). However, accruals-based measures are noisy due to measurement errors (Dechow et al., 2010) and are affected by macroeconomic shocks. The accruals-based measures of audit quality used in our analysis include total accruals scaled by total assets or cash flow from operations (Leuz et al., 2003), discretionary accruals based on the modified Jones model (Jones, 1991; Dechow et al., 1995; Kothari et al., 2005), and accruals measured by the augmented Dechow and Dichev model (Dechow and Dichev, 2002; McNichols, 2002; Francis et al., 2005). Details on the construction of these AQIs can be found in Appendix A.

Data

For our analysis of Part I Findings and audit adjustments[80], we restrict our sample to PCAOB inspected issuer audits between fiscal years 2005 and 2014 among the U.S. Big Eight audit firms.[81] Panels A and B in **Table 5** show that the final sample contains 2,783 and 2,461 issuer-year observations for the Part I Findings analysis (U.S. Big Eight Inspected Sample) and audit adjustment analysis (U.S. Big Eight AuditAdj Sample), respectively.[82] For our analysis of audit

[80] We thank former Senior Economic Research Fellow Preeti Choudhary for compiling the audit adjustments data. Further details about the data construction can be found in Choudhary et al. (2018a).

[81] For our analysis of Part I Findings and audit adjustments, in addition to the inspected issuer audits of U.S. GNFs included in our analysis of costs in Section V.A, we also include inspected issuer audits of Crowe Horwath LLP (formerly known as Crowe Chizek and Company LLC) and RSM US LLP (formerly known as McGladrey LLP or McGladrey & Pullen LLP) to increase the sample size. We also test for any potential implications on our analysis of Part I Findings and audit adjustments that may result from limiting our sample to only U.S. GNFs.

[82] Because PCAOB inspections are selected on a risk-weighted basis, we caution against a causal interpretation of our results, or an extrapolation from the results, based on inspected issuer samples. Some contemporaneous studies evaluate whether PCAOB-inspected samples exhibit selection bias. For example, Aobdia (2018a) constructs a

firm internal inspection ratings, we use data collected by the PCAOB from audit firms (U.S. GNFs Internally Inspected Sample).[83] We focus our analysis on internal inspections conducted by U.S. GNFs between fiscal years 2008 and 2013. Panel C in **Table 5** shows that the final sample contains 2,100 issuer-year observations (U.S. GNFs Internally Inspected Sample). For triennially inspected U.S. NAFs, based on the extent of available (structured) data, we are only able to examine Part I Findings and not audit adjustments or audit firm internal inspection ratings. For our analysis of Part I Findings among triennially inspected U.S. NAFs, there are 3,771 issuer-year observations between fiscal years 2004 and 2014. After excluding observations without available control variables, Panel D in **Table 5** shows that the final sample contains 3,023 issuer-year observations (Tri. U.S. NAFs Inspected Sample).

For AQIs based on publicly available data, we start with the issuers in U.S. GNFs Sample 1 and add relevant publicly available data starting from 2004 onwards. Panel C in **Table 1** shows that the final sample contains 13,558 issuer-year observations (U.S. GNFs Sample 3). For triennially inspected U.S. NAF audits, we use the Tri. U.S. NAFs Sample (Panel D in **Table 1**) for our analysis. Our final sample contains 3,454 issuer-year observations.

Descriptive Analyses

AQIs based on PCAOB data

Among the U.S. Big Eight Inspected Sample, Panel A in **Table 6** indicates that 29 percent of the inspected issuer audits in our sample period received at least one Part I Finding. Moreover, in the period with available data to identify *PartIEQR*, we find that 59 percent of the inspected issuer audits that had Part I Findings also had EQR deficiencies. This result may simply reflect a correlation between Part I Findings and EQR deficiencies. However, deficiencies with respect to compliance with the requirements of AS 1220 could also impact the rate of Part I Findings. In the latter case, a well-performed EQR could then serve as an important safeguard against erroneous or insufficiently supported audit opinions, and could contribute to audit quality.[84]

Panel A in **Figure 7** shows that the proportion of inspections with a *PartIFinding* started to increase around 2007 and peaked in 2012. Panel B shows that, within the post AS 1220 period, *PartIEQR* peaked in 2011 and 2012 and then slightly decreased. This result could suggest that

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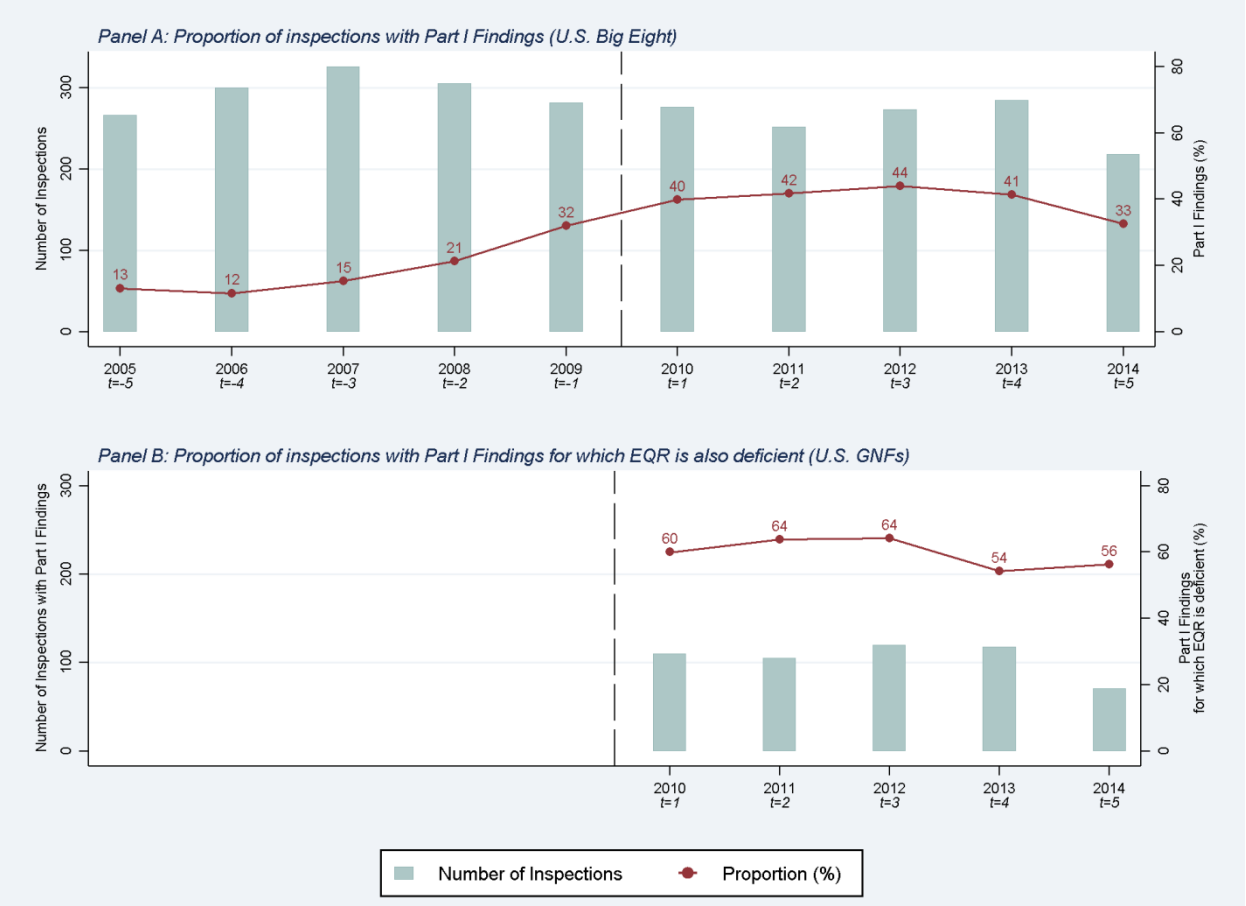
selection model to predict inspected engagements and finds modest predictive power, noting that "*while inspected engagements are probably not representative of the average audit quality of an audit firm, they are not completely different from non-inspected engagements*." Moreover, Choudhary et al. (2018b) find no evidence that selection bias is affecting their results on the implications of materiality looseness on financial reporting reliability. Finally, Choudhary et al. (2018a) also do not find evidence that selection bias affects the results of their analysis on the association between waived audit adjustments and restatements.

[83] We thank former Senior Economic Research Fellow Daniel Aobdia for compiling the internal inspection ratings data. Because rating scales vary across audit firms, and sometimes across inspection years within a given audit firm, the dataset provides a standardized rating consisting of three categories: *Satisfactory*, *Satisfactory with comments*, and *Unsatisfactory*. Further details about the data construction can be found in Aobdia (2018c).

[84] PCAOB Release No. 2009-004, p. 1.

audit firms were adjusting to AS 1220 in the first few years after implementation but, as they became more familiar with the standard, EQR quality started to improve. Interview responses also suggest that some audit firms initially underestimated the effort required to comply with AS 1220.

Figure 7 Trend in Part I Findings rate



Panel A shows the number of inspections (bars) and the trend in the proportion of inspections with Part I Findings (line). Panel B shows the number of inspections with Part I Findings (bars) and the trend in the proportion of inspections with Part I Findings for which the EQR is also deficient (line). The methodology in Panel B is based on DRI's internal analysis.

To assess the change in the *PartIFinding* rate between the pre and post AS 1220 periods, we use a regression similar to Equation (1).[85,86] Results in column (1) in Panel A of **Table 7** indicate

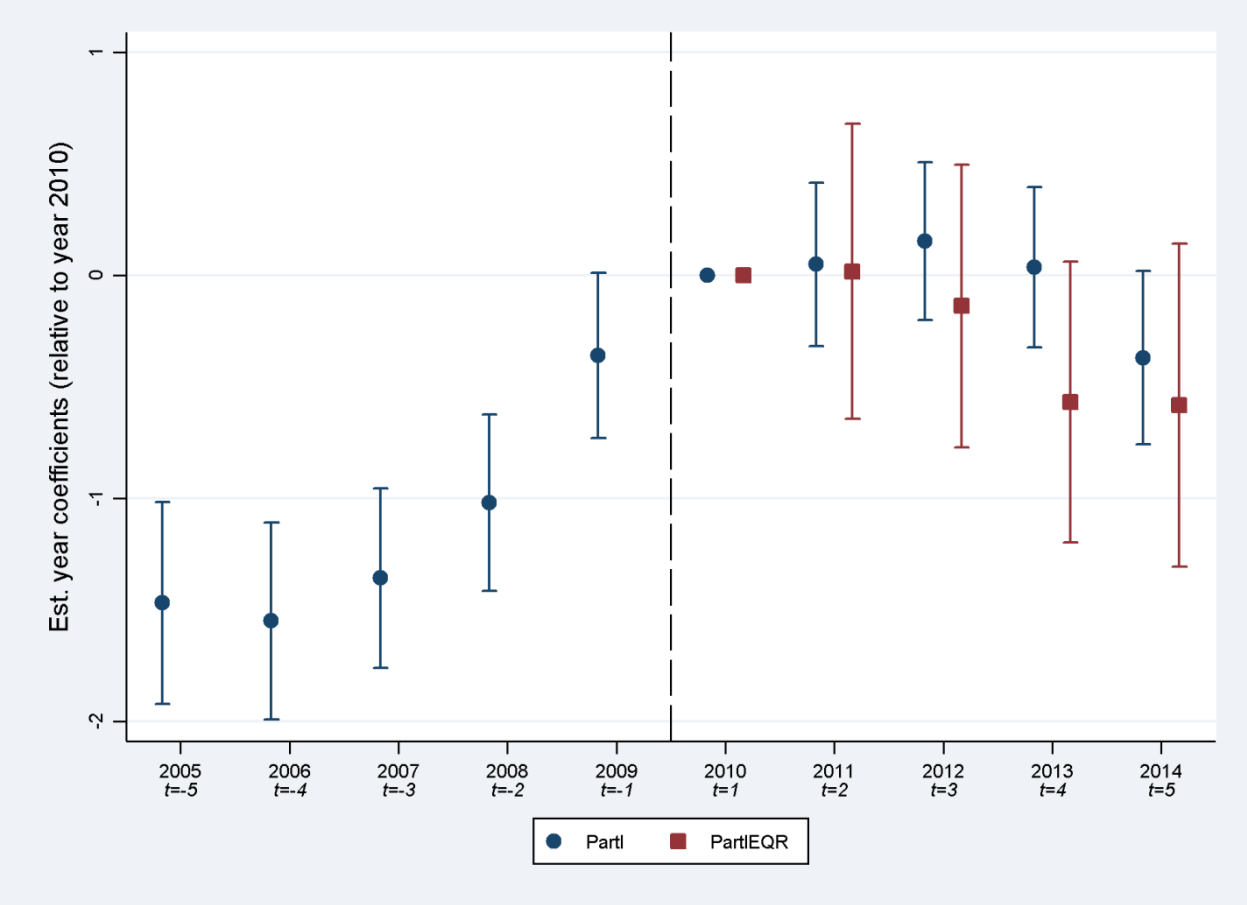
[85] The general model specification is (without issuer and time subscripts):

$$AQI = \alpha + \beta_1 Post\_AS1220 + \sum \beta_i Controls_i + \sum \beta_j FE_j + \varepsilon$$

[86] AQIs based on PCAOB data are restricted to inspected issuer audits and thus sample sizes are relatively smaller than for AQIs based on publicly available data. As a result, we estimate the model for AQIs based on PCAOB data with a more parsimonious set of control variables to preserve sample size.

that, on average, the likelihood of an inspection receiving a Part I Finding approximately doubled (an increase of 21 percentage points per engagement) in the post AS 1220 period.[87,88] However, the patterns in **Figure 7** and **Figure 8** show that *PartIFinding* and *PartIEQR* rates started to decline from around 2012 and 2011 onwards, respectively.

Figure 8 Trend in Part I Findings rate (regression coefficients)



For Part I Findings (*PartI*), we estimate an equation similar to column (1) in Panel A of **Table 7** for U.S. Big Eight but replace the single *Post_AS1220* indicator with separate indicator variables, each representing one year over the

[87] In untabulated analyses, we find that this increase is partly driven by the increase in the number of Part I Findings that are related to audit deficiencies in ICFR. With the addition of a linear time trend, we find a similar, albeit smaller, increase in the likelihood of an inspection receiving a Part I Finding post AS 1220 (approximately 13 percentage points per engagement). We provide results from the additional specification with a linear time trend for Part I Findings and audit firm internal inspection ratings to control for changes in the inspection regime over this time period. For other measures of audit quality examined in this section, it is not clear whether changes in PCAOB oversight activities would be associated with any apparent trends in these measures over this time period. Thus, for these measures we instead provide results from the specification without a linear time trend and present the estimated yearly coefficients to trace out the changes.

[88] In an untabulated analysis, we include only U.S. GNFs in the sample, as in most of the other AQI analyses in this section, and find the same result (i.e., the likelihood of an inspection receiving a Part I Finding increases by approximately 21 percentage points per engagement post AS 1220).

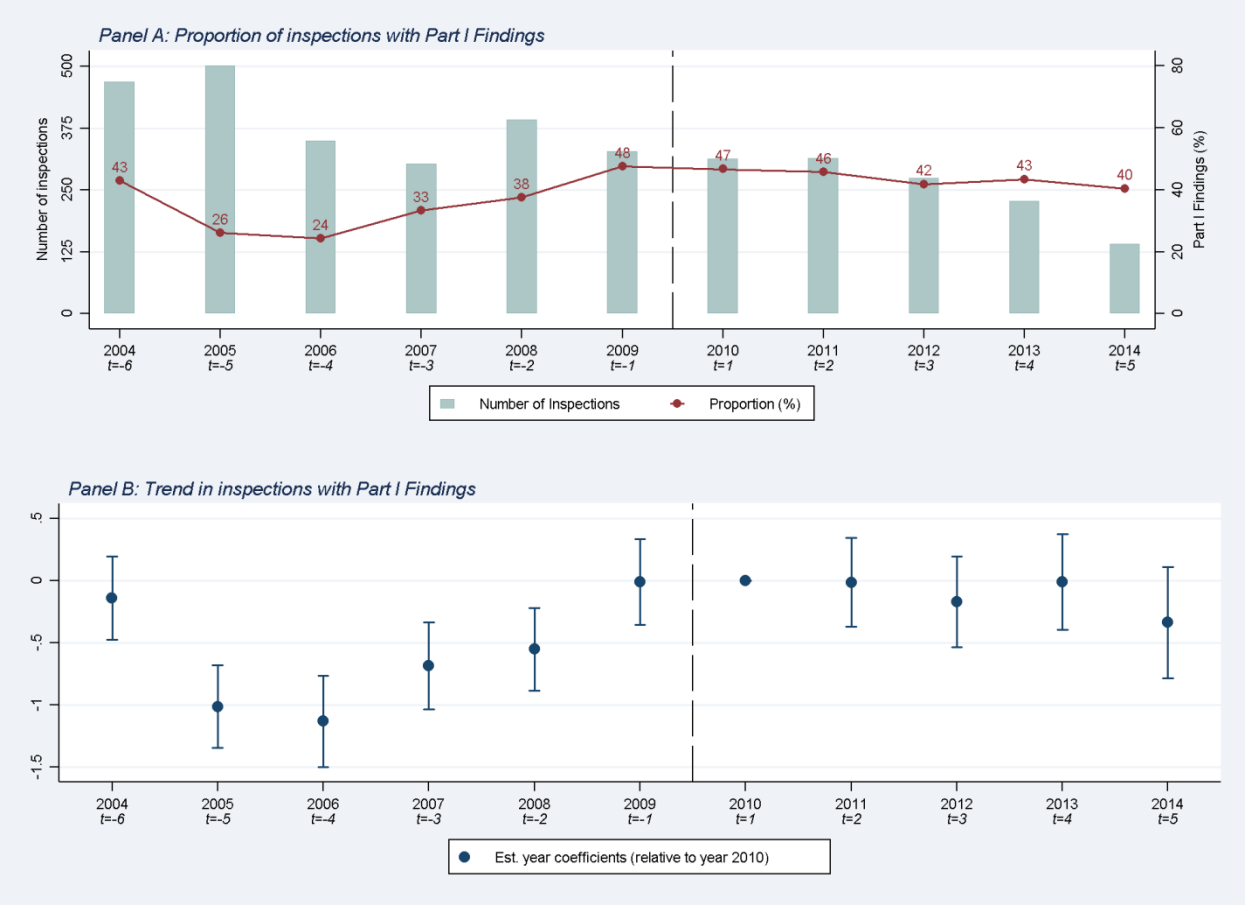
period 2005 (*t*=-5) to 2014 (*t*=5). For *PartIEQR*, we also estimate an equation similar to column (1) in Panel A of **Table 7** for U.S. GNFs but replace the single *Post_AS1220* indicator with separate indicator variables, each representing one year over the period 2010 (*t=1*) to 2014 (*t*=5). We use year 2010 (*t*=1) as the benchmark and thus omit it in the estimation (i.e. it has a coefficient value of zero and no confidence interval). The figure above plots the estimated coefficient of the year indicators (circle marker) with the 95% confidence interval (solid line above and below the marker). The estimated coefficients for the year indicators are statistically different from the benchmark year if the 95% confidence interval does not include zero (the implied coefficient for the benchmark year omitted from the estimation).

Figure 9 presents the trend in the *PartIFinding* rate for the inspected issuer audits of triennially inspected U.S. NAFs. The deficiency rate appears to increase in the years leading up to AS 1220 implementation with only a small change afterwards. Regression results in column (1) in **Table 8** indicate on average an approximately 11 percentage point increase in the likelihood of a *PartIFinding* in the post AS 1220 period for triennially inspected U.S. NAF audits (about 35 percent of the inspected issuer audits had a Part I Finding in the pre AS 1220 period).[89] We also find that the usage of outside reviewers is associated with a higher likelihood of a *PartIFinding*.

Overall, our results on U.S. GNFs and triennially inspected U.S. NAFs suggest an increase in the likelihood of a *PartIFinding* in the post AS 1220 period. As previously noted, changes in the likelihood of having a PCAOB Part I Finding are not easy to interpret. In particular, the increase in the likelihood of *PartIFinding* does not necessarily indicate deteriorating audit quality and could instead reflect the evolution of the PCAOB inspection program and more specific audit requirements in the post AS 1220 period (including new requirements in the PCAOB's risk assessment standards).

[89] With the addition of a linear time trend, we find a similar, albeit smaller, increase in the likelihood of an inspection receiving a Part I Finding post AS 1220 among triennially inspected U.S. NAF inspected issuer audits (approximately 8 percentage points per engagement).

Figure 9 Trend in Part I Findings rate – triennially inspected U.S. NAFs

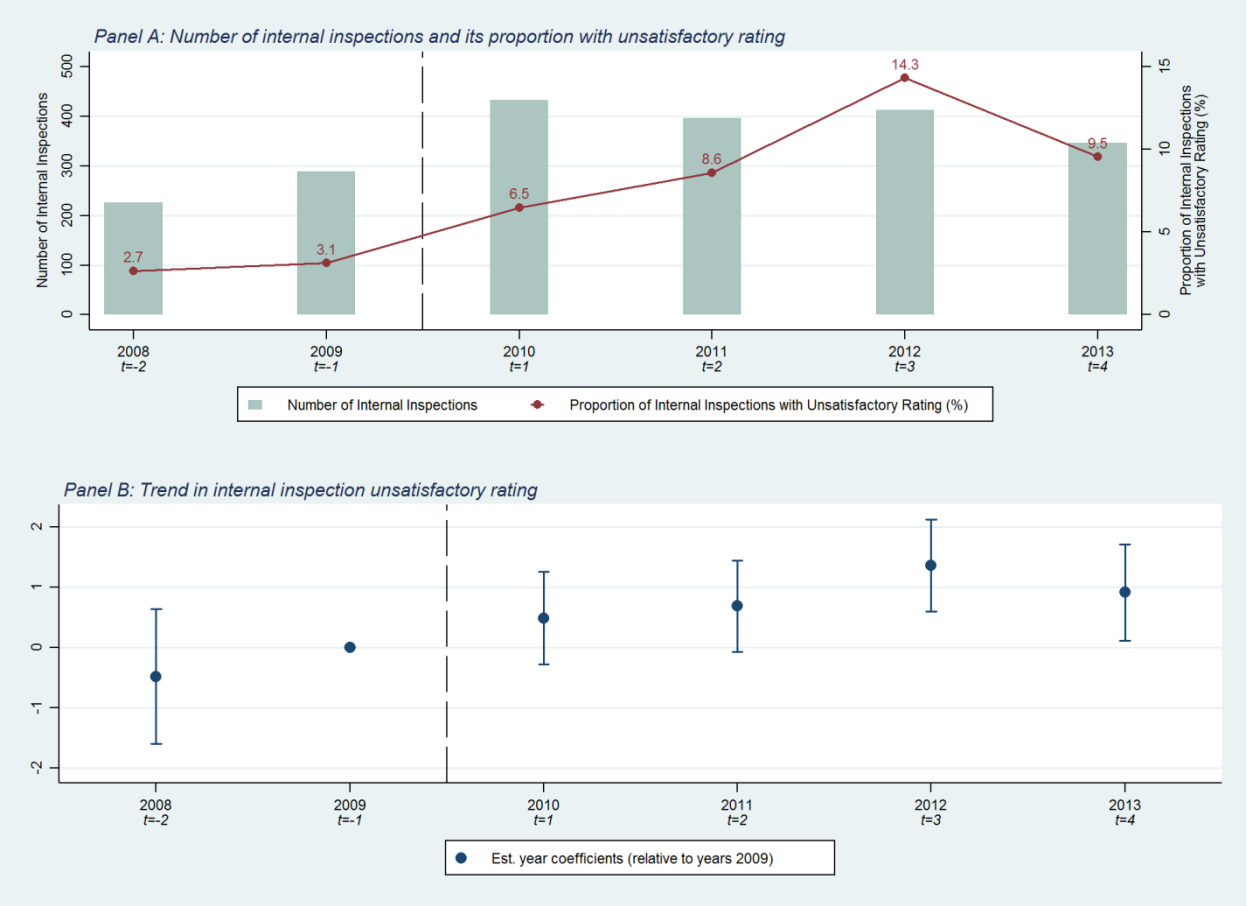


Panel A shows the number of inspections (bars) and the trend in the proportion of inspections with Part I Findings (line). To obtain the regression coefficients in Panel B, we estimate an equation similar to column (1) in **Table 8** but replace the single *Post_AS1220* indicator with separate indicator variables, each representing one year over the period 2004 (*t*=-6) to 2014 (*t*=5). We use year 2010 (*t*=1) as the benchmark and thus omit it in the estimation (i.e. it has a coefficient value of zero and no confidence interval). The figure above plots the estimated coefficient of the year indicators (circle marker) with the 95% confidence interval (solid line above and below the marker). The estimated coefficients for the year indicators are statistically different from the benchmark year if the 95% confidence interval does not include zero (the implied coefficient for the benchmark year omitted from the estimation).

We next examine the longer-term trend in audit firm internal inspection results. The trend in *InternalRating_Unsatisfactory* over the period 2008-2013 is similar to what we observe in PCAOB Part I Findings. Specifically, **Figure 10** shows that internal inspection ratings deteriorated from 2008 through 2012 before showing some improvement at the end of the sample period. The regression results in column (2) in Panel A of **Table 7** suggest that, on average, the likelihood of an audit receiving an unsatisfactory rating after the firm's internal inspection approximately tripled (an increase of 6 percentage points per engagement) in the post AS 1220

period.[90] We note that the deterioration in these ratings could be driven, at least in part, by changes in the robustness of audit firms' internal inspection programs.[91] Unlike *PartIEQR* for the PCAOB's U.S. GNF inspections, we do not have the information to assess the portion of audit firm internal inspection findings for which the EQR was also deficient.

Figure 10 Trend in audit firm internal inspection ratings – U.S. GNFs



Panel A shows the number of internal inspections (bars) and the proportion of internal inspections with a rating of Unsatisfactory (line). To obtain the coefficients in Panel B, we estimate an equation similar to column (2) in Panel A of **Table 7** but replace the single *Post_AS1220* indicator with separate indicator variables, each representing one year over the period 2008 (t=-2) to 2013 (t=4). We use year 2009 (t=-1) as the benchmark and thus omit it in the estimation (i.e. it has a coefficient value of zero and no confidence interval). The figure above plots the estimated coefficient of the year indicators (circle marker) with the 95% confidence interval (solid line above and below the marker). The estimated coefficients for the year indicators are statistically different from the benchmark year if the

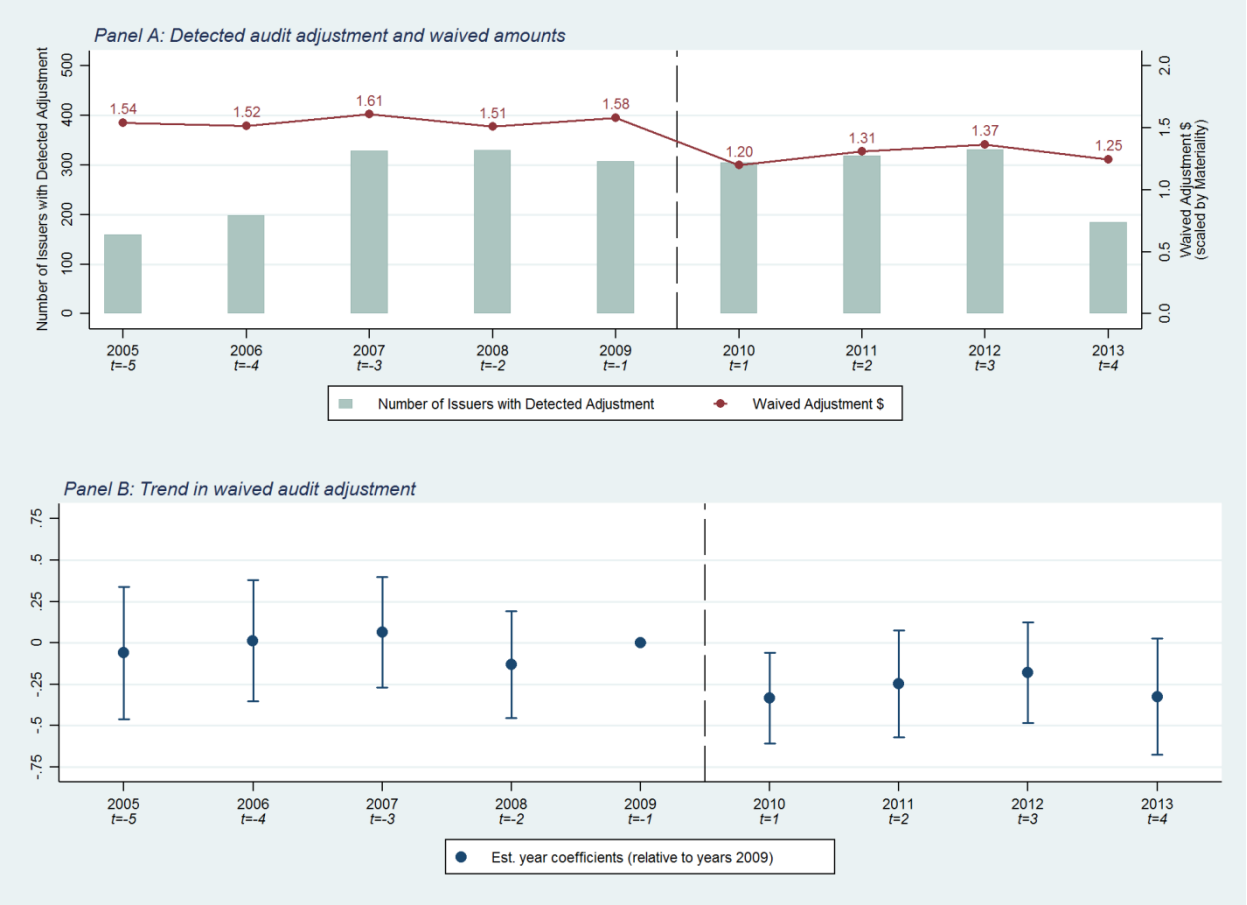
[90] With the addition of a linear time trend, we find a smaller increase in the likelihood of an internal inspection receiving an unsatisfactory rating post AS 1220 (approximately 3 percentage points per engagement), albeit with weak statistical significance.

[91] One potential driver for changes in the robustness could be audit firms' responses to PCAOB criticisms related to internal inspections. Aobdia (2018b) reports that in a sample consisting of the U.S. Big Eight audit firms over the ten-year period 2004 through 2013 about 70 percent of the sample received a Part II criticism related to internal inspection programs.

95% confidence interval does not include zero (the implied coefficient for the benchmark year omitted from the estimation).

As for waived audit adjustments, **Figure 11** suggests a lower amount in the post AS 1220 period with the decline starting around the effective date of AS 1220. Column (3) in Panel A of **Table 7** indicates, on average, a $0.24 decrease per dollar of materiality level in the waived amount in the post AS 1220 period (or approximately a 15 percent decrease per engagement).[92] Choudhary et al. (2018a) contains further discussion on waived audit adjustments and implications for financial reporting quality.

Figure 11 Trend in waived audit adjustments – U.S. Big Eight



Panel A shows the number of issuer audits with detected audit adjustments (bars) and the dollar amount of waived audit adjustments (line). To obtain the coefficients in Panel B, we estimate an equation similar to column (3) in Panel A of **Table 7** but replace the single *Post_AS1220* indicator with separate indicator variables, each representing one year over the period 2005 (*t*=-5) to 2013 (*t*=4). We use year 2009 (*t*=-1) as the benchmark and thus omit it in the estimation (i.e. it has a coefficient value of zero and no confidence interval). The figure above plots the estimated

[92] In an untabulated analysis, we include only U.S. GNFs in the sample, as in most other AQI analyses in this section, and find a similar result (i.e., a $0.27 decrease per dollar of materiality level in the waived audit adjustment amount post AS 1220).

coefficient of the year indicators (circle marker) with the 95% confidence interval (solid line above and below the marker). The estimated coefficients for the year indicators are statistically different from the benchmark year if the 95% confidence interval does not include zero (the implied coefficient for the benchmark year omitted from the estimation).

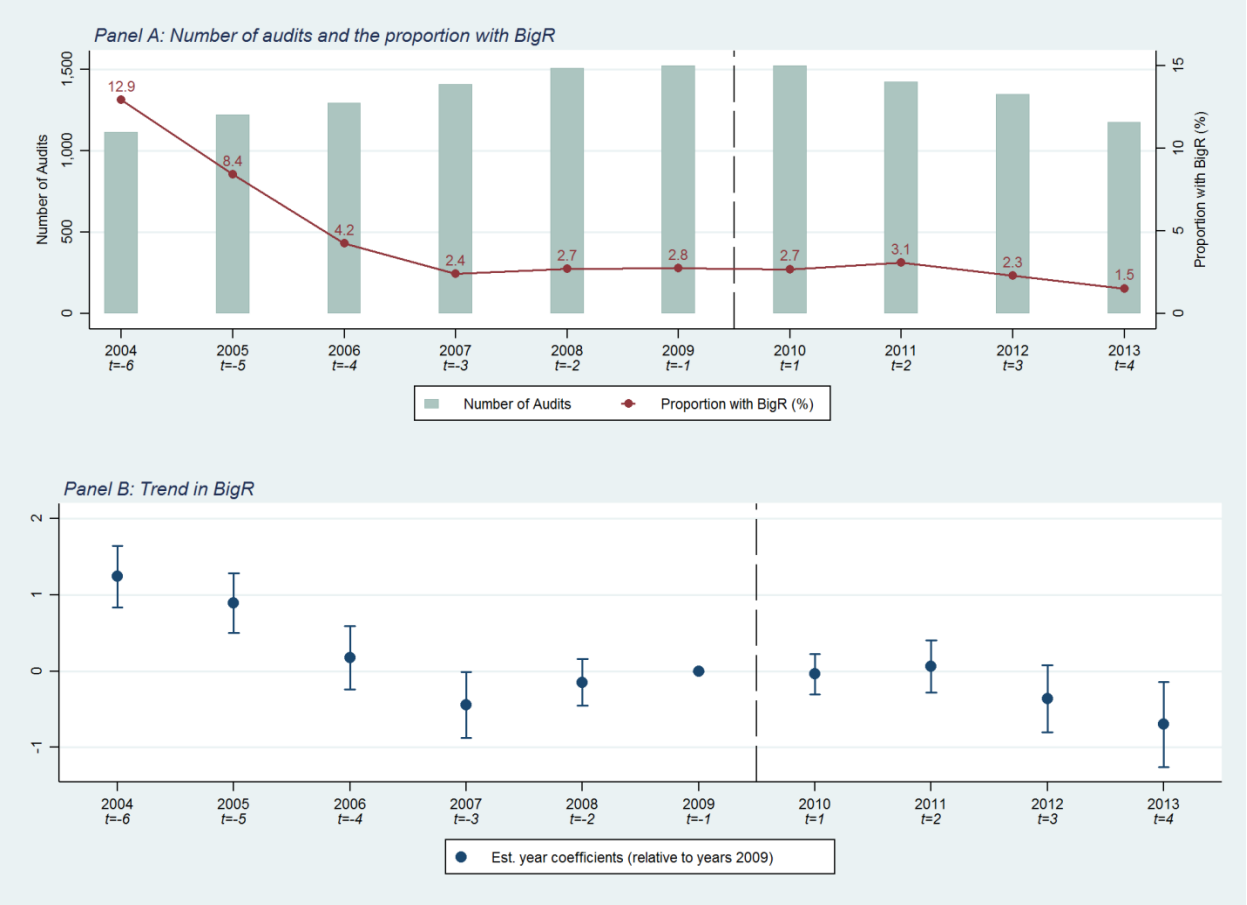
AQIs based on publicly available data

Among U.S. GNFs Sample 3, the trend in *BigR* shown in **Figure 12** suggests a downward sloping pattern in the sample period. A significant decrease in the *BigR* rate occurs in the early years (coinciding with general regulatory changes in the accounting and auditing environment, including the enactment of requirements established by the Sarbanes-Oxley Act of 2002), followed by a slight increase around the time of the financial crisis. In more recent years, *BigR* appears to decrease again with the starting point of the decline around the third year after AS 1220 became effective. Column (1) in Panel B of **Table 7** indicates that on average an issuer is less likely to have a *BigR* restatement in the post AS 1220 period and the decrease in likelihood is approximately 2 percentage points. This decrease may seem modest in absolute terms but we note that approximately 5 percent of audits in the pre AS 1220 period had a *BigR* restatement.[93] However, identifying the incremental effect of AS 1220 is difficult as other factors almost certainly contribute to the decrease in *BigR* as well. We note that after excluding the early years (by restricting the sample to fiscal years 2007 through 2014), we do not find a statistically significant difference in the likelihood of *BigR* pre and post AS 1220.[94] In untabulated analysis, we examine the trend in *BigR* restatements with negative aggregate impact on income and find similar results.

[93] If a portion of the estimated decrease in the likelihood of a *BigR* restatement in the post AS 1220 period is related to AS 1220, it has significant implications for our analysis regarding the benefits of AS 1220. Specifically, prior research studies have documented direct costs associated with restatements generally and *BigR* restatements such as stock price drops (for example, *see* GAO, 2002, 2006; Palmrose et al., 2004; and Scholz, 2014, and for a review of the literature, *see* Sievers and Sofilkanitsch, 2018), and an increase in the restating issuers' cost of capital (Hribar et al, 2004). Research studies have also documented indirect effects of a *BigR* restatement such as contagion effects on firms in the same industry, management/director turnovers, and increased litigation risk (for a review of the literature, *see* Dechow et al., 2010).

[94] In the full sample (2004-2013), the sample average for the proportion of U.S. GNF audits with *BigR* is 5.2 percent and 2.4 percent in the pre and post AS 1220 period, respectively. However, after excluding 2004-2006, the average drops to 2.6 percent in the pre AS 1220 period. This result is also reflected in **Figure 12**, which shows that the decrease in *BigR* largely occurs in the early years of the sample.

Figure 12 Trend in *BigR* restatements – U.S. GNFs



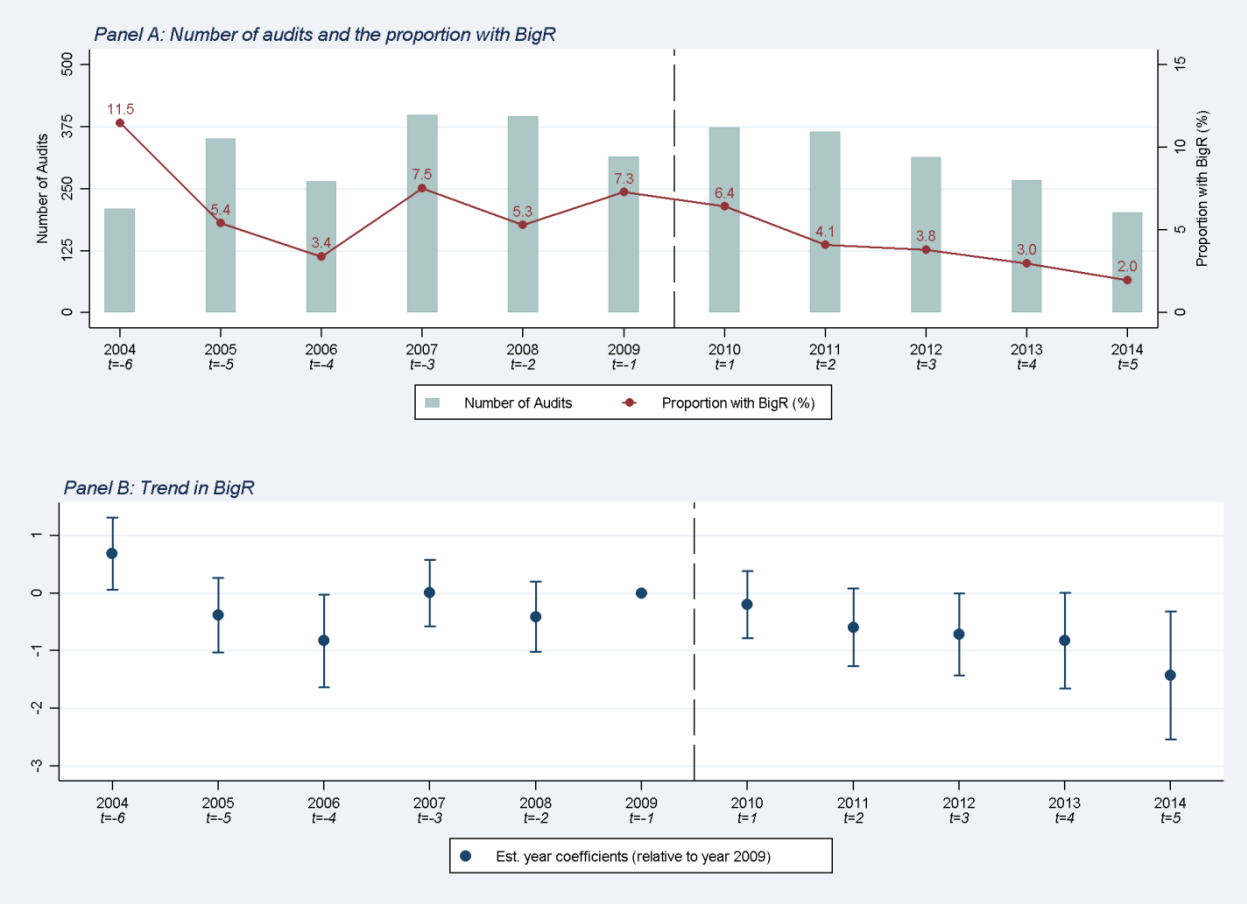
Panel A shows the number of issuer audits (bars) and the proportion of audits with a *BigR* restatement (line). To obtain the coefficients in Panel B, we estimate an equation similar to column (1) in Panel B of **Table 7** but replace the single *Post_AS1220* indicator with separate indicator variables, each representing one year over the period 2004 (*t*=-6) to 2013 (*t*=4). We use year 2009 (*t*=-1) as the benchmark and thus omit it in the estimation (i.e. it has a coefficient value of zero and no confidence interval). The figure above plots the estimated coefficient of the year indicators (circle marker) with the 95% confidence interval (solid line above and below the marker). The estimated coefficients for the year indicators are statistically different from the benchmark year if the 95% confidence interval does not include zero (the implied coefficient for the benchmark year omitted from the estimation).

Among audits in our Tri. U.S. NAFs Sample, **Figure 13** shows a sharp decline in *BigR* in the early years, an uptick beginning in 2007, and finally a gradual decline in the post AS 1220 period. Consistent with results in our U.S. GNFs Sample 3, column (2) in **Table 8** indicates, on average, a decrease of approximately 2 percentage points per engagement in the likelihood of *BigR* restatements in the post AS 1220 period (about 7 percent of triennially inspected U.S. NAF audits had a *BigR* restatement in the pre AS 1220 period).[95] We also find that the usage of

[95] We note that the results do not change qualitatively after excluding 2004-2006, presumably because unlike U.S. GNFs, *BigR* for triennially inspected U.S. NAFs is still fairly high during the financial crisis (2007-2009 time period).

outside reviewers is associated with a higher likelihood of a *BigR* restatement. Taken together, the results in Panel B of **Table 3** and columns (1) and (2) of **Table 8** show that the usage of outside reviewers is associated with fewer reviewer hours and lower quality audits.

Figure 13 Trend in *BigR* restatements – triennially inspected U.S. NAFs

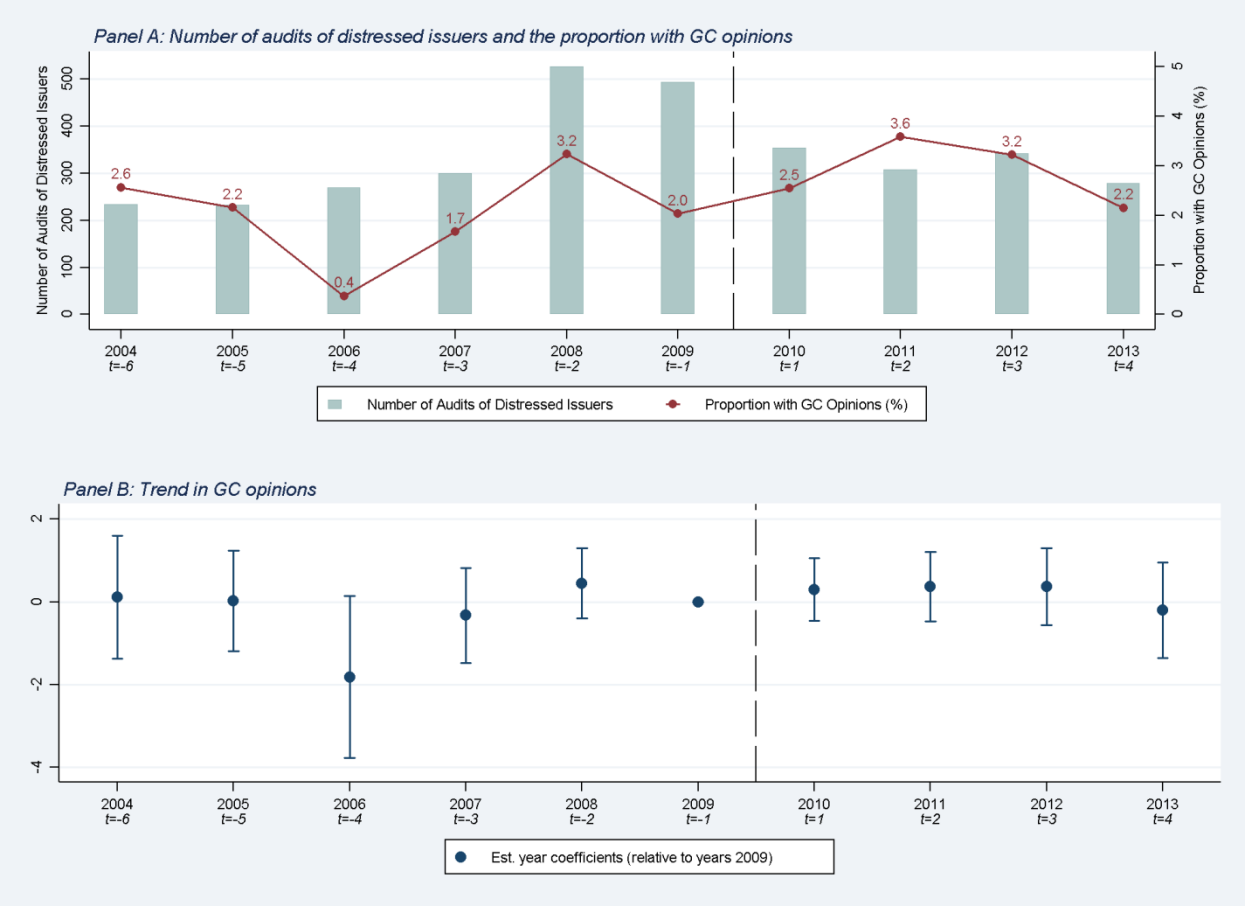


Panel A shows the number of issuer audits (bars) and the proportion of audits with a *BigR* restatement (line). To obtain the coefficients in Panel B, we estimate an equation similar to column (2) in **Table 8** but replace the single *Post_AS1220* indicator with separate indicator variables, each representing one year over the period 2004 (*t*=-6) to 2014 (*t*=5). We use year 2009 (*t*=-1) as the benchmark and thus omit it in the estimation (i.e. it has a coefficient value of zero and no confidence interval). The figure above plots the estimated coefficient of the year indicators (circle marker) with the 95% confidence interval (solid line above and below the marker). The estimated coefficients for the year indicators are statistically different from the benchmark year if the 95% confidence interval does not include zero (the implied coefficient for the benchmark year omitted from the estimation).

Figure 14 shows the trend in going concern opinions issued on U.S. GNF audits of distressed issuers (i.e., issuers with negative cash flows from operations or negative income before extraordinary items). Results in column (2) in Panel B of **Table 7** suggest no statistically significant change in the likelihood of receiving a *GC* opinion pre and post AS 1220. Panel A of **Figure 15** shows that approximately half of distressed issuers audited by triennially inspected U.S. NAFs received *GC* opinions over the sample period. The rate of issuance rose from 39 percent in 2004 to 50 percent in 2007 and ranged between 46 percent and 52 percent from 2008

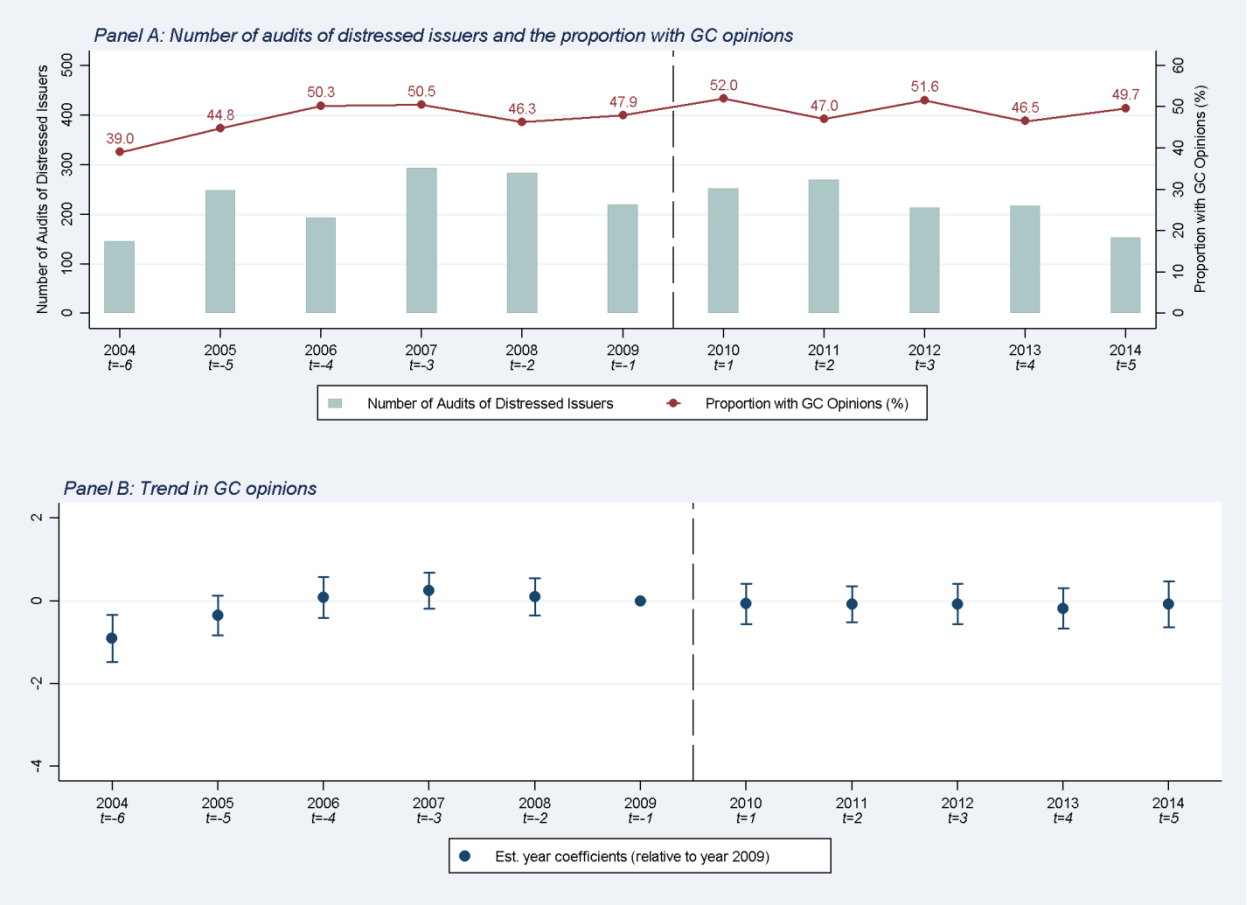
to 2014. Similar to U.S. GNF audits, the regression results in column (3) of **Table 8** suggest that, for triennially inspected U.S. NAF audits, there is no statistically significant change in the likelihood of receiving a *GC* opinion pre and post AS 1220.

Figure 14 Trend in going concern opinions – U.S. GNFs



Panel A shows the number of distressed issuer audits (bars) and the proportion with *GC* opinions (line). To obtain the coefficients in Panel B, we estimate an equation similar to column (2) in Panel B of **Table 7** but replace the single *Post_AS1220* indicator with separate indicator variables, each representing one year over the period 2004 (*t*=-6) to 2013 (*t*=4). We use year 2009 (*t*=-1) as the benchmark and thus omit it in the estimation (i.e. it has a coefficient value of zero and no confidence interval). The figure above plots the estimated coefficient of the year indicators (circle marker) with the 95% confidence interval (solid line above and below the marker). The estimated coefficients for the year indicators are statistically different from the benchmark year if the 95% confidence interval does not include zero (the implied coefficient for the benchmark year omitted from the estimation).

Figure 15 Trend in going concern opinions – triennially inspected U.S. NAFs

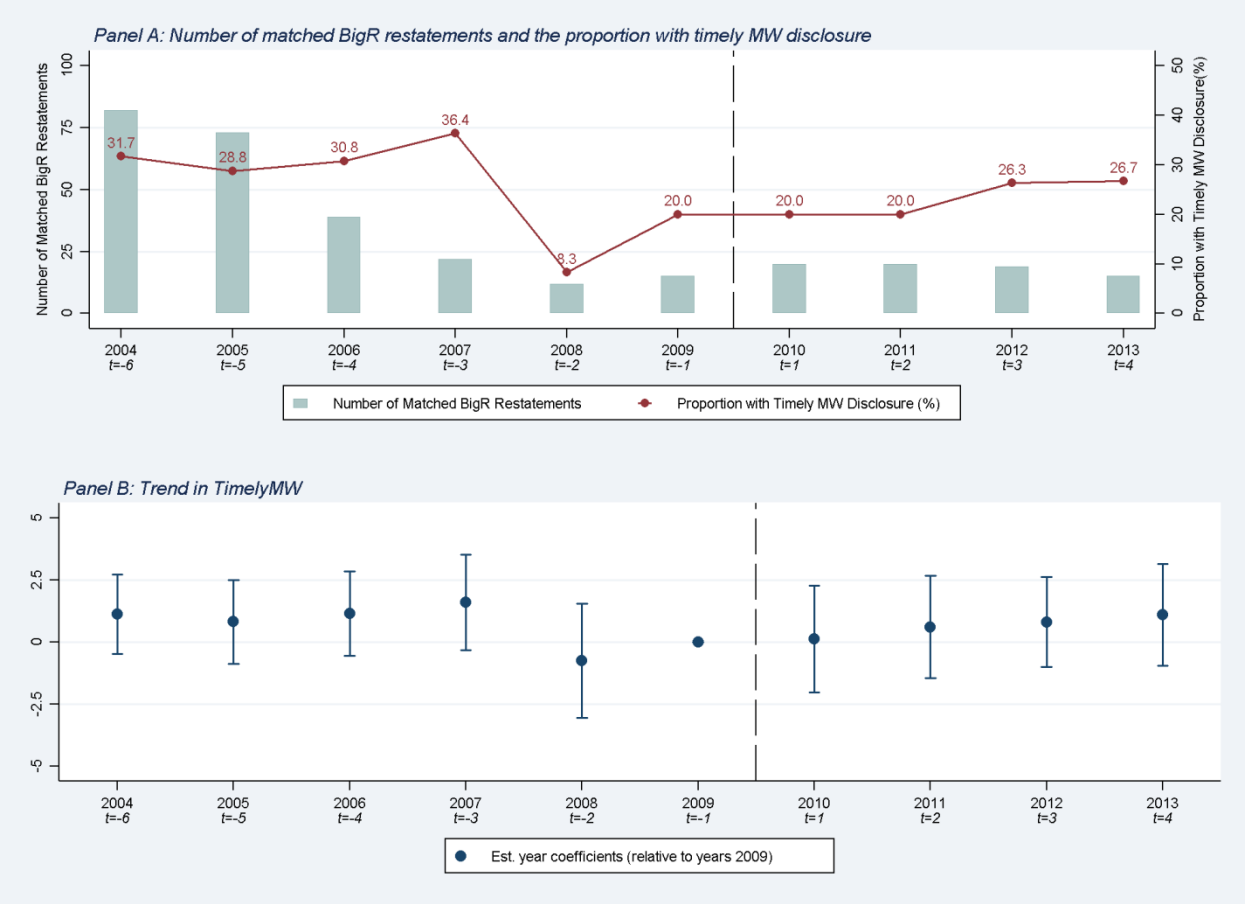


Panel A shows the number of audits among distressed issuers (bars) and the proportion with *GC* opinions (line). To obtain the coefficients in Panel B, we estimate an equation similar to column (3) in **Table 8** but replace the single *Post_AS1220* indicator with separate indicator variables, each representing one year over the period 2004 (*t*=-6) to 2014 (*t*=5). We use year 2009 (*t*=-1) as the benchmark and thus omit it in the estimation (i.e. it has a coefficient value of zero and no confidence interval). The figure above plots the estimated coefficient of the year indicators (circle marker) with the 95% confidence interval (solid line above and below the marker). The estimated coefficients for the year indicators are statistically different from the benchmark year if the 95% confidence interval does not include zero (the implied coefficient for the benchmark year omitted from the estimation).

Figure 16 depicts the trend in timely reporting of ICFR material weaknesses among U.S. GNF audits. The figure suggests a decline in *TimelyMW* around 2008, which may be associated with the introduction of AS 2201, and a gradual increase from 2009 toward the end of the sample period. Given how *TimelyMW* was constructed, we note that the sample size is relatively small. Despite the seemingly significant change over the years, the regression results in column (3) in Panel B of **Table 7** actually indicate no statistically significant difference pre and post AS

1220.[96]

Figure 16 Trend in timely reporting of ICFR material weaknesses – U.S. GNFs



Panel A shows the number of matched *BigR* restatements (bars) and the proportion of matched *BigR* restatements with timely MW disclosure (line). To obtain the coefficients in Panel B, we estimate an equation similar to column (3) in Panel B of **Table 7** but replace the single *Post_AS1220* indicator with separate indicator variables, each representing one year over the period 2004 (*t*=-6) to 2013 (*t*=4). We use year 2009 (*t*=-1) as the benchmark and thus omit it in the estimation (i.e. it has a coefficient value of zero and no confidence interval). The figure above plots the estimated coefficient of the year indicators (circle marker) with the 95% confidence interval (solid line above and below the marker). The estimated coefficients for the year indicators are statistically different from the benchmark year if the 95% confidence interval does not include zero (the implied coefficient for the benchmark year omitted from the estimation).

Finally, we look at trends in various accruals-based measures of audit quality. Among U.S. GNF audits, results in columns (4) through (7) in Panel B of **Table 7** show statistically significant decreases among most measures in the post AS 1220 period and the declines range from 4 to 10

[96] We do not analyze *TimelyMW* among triennially inspected U.S. NAF audits because these are mostly audits of non-accelerated filers (exempt from Section 404(b) of the Sarbanes-Oxley Act of 2002) and thus *BigR* restatements with related auditor attested material weaknesses are relatively scarce.

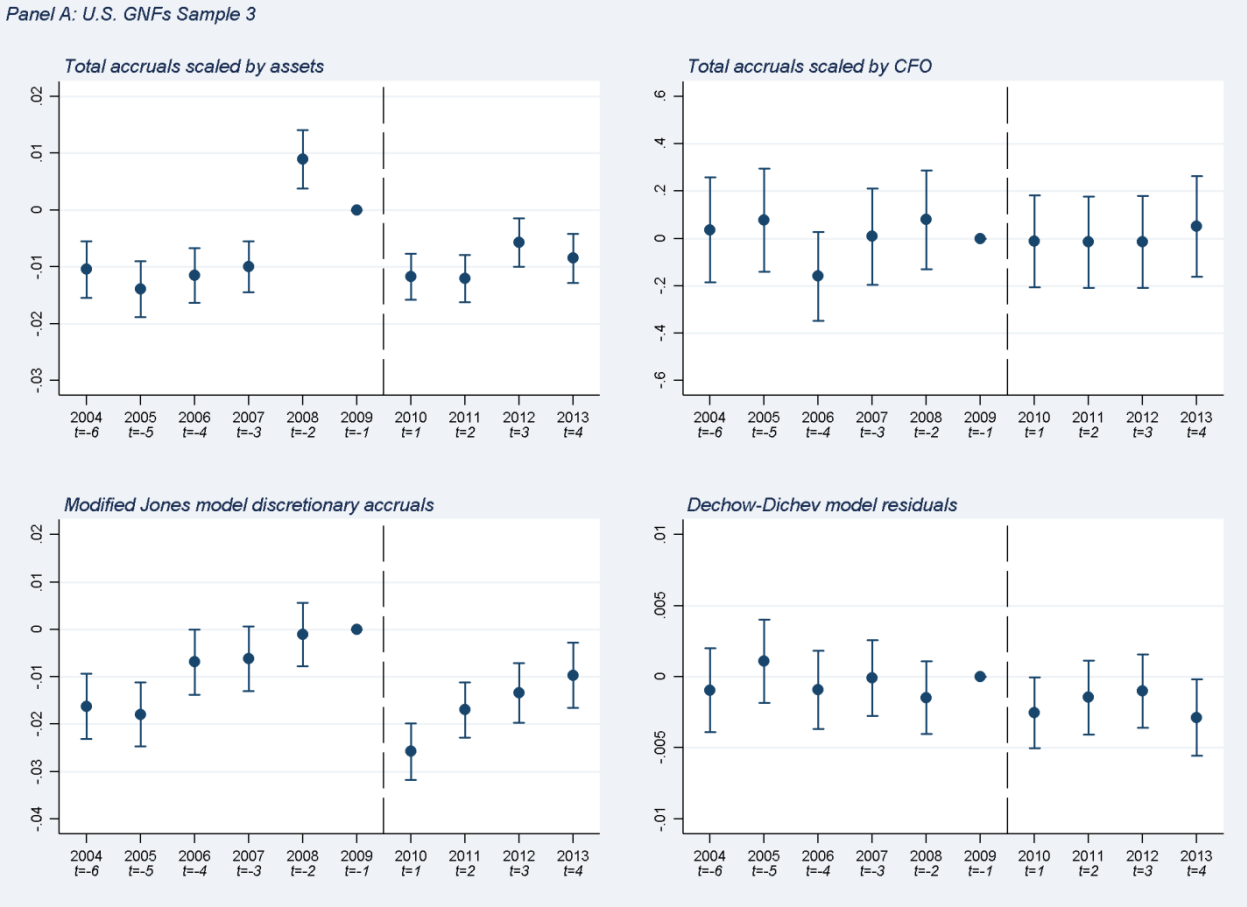
percent of their pre period levels.[97] For triennially inspected U.S. NAF audits however, we find higher values of these accruals-based measures in the post AS 1220 period as shown in columns (4) through (7) in **Table 8**, although the increases are statistically significant only for modified Jones model discretionary accruals (*AbsJonesAcrl*) and Dechow-Dichev model residuals (*AbsDD*).[98] It is important to note that these earnings quality measures can be noisy and confounded by macroeconomic conditions (Hirshleifer et al., 2009; Kim and Qi, 2010; Leuz and Wysocki, 2016). In particular, **Figure 17** suggests that the effects of macroeconomic fluctuations during the financial crisis of 2007-2008 are likely correlated with the changes we observe around AS 1220 implementation. In addition, recent research indicates that the common procedures used to estimate some of these accruals-based measures could yield incorrect inferences.[99] Considering these caveats, we note that our results on accruals-based audit quality measures should be interpreted with considerable caution.

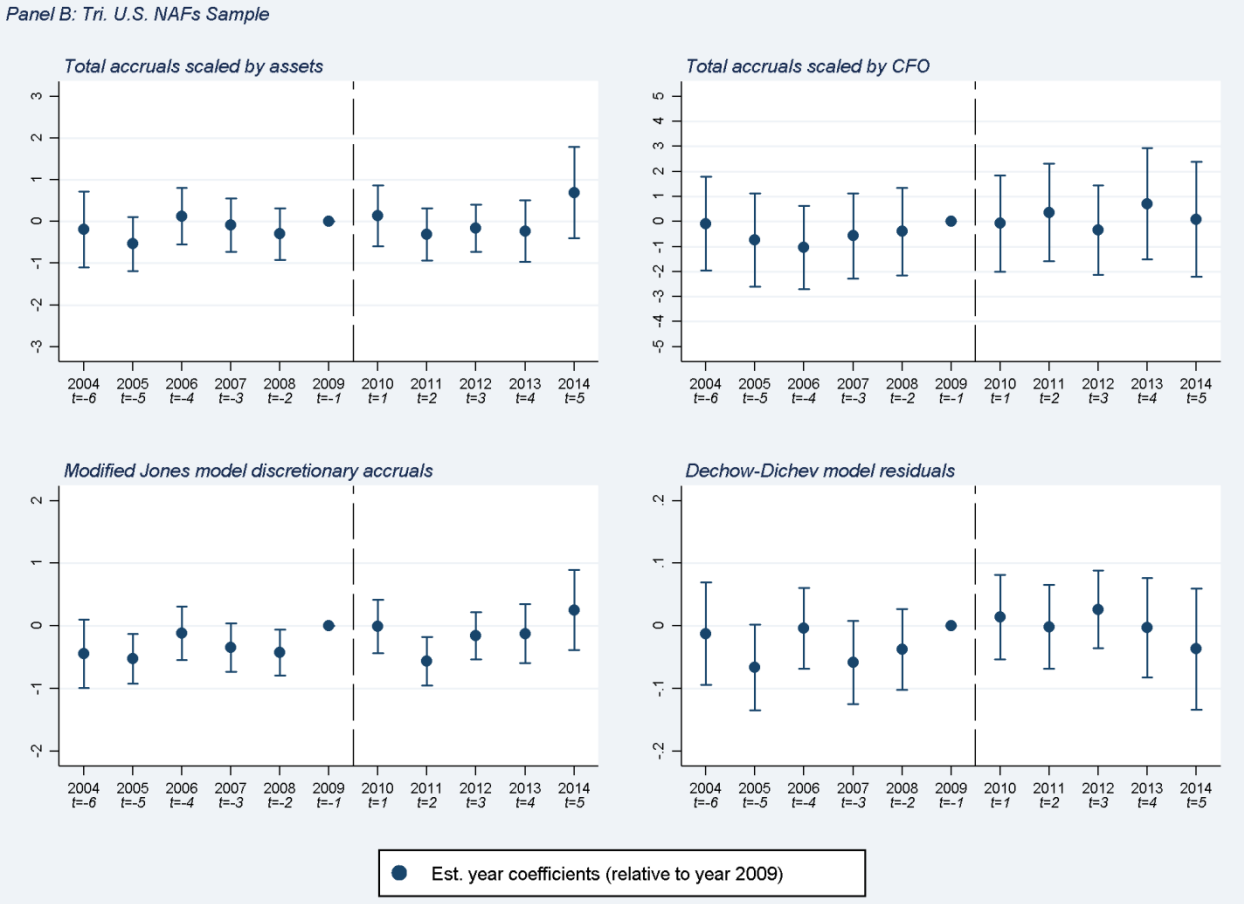
[97] The percentage declines are calculated by dividing the estimated coefficients *Post_AS1220* in Panel B of **Table 7** by the pre AS 1220 period sample averages of these measures. In the pre AS 1220 period, the average total accruals scaled by assets (*AbsAcrlTA*), total accruals scaled by CFO (*AbsAcrlCFO*), modified Jones model discretionary accruals (*AbsJonesAcrl*), and Dechow-Dichev model residuals (*AbsDD*) are approximately 0.1, 1.3, 0.1, and 0.04 in the sample, respectively.

[98] For triennially inspected U.S. NAF audits, in the pre AS 1220 period, the average *AbsAcrlTA*, *AbsAcrlCFO*, *AbsJonesAcrl*, and *AbsDD* are approximately 1.7, 3.7, 1.0, and 0.2 in the sample, respectively.

[99] Chen et al. (2018) suggest that the commonly used two-step regression procedure for estimating discretionary accruals potentially generates biased coefficient estimates and unreliable t-statistics. To eliminate the biases resulting from the two-step procedure, these researchers propose to estimate all the model regressors from the first and second step in a single regression. Although Chen et al. (2018) note that the biases documented in the paper do not directly apply to two-step procedures where the *transformed* residuals from the first-step regression are used as the dependent variable in the second step (e.g., the absolute value of the residuals such as *AbsJonesAcrl* and *AbsDD* in our analyses), these researchers urge caution in interpreting the coefficient estimates and associated t-statistics in these second-step regressions.

Figure 17 Trend in accruals-based measures (regression coefficients)





In Panel A, we estimate equations similar to columns (4) through (7) in Panel B of **Table 7** but replace the single *Post_AS1220* indicator with separate indicator variables, each representing one year over the period 2004 (*t*=-6) to 2013 (*t*=4). In Panel B, we estimate equations similar to columns (4) through (7) in **Table 8** but replace the single *Post_AS1220* indicator with separate indicator variables, each representing one year over the period 2004 (*t*=-6) to 2014 (*t*=5). We use year 2009 (*t*=-1) as the benchmark and thus omit it in these estimations (i.e. it has a coefficient value of zero and no confidence interval). The figures above plot the estimated coefficient of the year indicators (circle marker) with the 95% confidence interval (solid line above and below the marker). The estimated coefficients for the year indicators are statistically different from the benchmark year if the 95% confidence interval does not include zero (the implied coefficient for the benchmark year omitted from the estimation).

C. Other Responses

In Section V.A. we assessed direct costs incurred by audit firms to implement and comply with AS 1220 and, in Section V.B, we examined whether the standard achieved its intended purpose, including by investigating longer-term trends in various AQIs. The analysis in this section serves to explore a number of potential mechanisms through which some of the aforementioned costs and benefits may have arisen.[100] In particular, we assess whether there is evidence of specific responses (e.g., changes in the behavior of EQ reviewers or audit firm management) along the lines of the changes the Board made in AS 1220. Overall, as discussed in the subsections that follow, we find evidence consistent with audit firms and reviewers responding to the new standard.

i. Review Process

Potential Effects

Compared to the predecessor standard, AS 1220 describes in more detail the objective of the review and the procedures that should be performed to meet this objective. Although the predecessor standard did lay out a number of procedures that a reviewer was required to perform, the overall objective of the concurring partner review was described in terms of reviewing significant auditing, accounting, and financial reporting matters that come to the reviewer's attention.[101] The results presented so far (in Section V.A) suggest that, on average, reviewers spend more time performing EQRs in the post AS 1220 period. We also find a statistically significant decrease in the standard deviation of EQ reviewer hours in the post AS 1220 period, perhaps suggesting a more consistent approach to EQRs in this period.[102] We next examine whether the timing of reviewer hours changes as well.

One of the key changes in AS 1220 is for the reviewer to evaluate the significant judgments made by the engagement team that relate to engagement planning. When asked in interviews how AS 1220 impacted the EQR process, several partners said it led to earlier identification and

[100] In interviews, partners and audit practice leaders said that, post AS 1220, EQ reviewer behavior changed in a number of ways. Interviewees said that reviewers are held more accountable, are more involved (especially in evaluating the engagement team's significant judgments related to planning the audit and assessing risk), more focused on ICFR, more rigorous in their reviews (including through more in-depth reviews of underlying work papers and challenging decisions and judgments), more likely to visit the engagement team on site, and more consistent in terms of the scope and rigor of the review. Partners also said that engagement teams now involve reviewers much earlier in the audit and in evaluating issues as they arise.

[101] *See* SECPS Section 1000.39, Appendix E.

[102] Among audits in U.S. GNFs Sample 1, the standard deviation of *LogEQRHours* decreases from 0.67 in the pre AS 1220 period to 0.65 in the post AS 1220 period and the decrease is statistically significant. Moreover, results from a quantile regression (untabulated) also indicate that the distance between the upper and lower quartile of EQ reviewer hours decreases post AS 1220, implying that there is less variation in EQ reviewer hours in the post AS 1220 period, after controlling for other factors. Quantile regressions are generally used to describe the relationship between the dependent and independent variables at different points in the overall distribution of the dependent variable. For a general discussion on quantile regressions, *see* section 4.6 in Cameron and Trivedi (2005).

better resolution of issues identified in the audit. According to these partners, this resulted from increased involvement of the EQ reviewer in earlier stages of the audit. In our analysis, we test whether there is an increase in the proportion of EQ reviewer hours spent in the *Preliminary Review/Planning* ("*prelim*") phase of an audit in the post AS 1220 period.

Descriptive Analyses

Audit hours by phase is available in the inspection data for issuers selected for PCAOB inspection.[103] Among the U.S. Big Eight Inspected Sample, we identify 2,541 issuer-year observations with reviewer hours broken down by audit phase. Panel A of **Table 6** indicates that, over the sample period, reviewers on average spent approximately 12 percent of their time (8 hours per engagement) during the *prelim* phase. **Figure 18** further suggests that the average proportion of reviewer hours spent in the *prelim* phase increased slightly in the post AS 1220 period. By using a regression similar to those in Section V.A, results in column (1) of **Table 9** suggest that, on average, the proportion of reviewer hours spent in the *prelim* phase is higher in the post period, by approximately 1.8 percentage points, than in the pre period.[104,105] However, as indicated in column (3) in **Table 9**, we cannot differentiate this increase from a general upward trend. Results in column (2) of **Table 9** further indicate that the increase in the proportion of reviewer hours spent in the *prelim* phase corresponds to an increase of 3.4 hours per engagement.[106,107] In additional untabulated analysis, we also find a statistically significant increase, although smaller in economic magnitude, in the proportion of reviewer hours spent in the *Interim Field Work* phase of the audit post AS 1220.

[103] The audit phases are: *Preliminary Review/Planning*, *Interim Field Work*, *Final Field Work to Issuance of Report*, *After Issuance of Report*, and *Total Quarterly Review*.

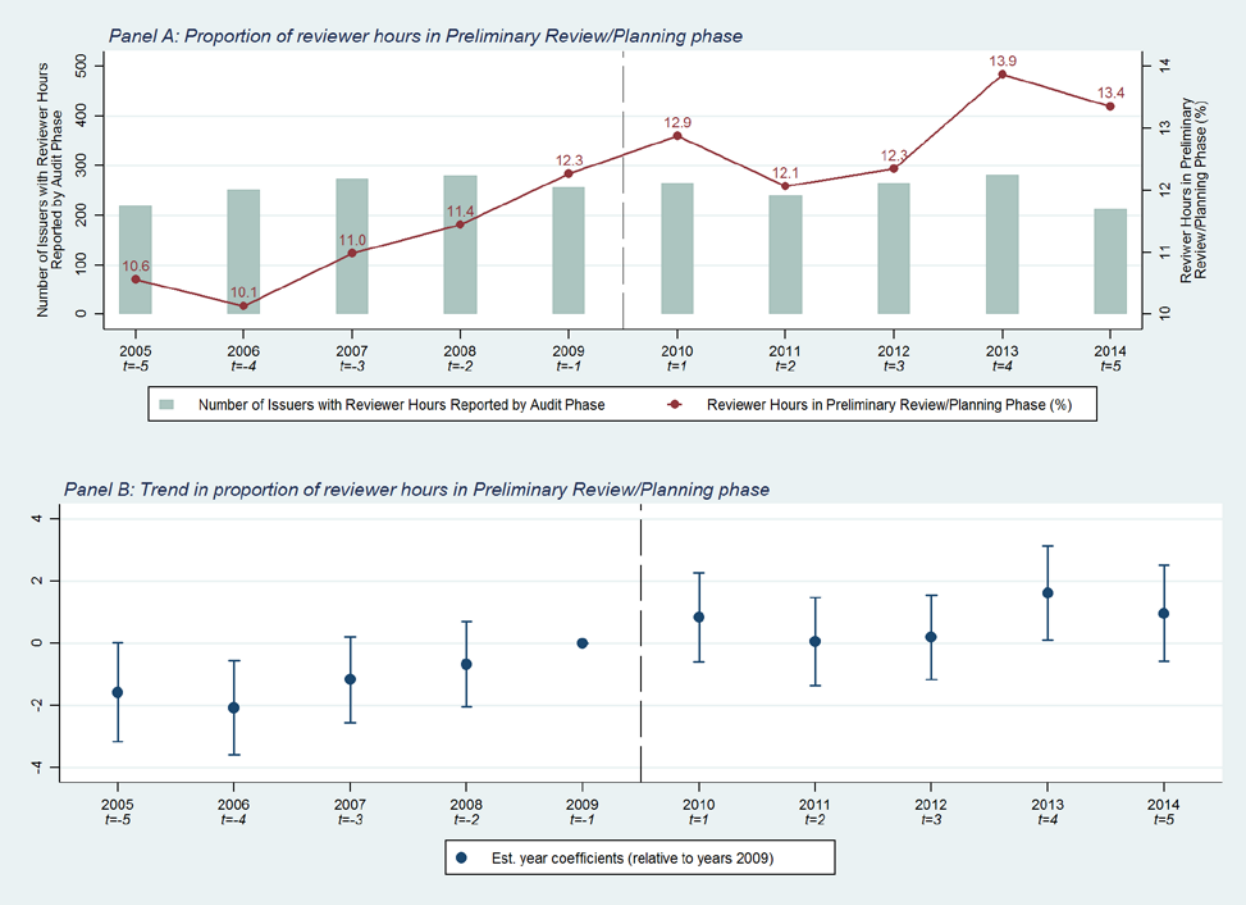
[104] The average proportion of reviewer hours spent in the *prelim* phase in the sample is approximately 11.1 percent in the pre AS 1220 period.

[105] In a contemporaneous study by researchers, including two former Senior Economic Research Fellows, Aobdia, Choudhary, and Newberger (2018) examine the allocation of total audit hours and hours spent by the core audit team across phases and find that more time spent prior to the final phase of the audit is associated with better audit quality.

[106] The average hours spent in the *prelim* phase in the sample is approximately 6.2 hours in the pre AS 1220 period. Results in column (4) in **Table 9** further indicate that, with the addition of a linear time trend in the model, the level of reviewer hours spent in the *prelim* phase increases by approximately 1.1 hours per engagement.

[107] In untabulated analyses, we include only U.S. GNFs in the sample, as in the EQ reviewer hours analyses in Section V.A, and find similar results.

Figure 18 Trend in EQ reviewer hours spent in *Preliminary Review/Planning* phase – U.S. Big Eight



Panel A shows the number of inspected issuer audits with reviewer hours reported by audit phase (bars) and the proportion of reviewer hours in the *Preliminary Review/Planning* phase of an audit (line). To obtain coefficients in Panel B, we estimate an equation similar to column (1) in **Table 9** but replace the single *Post_AS1220* indicator with separate indicator variables, each representing one year over the period 2005 (*t*=-5) to 2014 (*t*=5). We use year 2009 (*t*=-1) as the benchmark and thus omit it in the estimation (i.e. it has a coefficient value of zero and no confidence interval). The figure above plots the estimated coefficient of the year indicators (circle marker) with the 95% confidence interval (solid line above and below the marker). The estimated coefficients for the year indicators are statistically different from the benchmark year if the 95% confidence interval does not include zero (the implied coefficient for the benchmark year omitted from the estimation).

ii. Qualifications

Potential Effects

AS 1220 strengthens requirements related to the qualifications of the EQ reviewer, in particular regarding the level of expertise required and, for a reviewer from within the firm, regarding his or her level of authority. In the adopting release the Board observed that reviewers should possess the level of knowledge and competence in accounting, auditing and financial reporting

required to be an engagement partner on the same audit, and the relevant authority to withstand pressure from within the firm.[108]

In light of the changes in AS 1220 related to EQ reviewer qualifications, audit firms may have reacted by employing different strategies to assign qualified EQ reviewers to audit assignments. For example, firms may have increased or decreased the pool of partners performing EQRs, changed the number of EQR assignments given to each EQ reviewer, and/or reassigned existing EQ reviewers so as to better match the reviewer to the audit. Along these lines, our descriptive analyses first examine aggregate-level changes in EQR assignments (including changes in the concentration of EQ reviewer assignments and changes in the rate of EQ reviewer turnovers) and then investigate whether there are changes in the observable characteristics of EQ reviewers around the implementation of AS 1220.[109]

Data

For this part of the analysis, we use a sample of partners who were assigned as EQ reviewers and/or EPs for issuer audits of operating companies conducted by U.S. GNFs and related partner characteristics data collected by the PCAOB during inspection years 2010 through 2015 (largely corresponding to fiscal year 2008 through 2013 audits).[110] Definitions of the partner characteristics are provided in Appendix A.

There are important caveats to be kept in mind in considering the results of our descriptive analyses. First, we acknowledge that our analysis considers only the direct effects of the standard. *Ex ante* it is unclear whether assigning more qualified partners to perform EQRs enhances audit quality. Clearly there is a trade-off between assigning high quality personnel to perform EQRs versus other important roles, including as EPs or National Office resources. Second, a difficulty in assessing whether firms assign more qualified EQ reviewers in the post AS 1220 period arises from the use of imperfect measures of qualifications in our analysis. For example, it is possible that EQ reviewers assigned to audits in the post AS 1220 period are no different than their predecessors across the characteristics we can observe but are in fact of higher quality due to other unobservable factors (e.g., knowledge gained from training received in the post AS 1220 period). Third, there could be bias in the early years of our sample of EQ reviewers because collection of certain partner characteristics data for partners that served only as EQ reviewers on issuer audits did not begin until inspection year 2013.[111]

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[108] PCAOB Release No. 2009-004, pp. 6 & 8.

[109] In interviews, audit practice leaders said that EQR assignments take into account various factors including, among other things, partner workload, the supervisory chain of command, and issuer characteristics.

[110] See the first two lines in Panel A of **Table 1** for details on the sample selection of issuer audits**.** We exclude all NAFs from this part of our analysis based on the extent of the available (structured) data.

[111] It is important to note that characteristics data is available throughout the sample period for partners that served in any given year in either the EP role or in both EP and EQ reviewer roles across multiple issuer audits. After backfilling data where possible using the identity of EQ reviewers (collected throughout the sample period), the

Descriptive Analyses

Trends in EQ reviewer assignments

Overall, the results of our descriptive analyses show variation across audit firms and through time in EQ reviewer assignment practices. In addition to making changes to assignment practices around the implementation of AS 1220, U.S. GNFs have made further changes well into the post AS 1220 period. To maintain confidentiality, we do not present firm-level descriptive information to illustrate these trends but, instead, describe the variation in qualitative terms.

First we examine the ratio calculated by dividing the total number of issuer audits by the number of distinct partners serving as an EQ reviewer.[112] Overall we find that, on average, the number of issuers per EQ reviewer dropped in the post AS 1220 period for two U.S. GNFs. In both cases, the change is driven both by a drop in the number of issuer audits and an increase in the number of EQ reviewers. We do not observe meaningful changes in this ratio for the other four U.S. GNFs.

Next we examine the distribution of EQ reviewers for U.S. GNFs delineated by the number of EQR assignments undertaken by such partners. We find that, over our sample period, one U.S. GNF increased the percentage of EQ reviewers who were given one EQR assignment. Another firm decreased the percentage of EQ reviewers performing more than five EQR assignments while increasing the percentage performing only one. A third firm assigned a majority of its EQ reviewers to multiple EQR assignments both pre and post AS 1220.

An alternate cut of the data classifies partners based on their assignments. That is, partners in a given year either undertook only EP or only EQ reviewer roles or served in both roles across different audits. Depending on how a firm's attitude toward specialization in such roles evolved, we might expect an increase or decrease in the proportion of partners performing only one of these roles.[113] At some U.S GNFs, we observe a modest decrease in partners that perform only EP work and a modest increase in the proportion of partners performing only EQRs, though the latter result could be biased by the limited admit year data on EQ reviewers in the early years.

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magnitude of this issue for a time-invariant characteristic such as partner admit year is about 3.4 percent of partners assigned as EQ reviewers in our sample (Panel A of **Table 10**). The magnitude would be higher for time-varying partner characteristics.

[112] We also calculate the ratio obtained by dividing the total number of issuer audits by the number of distinct partners serving as EPs. This ratio serves as a comparison because both EP and EQ reviewer ratios would be expected to move in the same direction in years where changes in the ratios are influenced by changes in the number of issuer audits.

[113] In interviews several partners noted that there are benefits to performing multiple EQRs while others considered it important to balance EQR roles with other responsibilities. Because partners typically progress from EP to EQ reviewer roles as they gain more experience, the sample for this analysis includes only those partners admitted to partnership for at least five years.

Finally we review aggregate turnover rates for EQ reviewers.[114] Our analysis includes both mandatory and non-mandatory turnovers,[115] but not EQ reviewer changes that occur due to changes in an issuer's audit firm. We find that one firm turned over (i.e. switched) a large portion of its EQ reviewers in the year immediately prior to implementation of AS 1220.

Changes in EQ reviewer characteristics

Table 11 summarizes observable partner characteristics for partners assigned as EQ reviewers on U.S. GNF issuer audits. The difference in the mean value of each characteristic is calculated between the pre AS 1220 period (i.e., data collected during inspection year 2010) and the post AS 1220 period (i.e., data collected during inspection years 2011 through 2015). We also report results from a statistical test measuring if the difference between the pre and post AS 1220 period is statistically different than zero. The differences across the various characteristics suggest that on average, in the post AS 1220 period, EQ reviewers tend to have approximately one more year of partner experience, fewer leadership roles,[116] fewer engagement partner assignments for audits of employee benefit plans, fewer EQ reviewer assignments for audits of non-issuers, higher utilization, fewer restatements, higher quality ratings, and more Part I Findings. In addition to the aforementioned data caveats, the changes we observe could be driven by AS 1220 or possibly other factors.

An alternate analysis (**Table 12**) shows the mean difference in characteristics between successor and predecessor EQ reviewers (partners assigned after and before the first EQ reviewer turnover, respectively) on audits in the post AS 1220 period. As such, the cutoff date for the before and after samples differs among audits depending on when the first EQ reviewer turnover occurs within the post AS 1220 period. The differences across various characteristics suggest that, relative to predecessor EQ reviewers successor EQ reviewers in the post AS 1220 period, on average, tend to have approximately two fewer years of partner experience,[117] fewer quality

[114] To construct EQ reviewer turnover rates, we first identify and tag those audits within a firm that had a change in the EQ reviewer. The turnover rate is then calculated by dividing the number of audits that had an EQ reviewer turnover by the total number of audits in that year.

[115] The SEC mandates that the EPs and the EQ reviewers are prohibited from serving in their respective roles on the audit for longer than five years. S*ee* SEC Exchange Act Release No. 33-8183, *Strengthening the Commission's Requirements Regarding Auditor Independence*, March 27, 2003, available at https://www.sec.gov/rules/final/33-8183.htm (accessed November 27, 2018).

[116] Partners assigned to leadership and quality roles could be good candidates for EQRs because they could possess the necessary authority to withstand pressure from within the firm and/or possess considerable technical expertise. However, the responsibilities associated with these positions could also affect the time available for these partners to perform EQRs. For issuer audits in our sample, the percentage of EQ reviewers that hold leadership (quality) positions is 31 percent (21 percent) in the pre AS 1220 period, and 28 percent (19 percent) in the post AS 1220 period.

[117] We note that this result is not inconsistent with the result in **Table 11**. **Table 11** reports the difference in the mean value of characteristics for all assigned EQ reviewers between the pre and post AS 1220 periods. **Table 12** shows the mean difference in characteristics between successor and predecessor EQ reviewers on audits with the first EQ reviewer turnover in the post AS 1220 periods.

roles, fewer restatements, and fewer Part I findings.[118] Similar to the analysis in **Table 11**, the same caveats mentioned above apply here as well.

In additional untabulated analysis, for issuer audits that had EQ reviewer turnovers (excluding partner changes that occur due to changes in an issuer's audit firm) we look beyond changes in the mean to identify any changes in observable characteristics associated with AS 1220 that could manifest in the upper and/or lower parts of the distribution. To further assess whether AS 1220 gave rise to changes in EQ reviewer qualifications, we also compare changes in EQ reviewer characteristics against changes in characteristics for EPs.[119] The results of both of these additional untabulated analyses are not suggestive of significant differences between EQ reviewer turnovers and EP turnovers across most observable partner characteristics.

Subsequent analysis of partner experience and quality ratings reveals additional descriptive evidence. **Table 13** shows partner experience for the sample of assigned EQ reviewers, with experience levels now broken down into several five-year categories. The distribution of partners in each of these categories, and the average experience in each year is shown. We observe that, despite a slight uptick in the final year of the sample (i.e. 2015) the percentage of partners with up to five years of experience as partner assigned as EQ reviewers has been falling since the first year of the sample.[120] Further analysis of partner quality ratings reveals that for one of the U.S. GNFs the average partner quality rating for the population of EQ reviewers is somewhat better than for EPs (figure not reported to maintain confidentiality).[121,122]

To sum up, in light of the changes in AS 1220 related to EQ reviewer qualifications we examine aggregate-level changes in EQR assignments and changes in the observable characteristics of EQ reviewers. The results of our aggregate-level descriptive analyses show variation across audit firms and through time in EQ reviewer assignment practices. Although we observe some evidence of changes in the experience profile of EQ reviewers, in particular a decrease in the percentage of EQ reviewers with up to five years of partner experience, our results are generally

[118] To account for any firms that could have adopted aspects of AS 1220 early, in untabulated analysis, adding data for EQ reviewers of audits with turnovers in the pre AS 1220 period did not lead to any substantive changes in our inferences.

[119] This analysis assumes that any changes in EQ reviewer qualifications due to AS 1220 only affects EQ reviewers and not EPs.

[120] In interviews, some U.S. GNF partners said that, while some less experienced partners may want to perform EQRs, the firm may not consider them ready to take on the role.

[121] To control for possible overlap of partners that serve as both EPs and EQ reviewers in each year, we also calculate average partner quality ratings in each year for those partners that either undertook roles on audits where they served only as the EP or EQ reviewer, or served in both roles across different audits. Unreported figures suggest no substantive differences in results.

[122] It is important to note that our results could be biased by the limited data on EQ reviewers in the early years because we find in untabulated analysis that 14 percent of quality ratings are unavailable for the sample of assigned EQ reviewers, predominantly in the early years; and we do not control for other factors that could affect partner quality ratings (such as a partner's book of business, partner terminations, or firms possibly taking a stricter stance over time when assigning ratings).

not indicative of significant changes in observable EQ reviewer characteristics around AS 1220.

iii. Standard of Care

Potential Effects

AS 1220 makes clear that a reviewer cannot evade responsibility because, as a result of an inadequate review, he or she did not discover a problem that a reasonably careful and diligent review would have revealed. Prior to AS 1220, auditors were already required to exercise due professional care in discharging their responsibilities; nevertheless comments received during the development of AS 1220 appeared to reflect some confusion among audit firms about the applicable standard of care for a review under the SECPS requirements.

To inform our analysis we used interviews of audit practice leaders to gain a deeper understanding of how firms are incentivizing partners to perform effective EQRs. Interview questions centered on whether AS 1220 resulted in changes to the way partners are compensated and evaluated, whether there are consequences for partners associated with AS 1220 inspection findings, and how firms monitor the quality of the EQR process. Practice leaders of some U.S. GNFs said that they analyze negative quality events to ascertain the adequacy of the EQR, and indicated that these analyses are used in partner evaluation and compensation determinations. At the November 2016 SAG meeting, David A. Kane, Americas vice chair of Assurance Professional Practice at EY stated that AS 1220 "afforded a chance to align incentives and … the reward and recognition system with … the behaviors that we're looking for".[123] Leaders of some triennially inspected U.S. NAFs indicated that their firms have not implemented specific programs to incentivize EQ reviewers to perform better reviews and that implementation of AS 1220 has not led to significant changes in the way partners are compensated and evaluated. In light of our empirical results on EQ reviewer hours for U.S. GNFs and triennially inspected U.S. NAFs, where U.S. GNFs exhibit a greater increase in reviewer hours in the post AS 1220 period (Section V.A), these differences in large and small firm interview responses are perhaps not surprising if more hours is suggestive of a better standard of care.[124]

Descriptive Analyses

To empirically assess if there are consequences for EQ reviewers associated with AS 1220

[123] PCAOB Standing Advisory Group Meeting archived webcast, "11/30/16 Standing Advisory Group Meeting (Part 1 of 2)," December 12, 2016, at 3:29:30, available at https://pcaobus.org/News/Events/Pages/SAG-meeting-November-2016.aspx (accessed November 27, 2018). In interviews, practice leaders of some U.S. GNFs also said that, in addition to direct incentives, they also use higher level initiatives to emphasize quality across the firm, including with respect to the EQ reviewer.

[124] With respect to monitoring, audit practice leaders of some U.S. GNFs said that the quality of the EQR process is monitored in various ways. In addition to inspections, monitoring mechanisms generally include pre-issuance reviews, root cause analysis, and reviews of partner workload. To the extent triennially inspected U.S. NAFs monitor the quality of their EQR process, firm leaders generally pointed to review of internal and external inspection results as the primary monitoring mechanism.

inspection findings, we examine whether there is a difference in changes in the quality ratings for EQ reviewers of U.S. GNFs on audits with both Part I Findings and Part II-EQR Findings relative to changes in quality ratings for those reviewers assigned to audits that received Part I Findings and for which the EQR was not flagged as deficient. [125]

We match deficiencies on an inspected issuer audit in audit fiscal year-end *t* to the EQ reviewer's assigned quality rating as of the firm's fiscal year end *t+1*, or *t+2*.[126] We restrict our analysis to the post AS 1220 period because interviews with audit practice leaders suggested that firms have only more recently put in place mechanisms to consider EQR performance when assigning ratings. Panel A1 (A2) of **Table 14** shows the results of statistical tests conducted on the mean difference in changes in partner quality ratings for the sample obtained by matching deficiencies on audits with fiscal year end *t* to the change in EQ reviewers' quality ratings at *t+1* (*t+2*). The results show, on average, a statistically significant difference in the change in the quality ratings (greater decrease) for EQ reviewers on audits with both Part I Findings and Part II-EQR Findings relative to those whose audits only had Part I Findings.

By itself this result does not necessarily imply that firms are holding EQ reviewers accountable for low quality EQRs. Instead it could simply be the case that the deficiencies in audits with Part I Findings for which the EQR is also deficient are different than those without an associated EQR deficiency. Panels B1 and B2 of **Table 14** show additional tests that are aimed at addressing this possibility. That is, in Panels B1 and B2, we test whether the average change in the quality ratings for EQ reviewers on audits with both Part I Findings and Part II-EQR Findings is different than the average change for those who served on audits with Part I Findings and whose audits were mentioned in Part II of the report under other quality-control criticisms (non-EQR deficiencies, or Part II-Other Findings). Results are substantially similar, except in Panel B1 where the difference is statistically significant only at the 10 percent level. This suggests that the results in Panels A1 and A2 could be related to AS 1220 inspection findings.

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[125] Deficiencies related to EQRs are discussed in Part II (the nonpublic portion) of PCAOB inspection reports. *See* discussion in PCAOB Staff Inspection Brief Vol. 2017/3, *Information about 2017 Inspections*, August 2017, p. 9 and PCAOB Release No. 2012-003, *Information for Audit Committees About the PCAOB Inspection Process*, August 1, 2012, p. 8.

[126] DRI typically inspects an audit with fiscal year end *t* in inspection year *t+1* with the inspection fieldwork occurring from March through November (*see* Aobdia, 2018a). As firm fiscal years typically end between May and September, they may not be able to incorporate inspection results when assigning partner quality ratings between May and September *t+1*, but could do so by May through September *t+2*. For information on audit firm fiscal year ends, *see*: Ernst & Young LLP, *Our Commitment to Audit Quality*, November 2017, p. 8, available at http://auditqualityreport.ey.com/ (accessed November 27, 2018); KPMG Fast Facts overview webpage, available at https://home.kpmg.com/us/en/home/about/kpmg-fast-facts.html (accessed November 27, 2018); PWC, *Our Focus on Audit Quality*, 2018, p. 36, available at https://www.pwc.com/us/en/audit-assurance-services/audit-quality-report.html (accessed November 27, 2018); and Deloitte 2017 Facts & Figures overview webpage, *Deloitte US By the Numbers*, available at https://www2.deloitte.com/us/en/pages/about-deloitte/articles/facts-and-figures.html (accessed November 27, 2018).

iv. Applicability

Potential Effects

AS 1220 applies to all PCAOB registered firms and requires an EQR to be performed for each audit engagement and engagement to review interim financial information conducted pursuant to PCAOB standards.[127] The predecessor standard, on concurring partner review, applied only to registered firms that were members of the AICPA's SECPS as of April 2003. Therefore, prior to AS 1220, concurring partner reviews were not required for audits conducted by registered firms that were not SECPS members as of April 2003, but such firms could have voluntarily chosen to perform them.

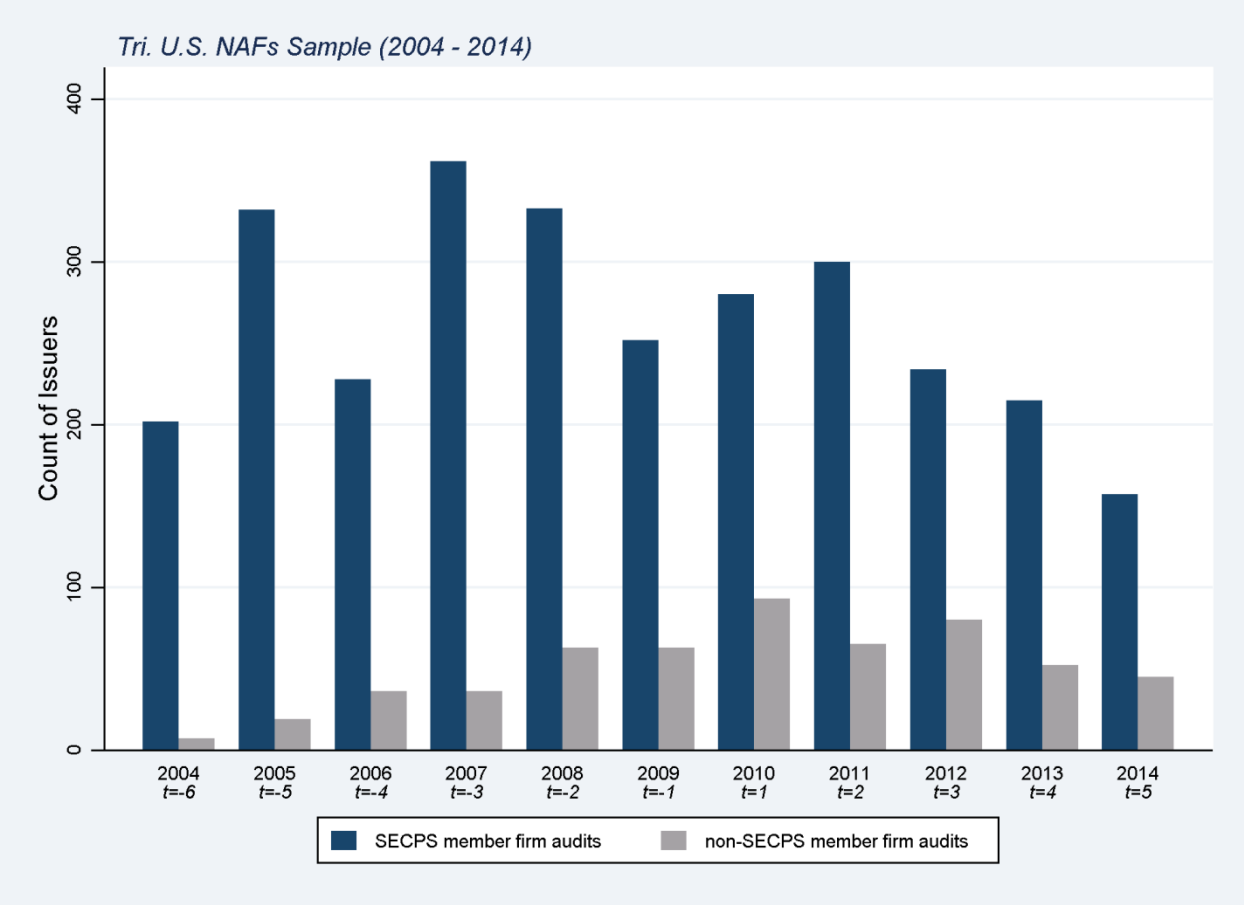
On the one hand, since concurring partner review requirements did not apply to registered non-SECPS member firms, the extent and quality of any concurring partner reviews performed at these firms could have been lower than those performed at SECPS member firms pre AS 1220. As a result, when AS 1220 became effective for all registered firms regardless of SECPS membership, one could expect larger changes in reviewer hours and audit quality for non-SECPS member firms than for SECPS member firms. On the other hand, if the conditions under which non-SECPS member firms chose not to perform high quality audits with EQRs in the pre AS 1220 period also exist in the post AS 1220 period (e.g., due to institutional or resource constraints), one would not expect to observe larger changes in reviewer hours and audit quality for non-SECPS member firms around AS 1220. In our empirical analysis, we test whether SECPS and non-SECPS member firm audits experience different changes, in terms of reviewer hours and audit quality.

Descriptive Analyses

Within the Tri. U.S. NAFs Sample (Panel D of **Table 1**), we identify SECPS and non-SECPS member firm audits as of April 2003. The final sample yields 559 issuer-year observations of non-SECPS member firms (224 in the pre AS 1220 period and 335 in the post) and 2,895 issuer-year observations of SECPS member firms (1,709 in the pre AS 1220 period and 1,186 in the post). **Figure 19** shows the number of issuer audits conducted by non-SECPS member firms and SECPS member firms in each year over the sample period.

[127] AS 1220 was subsequently amended so that EQRs are also required for attestation engagements, with fiscal years ending on or after June 1, 2014, performed pursuant to Attestation Standard No. 1, *Examination Engagements Regarding Compliance Reports of Brokers and Dealers*, or Attestation Standard No. 2, *Review Engagements Regarding Exemption Reports of Brokers and Dealers*. *See* PCAOB Release No. 2013-007, *Standards for Attestation Engagements Related to Broker and Dealer Compliance or Exemption Reports Required by the U.S. Securities and Exchange Commission and Related Amendments to PCAOB Standards*, October 10, 2013.

Figure 19 Number of SECPS and non-SECPS member firm audits by year – triennially inspected U.S. NAFs



We estimate a model similar to Equation (1) but interact the *Post_AS1220* indicator with a *SECPS* indicator which is equal to one if the issuer was audited by an SECPS member firm, and include fixed effects for the issuer industry but not the audit firm.[128] Audit firm fixed effects are excluded because they are perfectly collinear with the indicator variable *SECPS*. The estimated coefficient of the interaction term indicates the difference between SECPS member firm audits and non-SECPS member firm audits, in terms of the change in reviewer hours or AQIs, in the post AS 1220 period. We also replace the *Post_AS1220* indicator with a series of year indicators to trace out the changes over time and assess the time trend. In Panel A of **Figure 20,** we observe that the trends in reviewer hours for SECPS and non-SECPS member firm audits are similar except for a decline among non-SECPS member firm audits in 2014. We also note that the increase in reviewer hours among non-SECPS member firm audits in the pre AS 1220 period could be driven by audit firm responses to suggestions made in PCAOB inspection reports about

[128] The general model specification is (without issuer and time subscript):

$$LogEQRHours\ or\ AQI\ = \alpha\ +\ \beta_1 Post\_AS1220 + \beta_2 SECPS + \beta_3 Post\_AS1220 \times SECPS + \sum \beta_i Controls_i + \sum \beta_j FE_j + \varepsilon$$

the importance of concurring partner reviews.[129] Regression results in column (1) in Panel A of **Table 15** indicate that on average, reviewer hours increased by 25 percent (approximately 5 hours per engagement) among SECPS member firm audits in the post AS 1220 period.[130] However, the result does not indicate a statistically significant change in reviewer hours among non-SECPS member firm audits post AS 1220.[131] As for the trend in audit fees (after controlling for issuer and auditor attributes), Panel B of **Figure 20** shows that, after an increase between 2004 and 2006, both SECPS and non-SECPS member firm audits experienced minimal changes over the sample period. Regression results in column (2) in Panel A of **Table 15** indicate no statistically significant change in audit fees for either SECPS or non-SECPS member firm audits. Finally for AQIs, regression results in Panel B of **Table 15** indicate that SECPS member firm audits exhibit similar changes in the post AS 1220 period, in terms of *PartIFinding* and *BigR*, to triennially inspected U.S. NAF audits generally (**Table 8**).[132] Moreover, we find no statistically significant difference in changes in these audit quality measures in the post AS 1220 period among SECPS and non-SECPS member firm audits.

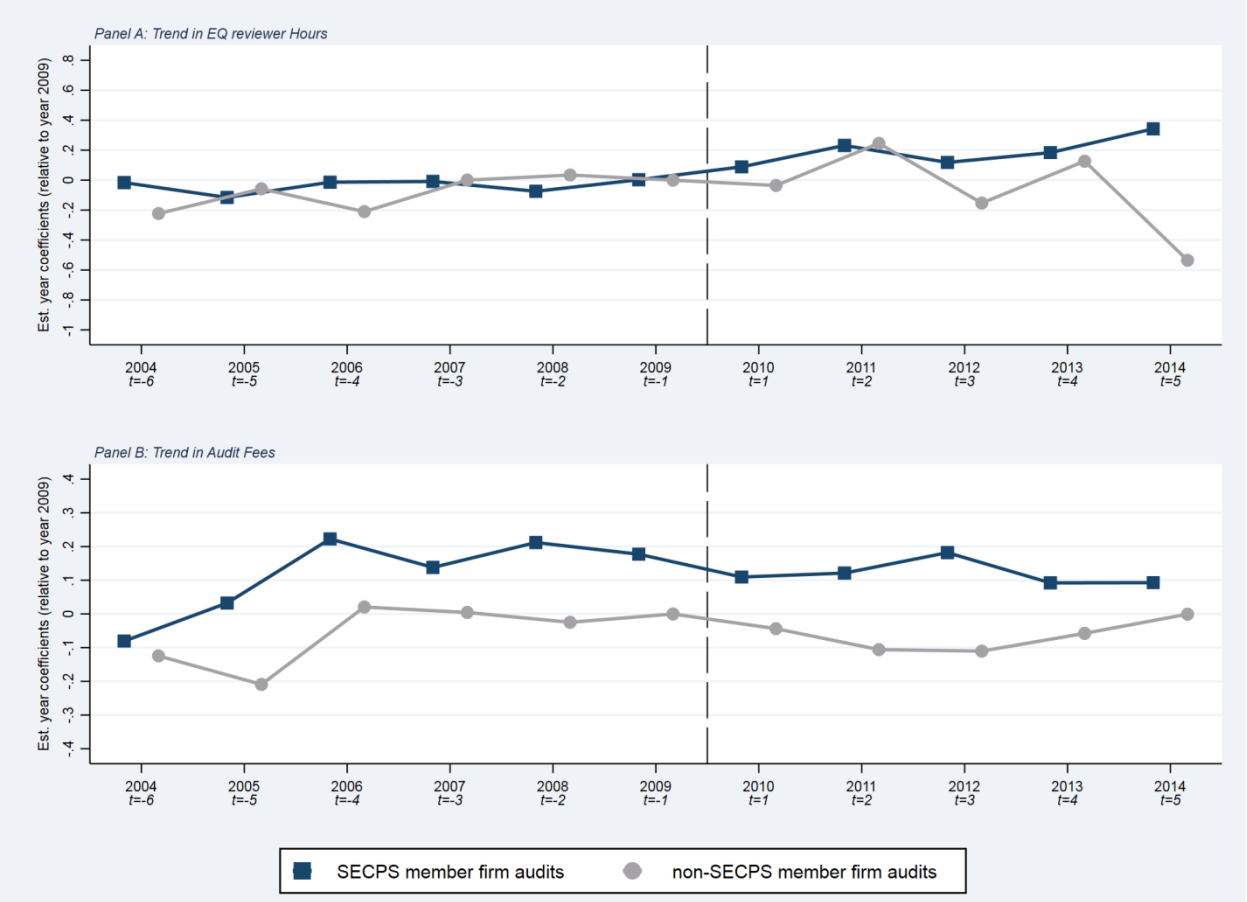
[129] Non-SECPS member firms were not subject to the concurring partner review requirement in the Board's predecessor standard. However, the Board encouraged these firms to obtain a concurring partner review and noted the important role such reviews play in ensuring an audit is performed in accordance with PCAOB standards. PCAOB Release No. 2007-010, *Report on the PCAOB's 2004, 2005, and 2006 Inspections of Domestic Triennially Inspected Firms*, October 22, 2007, p. 18.

[130] For the SECPS member firm audits, the percentage increase in reviewer hours is 25 percent (100×[exp(-0.014+0.238) – 1]). Given the average EQ reviewer hours per engagement is 18.5 hours among SECPS member firm audits in the pre AS 1220 period, the increase in reviewer hours in the post AS 1220 period is approximately 5 hours (18.5×25%).

[131] For the non-SECPS member firm audits, the estimated coefficient of *Post_AS1220* is not statistically significant at the conventional levels.

[132] In untabulated analyses, the results of the F-test *Post_AS1220 + Post_AS1220×SECPS = 0* in columns (1) and (2) in Panel B of **Table 15** are both statistically significant at the one percent level.

Figure 20 SECPS versus non-SECPS member firms – triennially inspected U.S. NAFs (regression coefficients)



We estimate the following equation and plot the estimated coefficient of the year indicators (circle marker) and the interaction term of year indicators and *SECPS* indicator (square marker):

$$LogEQRHours\ or\ LogAuditFees = \alpha + \beta_1 SECPS + \sum \beta_t Year_t + \sum \beta_k Year_k \times SECPS + \sum \beta_i Controls_i + \sum \beta_j FE_j + \varepsilon$$

Controls and *FE* are the sets of control variables and issuer industry fixed effects defined in Equation (1). We use year 2009 (*t*=-1) as the benchmark and thus omit it in the estimation.

Overall, we find no empirical evidence of non-SECPS member firm audits showing a larger change in cost and audit quality measures than SECPS member firm audits in the post AS 1220 period. These results could be explained by the observation that concurring partner reviews were performed for audits conducted by many non-SECPS member firms in the pre AS 1220 period, despite the fact that the standard did not require it. [133] Another interpretation is that other forces (e.g., institutional or resource constraints) restricted changes in reviewer hours and audit quality measures among non-SECPS member firm audits in the post AS 1220 period. We note that our findings are not uncommon in the literature on financial regulation. Regulatory outcomes are

[133] Among the triennially inspected NAF audits, concurring partner reviews were performed in approximately 91 percent of the non-SECPS member firm audits in the pre AS 1220 period.

likely determined jointly by the state of prior regulation, the new standard, and how the regulation is implemented and enforced (Djankov et al., 2003; Christensen et al., 2016).[134]

D. Impact of PCAOB Oversight

Potential Effects

The PCAOB's efforts to improve audit quality can be viewed as a package where standard setting is only one part of the overall approach to make audits more robust. Any changes in auditor and audit firm behavior could be, among other things, a joint function of changes in requirements, such as those brought about by AS 1220, and a more general impact of PCAOB inspections and enforcement. In this section, we examine PCAOB oversight activities including the impact on EQRs of PCAOB inspections and review recent enforcement actions.

Descriptive Analyses

Professor Daniel Aobdia, a former PCAOB Senior Economic Research Fellow, examines the impact of the PCAOB inspection process on auditor and issuer activities (Aobdia, 2018a). Preliminary evidence from that research, conducted using inspections data from before and after the effective date of AS 1220, suggests that EQ reviewers increase their hours on the audit following a Part I Finding and that financial reporting quality eventually improves, with the probability of restatements going down two years ahead. However, additional tests in the paper suggest that audit firm remediation of Part II Findings may be driving the improvement in financial reporting quality. Following discussions with ERA's PIR team, Professor Aobdia extended his analysis in Aobdia (2018a) to also consider the impact on EQ reviewer hours when an EQR is identified as deficient in Part II of the inspection report. As shown in **Table 16**, based on the sample used in Aobdia (2018a), he finds weak evidence of an increase in EQ reviewer hours one and two years following an inspection finding where the EQR is found to be deficient.[135]

To further examine the impact of PCAOB inspections, we review all remedial actions undertaken by any U.S. GNFs that had Part II Findings through 2015.[136] Based on our review, U.S. GNFs

[134] As discussed in Section III, isolating the individual effect from this bundle of factors is difficult. We also note that given the relatively small sample of non-SECPS member firm audits in the analysis, our results should be interpreted with caution.

[135] We thank Professor Daniel Aobdia for performing this analysis and sharing the results.

[136] As noted by the PCAOB, "[i]t is not unusual for an inspection report, particularly a report on one of the large, annually inspected firms, to include nonpublic criticisms of several aspects of a firm's system of quality control…" PCAOB Release No. 2012-003, *Information for Audit Committees About the PCAOB Inspection Process*, August 1, 2012, p. 9. Moreover, some firms have published reports where they discuss outcomes of remedial actions that they have undertaken in response to nonpublic PCAOB criticisms. *See*, *e.g.*, Deloitte, *US Audit Quality Report*, December 2017, p. 13; Ernst & Young LLP, *Our Commitment to Audit Quality*, November 2017, p. 28; KPMG, *Enhancing Audit Quality and Transparency*, December 2017, pp. 15-16; and PWC, *Our Focus on Audit Quality*, 2018, p. 30.

have taken actions that could have affected EQR processes.[137] However, in some instances we note that the Board has deemed firm remedial actions to be ineffective. Moreover, for some firms we note that significant changes to EQR processes were implemented prior to the effective date of AS 1220.

We next review enforcement actions related to EQR brought by the PCAOB and SEC to better understand the nature of the misconduct. From 2011 to 2016, we identify 50 settled and litigated PCAOB and SEC enforcement actions involving violations of the predecessor standard and/or AS 1220.[138] The enforcement cases identify violations of AS 1220 in approximately 200 issuer audits and violations of the predecessor standard in 7 issuer audits.[139] The most common type of misconduct described in the cases relates to the complete lack of an EQR in an audit (24 cases, involving at least 122 issuer audits).[140] During the rulemaking stage, some commenters asserted that AS 1220 would increase a reviewer's legal exposure for a deficient audit.[141] Given the nature of the majority of the misconduct described in the enforcement cases (e.g., complete failure to perform an EQR), the relatively small size of the issuers named in the actions, and the fact that only two of the actions involve GNFs,[142] our analysis does not suggest that, for large issuer audits, AS 1220 substantially increased a reviewer's legal exposure.

E. Unintended Consequences

The results of our earlier empirical analyses, including those regarding EQ reviewer hours and audit fees, are not suggestive of significant unintended consequences. We note that comment letters and interviews are particularly suited to getting a sense for unintended consequences as interviewees can point to potential issues that, where possible, can then be further pursued with analysis. In this section, we further examine whether the qualitative information obtained through our review is indicative of more subtle issues.

Almost all of the partners and practice leaders interviewed said that AS 1220 did not give rise to surprising or unexpected effects. We summarize below the instances in which partners or firms noted that, in their view, AS 1220 gave rise to unintended consequences.

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[137] We do not provide further details on this analysis to preserve the confidentiality of audit firm remedial actions.

[138] Appendix D lists these enforcement actions. Among the enforcement actions, 35 were brought by the PCAOB and 15 by the SEC. Most of the actions involve violations of AS 1220 (43) while the others involve violations of the predecessor SECPS requirements (5) or violations of both the SECPS requirements and AS 1220 (2).

[139] The issuers named in most of these actions are relatively small (the median audit fee is about $17,500).

[140] Other common violations include: inadequate review or lack of due professional care in performing the review (14 cases, involving at least 41 issuer audits), insufficient qualifications (9 cases, involving at least 37 issuer audits), violation of the two-year cooling off period (5 cases, involving at least 7 issuer audits), and instances where the EQR was completed after issuance of the audit report (4 cases, involving at least 18 issuer audits).

[141] *See* discussion in Section II.E of PCAOB Release No. 2009-004.

[142] PCAOB Release No. 105-2012-001, *In the Matter of Ernst & Young LLP, Jeffrey S. Anderson, CPA, Ronald Butler, Jr., CPA, Thomas A. Christie, CPA, and Robert H. Thibault, CPA*, February 8, 2012; PCAOB Release No. 105-2016-036, *In the Matter of James Roderick Talbot Oram* (Deloitte Brazil), December 5, 2016.

- *Relationship between reviewer and engagement team:* In a comment letter, Grant Thornton expressed concern that AS 1220 may have created an increased risk of an adversarial relationship and reduced communication between engagement teams and EQ reviewers.[143] Other firms did not identify this as an issue.[144] In contrast, partners at these audit firms said that engagement teams now engage more deeply and frequently with reviewers and several partners observed that engagement teams more often involve the EQ reviewer in evaluating issues as they arise (e.g., with respect to the nature and timing of consultations).[145]

- *Partner assignment:* We heard from some firms and partners that AS 1220 increased the complexity of partner assignment processes. A few partners mentioned that AS 1220 resulted in some partners being less willing to perform EQRs due to a perceived increase in risk associated with the role. In its comment letter, Deloitte indicated that AS 1220 "increased complexity in managing partner rotation" (e.g., when a firm broadens its pool of reviewers to address the increase in time and effort needed to perform an EQR).[146]

- *Consistency of EQRs:* In its comment letter, Deloitte indicated that its implementation of AS 1220 resulted in some impacts in relation to consistency in the performance of EQRs.[147] The firm stated that these impacts resulted from changes the firm made to increase its potential pool of EQ reviewers. Given the broader group of partners that now perform EQRs, the firm stated that it "provided additional training" and "developed more tools and implementation guidance" to attempt to improve consistency in the performance of EQRs. [148]

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[143] Grant Thornton LLP, Re: *Request for Comment 2016-01, Post-Implementation Review of Auditing Standard No. 7, Engagement Quality Review*, July 5, 2016, p. 2 ("2016 Grant Thornton Comment Letter"), available at https://pcaobus.org/EconomicAndRiskAnalysis/CEA/Pages/post-implementation-review-AS7-engagement-quality.aspx (accessed November 27, 2018). This firm said that, after AS 1220 became effective, the focus of the EQR shifted away from "someone the engagement team could consult or collaborate with in deciding how to address an issue or in exploring potential approaches for a specific risk, including the proper accounting and disclosure of a transaction." With this shift in EQR focus, the firm said that "many engagement teams reduced communications with the [EQ reviewers]… to avoid receiving an [significant engagement deficiency] from the [EQ reviewer] when the engagement team had not yet reached a final conclusion or definitive course of action."

[144] In interviews partners were asked to describe a situation where an accounting or auditing disagreement arose between the EQ reviewer and engagement team. Seven of the 74 partners interviewed provided examples of disagreements that were elevated and resolved through discussion with a PPD or other technical resource. But, in general, the partners interviewed either couldn't provide an example or preferred not to characterize interactions between the EQ reviewer and engagement team as disagreements. Instead partners described discussions as spirited, healthy, well-rounded or a sharing of views and perspectives.

[145] One potential risk arising from the deeper involvement of the EQ reviewer in the audit relates to the independence and objectivity of the reviewer. In an interview, one U.S. GNF partner said that trainings have emphasized the importance of objectivity and independence in carrying out the role.

[146] Deloitte & Touche LLP, *Re: Post-Implementation Review No. 2016-01, Engagement Quality Review*, July 5, 2016 ("2016 Deloitte Comment Letter"), p. 2. Available at https://pcaobus.org/EconomicAndRiskAnalysis/CEA/Pages/post-implementation-review-AS7-engagement-quality.aspx (accessed November 27, 2018).

[147] *Id.*

[148] *Id.*

- *Time pressure:* A few partners said that AS 1220 increased time pressure on reviews because of the increased time commitment required to be an EQ reviewer and the change in workload. Other partners and firms suggested that AS 1220 has been beneficial in driving a greater focus by engagement teams on project management and greater adherence to timelines and milestones to factor EQR responsibilities into the overall process.

- *Learning opportunity:* A few partners described a positive unintended consequence of the standard. These partners indicated that AS 1220 provided opportunities for staff on the engagement team (e.g., senior managers) to learn as a result of more frequent interactions with the EQ reviewer. Along similar lines, in its comment letter Deloitte stated that AS 1220 has led to an "increased need for professionals to serve as assistants to the [EQ reviewer]." In Deloitte's view, "this has provided several benefits to our practice in terms of training our professionals and preparing them for partner roles." [149]

In summary, the qualitative information described above allows us to further consider whether stakeholders perceive that AS 1220 gave rise to unintended consequences. Based on our earlier analysis and discussion, we did not expect major unintended consequences and the interviews and comment letters bear this out. Firms that reported unintended consequences generally said that they were able to take steps to address them.[150]

F. Potential Opportunities for Improvement

In our request for public comment and the interviews of audit practice leaders, we asked for perspectives about whether AS 1220 could be improved and, if so, how. A large majority of partners and practice leaders said that the standard was working well. We summarize below suggestions for improvement.

- *Application of Principles-Based Framework:* In interviews, audit practice leaders of one U.S. GNF said that EQ reviewers often struggle in practice with applying the principles-based framework of AS 1220 in certain areas. The firm's practice leaders said that the standard could be improved by providing more specific guidance regarding the depth of procedures to be performed as part of the EQR to identify and evaluate significant judgments made throughout the audit and, in particular, those related to engagement planning. In its comment letter, Grant Thornton said that there are inconsistencies in practice in determining what constitutes a significant engagement deficiency. [151] Both Grant Thornton and Deloitte

[149] *Id.*

[150] *See, e.g.*, 2016 Deloitte Comment Letter, pp. 2-3.

[151] 2016 Grant Thornton Comment Letter, p. 4.

encouraged the Board to provide additional guidance related to executing an effective EQR.[152]

- *Impact of Firm Monitoring Actions:* In its comment letter, Grant Thornton noted that some firms are increasingly using in-flight reviews and National Office resources (including specialists in controls work, valuation and other special skills areas) to assist engagement teams in applying new standards or on aspects of the audit where inspection issues have been noted. The firm encouraged the Board to evaluate how these actions are impacting, or should impact an EQR. In this firm's view: *"[I]t is unclear, particularly in the context of independence and objectivity, whether the reviewer could use the work of firm-employed specialists and national office resources in performing his/her review. National office resources in particular could be viewed as independent and objective when consulting with an engagement team on a specific accounting or auditing matter. Currently, we believe utilizing national office resource to assist in the EQR process is not allowed under the standard since the national office resources could be viewed as being utilized by the engagement team for the purpose of forming the initial conclusion on a related matter."* [153]
- *Audit Committee Interactions:* In an interview, practice leaders of one U.S. NAF said that AS 1220 could be enhanced to clarify expectations regarding reviewers' involvement with issuers and audit committees. In its comment letter, Grant Thornton indicated that AS 1220 may have caused reviewers to interact less with audit committees in an effort to maintain an appropriate level of objectivity and independence.[154] Based on interviews of reviewers, while there is some variation in practice amongst registered firms, reviewers – in particular U.S. GNF reviewers – generally do not attend audit committee meetings.

As a matter of practice, unintended consequences and suggestions for improvement identified through PIRs are considered as part of the staff's ongoing monitoring of current and emerging audit issues.[155]

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[152] Deloitte stated: "…we encourage the Board to evaluate the results [of the PIR] and consider the issuance of implementation guidance, including identifying leading practices and common pitfalls to consider when performing an [EQR] under AS 7. […] additional guidance on the form and content of documentation that memorializes the completion of an [EQR] would also likely be useful to the profession." 2016 Deloitte Comment Letter, p. 3. Grant Thornton stated: "We encourage the PCAOB to consider providing inspection observations and other guidance specifically related to executing an effective EQR process." 2016 Grant Thornton Comment Letter, p. 2.

[153] 2016 Grant Thornton Comment Letter, pp. 1 & 4.

[154] 2016 Grant Thornton Comment Letter, p. 3.

[155] In general, the PCAOB takes a priority-based approach to standards-related projects. The process begins with a PCAOB interdivisional team that performs an annual environmental scan to identify current or emerging audit issues and informs the Board regarding matters that potentially warrant changes to PCAOB standards or additional staff guidance. The interdivisional team also monitors current or emerging issues throughout the year, including observations from oversight activities, that may merit further consideration. The evaluation of potential issues may result in a project being added to the PCAOB research agenda. Further information on this process is included in the PCAOB's standard-setting research agenda, available at: https://pcaobus.org/Standards/Pages/About-Standard-Setting-Process.aspx (accessed November 27, 2018).

VI. Conclusion

Our review of AS 1220 provides new insights into changes in EQR processes and audit quality over time including some empirical evidence of specific changes in the behavior of audit firms and EQ reviewers. In terms of the direct costs of the standard, on average, engagement quality reviewers spend more time performing their reviews post AS 1220. Relative to average total audit hours, the economic significance of this increase is small because reviewer hours comprise only a small portion of an audit (e.g., approximately 1 percent for audits of large domestic firms). With respect to benefits, we observe some empirical evidence of improvements in audit quality post AS 1220, although we caution that direct attribution of these improvements to the rulemaking is difficult. Finally, the results of our quantitative and qualitative analyses generally suggest that AS 1220 did not give rise to significant unintended consequences.

The review of AS 1220 represents PCAOB's first PIR and provides new descriptive evidence, useful findings, and a baseline for future analysis. Nevertheless, as in other studies on the impact of regulatory changes, we faced significant difficulties in attributing changes we observed exclusively to AS 1220. Some of the challenges we faced in isolating and quantifying incremental effects stem from the way AS 1220 was implemented (effective at a single point in time for all registered firms). Absent a proper control group (i.e., a group of audit firms or issuers that were not subject to the rule or standard), establishing causation and measuring and quantifying incremental effects is challenging. Where appropriate, alternative implementation schemes could be considered for new or amended rules and standards, including phased implementation schedules,[156] which can assist in measuring impact.[157] Our analysis of the impact of AS 1220 was also limited by data availability, and the lack of ex-ante economic analysis in the proposing and adopting release to assist in developing testable hypotheses and establishing a baseline. [158] Accordingly, in anticipation of future reviews, it is important to consider early on the data that would be required to evaluate the overall effect of a rule or standard. Future reviews will also benefit from the existence of ex-ante economic analysis in more recent rulemaking releases.

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[156] Phased implementation is featured in the final standard on the auditor's reporting model, which the Board adopted on June 1, 2017 and the SEC approved on October 23, 2017. *See* PCAOB Release No. 2017-001, *The Auditors' Report on an Audit of Financial Statements When the Auditor Expresses an Unqualified Opinion and Related Amendments to PCAOB Standards*, June 1, 2017, p.3, and the additional details on the rulemaking docket available at: https://pcaobus.org/Rulemaking/Pages/Docket034.aspx (accessed November 27, 2018).

[157] It is important to note that not all issues related to evaluating the impact of regulatory changes can be addressed through the use of treatment and control groups from phased implementation. For a discussion of common challenges, *see* Section 2.2 of Leuz and Wysocki (2016).

[158] PCAOB published the staff guidance on economic analysis in PCAOB standard setting in 2014, after the Board adopted AS 1220. *See* 2014 PCAOB Staff Guidance.

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Appendix A – Data Definitions

The table below provides details on the key variables used in our analyses.

Variable	*Definition*
Issuer data:	
EQ reviewer hours	Total number of global EQ reviewer hours reported by the issuer's audit firm to the PCAOB.
Total audit hours	Total number of global audit hours reported by the issuer's audit firm to the PCAOB.
Partner data:	
Admit year	The year the partner was admitted into the partnership.
Quality position	Significant quality related positions that the partner holds, if any (e.g. local, regional or national professional practice director).
Leadership role	Significant leadership roles that the partner holds, if any (e.g. office managing partner, supervisory partner, committee member, Board member, etc.)
Partner quality rating	The partner's quality rating as evidenced in the partner's most recent evaluation.
Number of issuer engagements as EP	The total number of issuer engagements for which the partner is the lead engagement partner (excluding employee benefit plans).
Number of non-issuer engagements as EP	The total number of non-issuer engagements for which the partner is the lead engagement partner (excluding employee benefit plans).
Number of employee benefit plan engagements as EP	The total number of employee benefit plans for which the partner is the lead engagement partner.
Number of issuer engagements as EQ reviewer	The total number of issuer engagements for which the partner is the EQ reviewer (excluding employee benefit plans).
Number of non-issuer engagements as EQ reviewer	The total number of non-issuer engagements for which the partner is the EQ reviewer (excluding employee benefit plans).
Number of employee benefit plan engagements as EQ reviewer	The total number of employee benefit plans for which the partner is the EQ reviewer.
Utilization rate	The partners' overall utilization rate for the firm's most recent fiscal year.

Variable	*Definition*
Managed hours	Total hours managed as the lead engagement partner for issuer and non-issuer engagements for the most recent firm fiscal year end, as reflected in the firm's time management system.
Cumulative issuer and non-issuer restatements in the prior three years	The number of issuer and non-issuer audit opinions where the partner served as lead engagement partner that restated their financial statements during the past three years.

Definitions of variables used in regression analyses

Variable	*Definition*
Dependent variable:	
LogEQRHours	The natural logarithm of EQ reviewer hours.
LogAuditFees	The natural logarithm of the engagement audit fees (from Audit Analytics).
PartIFinding	An indicator variable equal to one if the issuer audit receives a PCAOB Part I Finding in year t.
PartIEQR	An indicator variable equal to one if the issuer receives a PCAOB Part I Finding and the EQR is deficient in year t.
InternalRating_Unsatisfactory	An indicator variable equal to one if the internally inspected issuer audit receives a standardized inspection rating (Aobdia, 2018c) of *Unsatisfactory* in year t.
Waived_Adj	Total waived audit adjustment amounts scaled by materiality in year t.
Waived_Adj_Pct	Proportion of proposed audit adjustments waived by the audit committee and management in year t.
BigR Restatement Indicator	An indicator variable equal to one if the year-end financial statements of a given issuer in year t is subsequently restated due to accounting or fraud related reasons (and filed with an 8-K item 4.02).
Going Concern Indicator	An indicator variable equal to one if a going concern opinion is issued in year t.
TimelyMW	An indicator variable, for a given restatement with related material weaknesses being disclosed, equal to one if the material weakness was disclosed prior to the restatement announcement date.
AbsAcrlTA	Absolute value of total accruals scaled by beginning period assets in year t, where total accruals is calculated as income before extraordinary items (IB) minus net cash flows from operating activities (*OANCF - XIDOC*).

Variable	***Definition***
AbsAcrlCFO	Absolute value of total accruals scaled by net cash flows from operating activities in year t.
AbsJonesAcrl	Absolute value of the residuals from the following model in year t (estimated by two-digit SIC code and fiscal year): $TotalAcrl_t/AT_{t-1} = \beta_1(1/AT_{t-1}) + \beta_2(\Delta SALES_t)/AT_{t-1} + \beta_3 PPE_t/AT_{t-1} + \beta_4 ROA_{t-1} + \varepsilon_t$ where *AT* is total assets, $\Delta SALES$ is change in net sales, *PPE* is gross property, plant, and equipment, and *ROA* is return on assets.
AbsDD	Absolute value of the residuals from the following model (estimated by two-digit SIC code and fiscal year): $TotalCA_t = \beta_0 + \beta_1 CFO_{t-1} + \beta_2 CFO_t + \beta_3 CFO_{t+1} + \beta_4 \Delta SALES_t + \beta_5 PPE_t + \varepsilon_t$ where *TotalCA* is total current accruals calculated as change in current assets (*ACT*) - change in current liabilities (*LCT*) - change in cash (*CHE*) + change in debt in current liabilities (*DLC*), and *CFO* is net cash flows from operating activities.
EQRHrs_Prelim_Pct	The proportion of EQ reviewer hours spent in the *Preliminary Review / Planning* phase of an audit in year t (only available for inspected issuer audits providing audit hours breakdown by audit phase).
<u>Independent Variables:</u>	
Post_AS1220	An indicator variable equal to one if the fiscal year-end date of an issuer audit is on or after December 14th, 2010.
Book to Market Ratio	Book equity divided by fiscal year end market capitalization in year t.
Current Assets to Total Assets	Current assets (*ACT*) divided by total assets (*AT*) in year t.
CFO scaled by Total Assets	Cash flow from operations (*OANCF* - *XIDOC*) divided by beginning period assets (*AT*) in year t.
December Year End Indicator	An indicator variable equal to one if the issuer audit has a December year-end date in year t.
EQR_Outside	Applicable only to U.S. NAFs. An indicator variable equal to one if the issuer audit has an EQ reviewer from outside the firm.
Intangible Assets	Negative one times gross PP&E (*PPEGT*) divided by total assets (*AT*) in year t.

Variable	***Definition***
Leverage Ratio	Total debt (*DLTT* + *DLC*) divided by total debt and equity (*DLTT* + *DLC* + *SEQ*) in year t.
Log Total Assets	Natural logarithm of total assets (*AT*) in year t.
Loss Indicator	An indicator variable equal to one if income before extraordinary items (*IB*) is negative in year t.
Merger Indicator	An indicator variable equal to one if acquisitions that contribute to sales is non zero (*AQS*) in year t.
Multinational Corporation Indicator	An indicator variable equal to one if foreign income taxes (*TXFO*) are non-zero in year t, i.e., a multinational corporation.
ICFR Material Weakness Indicator	An indicator variable equal to one if the auditor reports an internal control material weakness in year t.
Quick Ratio	Current assets (*ACT*) minus inventories (*INVT*) divided by current liabilities (*LCT*).
BigR Restatement Announcement Indicator	An indicator variable equal to one if an 8-K Item 4.02 "Non-Reliance on Previously Issued Financial Statements or a Related Audit Report or Completed Interim Review" is filed in year t.
Restructure Indicator	An indicator variable equal to one if restructuring cost (*RCP*, *RCA*, *RCEPS*, or *RCD*) is non zero in year t.
Sales Growth	One year growth rate of sales revenue (*SALE*) in year t.
SD of CFO scaled by Total Assets over past 3 years	Standard deviation of cash flow from operations (*OANCF* - *XIDOC*) divided by beginning period assets (*AT*) from year t-2 through t.
SD of Sales Growth over past 3 years	Standard deviation of one year growth rate of sales revenue (*SALE*) from year t-2 through t.
Linear Time Trend	A variable equal to the time index in a given year.
Altman's Z	Altman Z-score in year t, calculated as 1.2 × (*WCAP*/*AT*) + 1.4 × (*RE*/*AT*) + 3.3 × (*EBIT*/*AT*) + 0.6 × (Market value of equity/*LT*) + (*SALES*/*AT*) where *WCAP* is working capital, *RE* is retained earnings, *EBIT* is earnings before interest and taxes, and *LT* is total liabilities.
SECPS	An indicator variable equal to one if the issuer was audited by a SECPS member firm, as of April 2003, in year t.

Appendix B – Tables

Table 1 Sample selection process

Panel A: U.S. GNFs Sample 1	
All U.S. GNF audits (2008-2013)[a]	88,641
Non-operating companies[b]	(60,922)
Missing or duplicated audit hours[c]	(4,797)
Issuers without consecutive years of reported audit hours across pre and post AS 1220 periods[d]	(6,018)
Missing control variables	(8,058)
Final issuer-year observations	8,846
Panel B: U.S. GNFs Sample 2	
U.S. GNF inspected issuer audits with reported audit hours (2004-2007)	1,900
U.S. GNF audits of operating companies (2008-2013) (sum of rows 1 through 3 in Panel A)	22,922
Issuers without reported audit hours in both 2004-2007 period (row 1) and 2008-2013 period (row 2)	(21,376)
Missing control variables	(1,167)
Final issuer-year observations	2,279
Panel C: U.S. GNFs Sample 3	
U.S. GNF audits of operating companies (2008-2013) (final sample of Panel A)	8,846
U.S. GNF audits of operating companies (2004-2007) (of issuers in final sample of Panel A)	6,351
Missing control variables	(1,639)
Final issuer-year observations	13,558
Panel D: Tri. U.S. NAFs Sample	
All triennially inspected U.S. NAF audits (2004-2014)	20,290
Non-operating companies[b]	(12,364)
Missing or duplicated audit hours	(496)
Audit firms without reported audit hours in both pre and post AS 1220 periods	(2,087)
Missing control variables	(1,889)
Final issuer-year observations	3,454

[a] The issuer year-ends are constructed to reflect the annual periods before and after the effective date of AS 1220. For example, year 2010 represents fiscal year-ends during the first year that AS 1220 was effective, i.e., December 14, 2010 through December 13, 2011. Similarly, year 2009 represents the fiscal year-ends during the year immediately before AS 1220 became effective, i.e., December 14, 2009 through December 13, 2010. This same notation applies to all tables in Appendix B unless noted otherwise.

[b] Issuers are classified as operating or non-operating companies using information provided by firms such as the issuer type and the issuer filing, and third-party data identifying the industry in which the issuer operated (SIC code). These non-operating companies are typically benefit plans, mutual funds, unit investment trusts, and shell companies.

[c] These are typically subsidiary companies whose audits are not separable from their parent companies.

[d] These are typically issuers that filed annual reports in the pre AS 1220 period but went private in the post period, issuers that started to file annual reports in the post AS 1220 period, issuers that changed auditors from U.S. GNFs to non-U.S. GNFs between the pre and post AS 1220 periods, etc.

Table 2 Descriptive statistics

Panel A: U.S. GNFs Sample 1

Variable	Observations	Mean	StDev	Perc25th	Median	Perc75th
EQRHours	8,846	66	51	34	51	81
EQRHours by Market Capitalization[a]						
Less than $700M	3,955	53	37	30	43	65
$700M to $5B	3,556	67	49	35	54	83
Over $5B	1,335	103	69	54	81	126
LogEQRHours	8,846	4.0	0.7	3.5	3.9	4.4
Proportion of reviewer hours to total audit hours (%)	8,846	0.9	0.6	0.4	0.7	1.1
AuditFees (in 000's)	8,846	2,796	3,727	846	1,507	3,035
LogAuditFees	8,846	14.3	1.0	13.6	14.2	14.9
Log Total Assets	8,846	7.3	1.6	6.0	7.2	8.4
Loss Indicator	8,846	0.25	0.43	0	0	0
Leverage Ratio	8,846	0.34	0.34	0.05	0.30	0.51
Book to Market Ratio	8,846	0.64	0.54	0.30	0.53	0.85
New Client Indicator	8,846	0.02	0.14	0	0	0
December Year End Indicator	8,846	0.78	0.41	1	1	1
Current Assets to Total Assets	8,846	0.44	0.23	0.26	0.44	0.62
CFO scaled by Total Assets	8,846	0.10	0.12	0.06	0.10	0.15
Intangible Assets	8,846	-0.55	0.41	-0.83	-0.44	-0.22
Merger Indicator	8,846	0.11	0.31	0	0	0
Multinational Corporation Indicator	8,846	0.64	0.48	0	1	1
Quick Ratio	8,846	2.02	1.78	0.98	1.46	2.37
Restructure Indicator	8,846	0.40	0.49	0	0	1
Sales Growth	8,846	0.08	0.25	-0.03	0.06	0.16
SD of CFO scaled by Total Assets over past 3 years	8,846	0.05	0.06	0.02	0.03	0.06
SD of Sales Growth over past 3 years	8,846	0.20	0.29	0.06	0.12	0.23
Altman's Z	8,846	3.79	4.06	1.68	3.03	4.93
BigR Restatement Announcement Indicator	8,846	0.01	0.10	0	0	0
ICFR Material Weakness Indicator	8,846	0.02	0.15	0	0	0

Panel B: U.S. GNFs Sample 2

Variable	Observations	Mean	StDev	Perc25th	Median	Perc75th
EQRHours	2,279	68	56	33	50	82
EQRHours by Market Capitalization						
Less than $700M	646	51	35	28	41	62
$700M to $5B	1,017	59	41	32	47	75
Over $5B	616	99	79	47	75	120
LogEQRHours	2,279	4.0	0.7	3.5	3.9	4.4
Proportion of reviewer hours	2,279	0.7	0.5	0.3	0.6	0.9

to total audit hours (%)						
AuditFees (in 000's)	2,279	3,777	5,044	1,144	1,970	3,972
LogAuditFees	2,279	14.6	1.0	13.9	14.5	15.2
Log Total Assets	2,279	7.7	1.6	6.5	7.5	8.7
Loss Indicator	2,279	0.17	0.38	0	0	0
Leverage Ratio	2,279	0.34	0.32	0.08	0.32	0.49
Book to Market Ratio	2,279	0.56	0.45	0.29	0.46	0.72
New Client Indicator	2,279	0.02	0.15	0	0	0
December Year End Indicator	2,279	0.67	0.4	0	1	1
Current Assets to Total Assets	2,279	0.43	0.21	0.27	0.43	0.59
CFO scaled by Total Assets	2,279	0.12	0.09	0.07	0.11	0.16
Intangible Assets	2,279	-0.54	0.39	-0.81	-0.42	-0.24
Merger Indicator	2,279	0.12	0.33	0	0	0
Multinational Corporation Indicator	2,279	0.74	0.44	0	1	1
Quick Ratio	2,279	1.97	1.91	0.94	1.40	2.26
Restructure Indicator	2,279	0.46	0.50	0	0	1
Sales Growth	2,279	0.08	0.21	-0.01	0.07	0.16
SD of CFO scaled by Total Assets over past 3 years	2,279	0.04	0.04	0.02	0.03	0.05
SD of Sales Growth over past 3 years	2,279	0.16	0.17	0.05	0.10	0.19
Altman's Z	2,279	4.23	3.77	2.09	3.39	5.26
BigR Restatement Announcement Indicator	2,279	0.02	0.14	0	0	0
ICFR Material Weakness Indicator	2,279	0.03	0.17	0	0	0

Panel C: U.S. GNFs Sample 3

Variable	Observations	Mean	StDev	Perc25th	Median	Perc75th
AbsAcrlTA	13,558	0.08	0.08	0.03	0.06	0.11
AbsAcrlCFO	13,558	1.23	2.74	0.32	0.55	0.88
AbsDD	12,994	0.04	0.04	0.01	0.03	0.05
AbsJonesAcrl	13,558	0.08	0.09	0.02	0.05	0.10
Log Total Assets	13,558	7.15	1.63	5.94	7.03	8.23
Loss Indicator	13,558	0.23	0.42	0	0	0
Leverage Ratio	13,558	0.33	0.32	0.04	0.28	0.49
Book to Market Ratio	13,558	0.57	0.46	0.29	0.48	0.75
New Client Indicator	13,558	0.03	0.16	0	0	0
December Year End Indicator	13,558	0.79	0.41	1	1	1
Current Assets to Total Assets	13,558	0.45	0.23	0.28	0.45	0.62
CFO scaled by Total Assets	13,558	0.10	0.12	0.06	0.10	0.16
Intangible Assets	13,558	-0.53	0.39	-0.80	-0.42	-0.21
Merger Indicator	13,558	0.12	0.33	0	0	0
Multinational Corporation Indicator	13,558	0.62	0.49	0	1	1
Quick Ratio	13,558	2.08	1.92	0.98	1.45	2.39
Restructure Indicator	13,558	0.37	0.48	0	0	1

Sales Growth	13,558	0.12	0.27	-0.01	0.08	0.19
SD of CFO scaled by Total Assets over past 3 years	13,558	0.05	0.06	0.02	0.03	0.06
SD of Sales Growth over past 3 years	13,558	0.21	0.36	0.06	0.11	0.22
Altman's Z	13,558	4.27	4.57	1.85	3.26	5.35
BigR Restatement Indicator (BigR)	13,558	0.04	0.20	0	0	0
ICFR Material Weakness Indicator	13,558	0.06	0.23	0	0	0
Going Concern Indicator (GC)	3,335	0.02	0.15	0	0	0

Panel D: Tri. U.S. NAFs Sample

Variable	Observations	Mean	StDev	Perc25th	Median	Perc75th
EQRHours	3,454	19	19	7	13	24
LogEQRHours	3,454	2.5	0.9	1.9	2.6	3.2
AuditFees (in 000's)	3,454	156	161	56	102	190
LogAuditFees	3,454	11.6	0.9	10.9	11.5	12.2
Log Total Assets	3,454	2.4	2.1	1.2	2.6	3.8
Loss Indicator	3,454	0.65	0.48	0	1	1
Leverage Ratio	3,454	3.42	13.92	0.3	0.6	1.1
Book to Market Ratio	3,454	0.13	2.96	0.0	0.3	0.8
New Client Indicator	3,454	0.14	0.35	0	0	0
December Year End Indicator	3,454	0.64	0.48	0	1	1
Current Assets to Total Assets	3,454	0.56	0.29	0.30	1	1
CFO scaled by Total Assets	3,454	-0.54	1.70	-0.39	-0.05	0.09
Intangible Assets	3,454	-0.52	0.60	-0.74	-0.33	-0.11
Multinational Corporation Indicator	3,454	0.12	0.33	0.00	0.00	0.00
Quick Ratio	3,454	0.44	0.27	0.22	0.41	0.64
Restructure Indicator	3,454	0.02	0.13	0	0	0
Sales Growth	3,454	2.18	6.16	0.85	1.08	1.41
BigR Restatement Indicator (BigR)	3,454	0.05	0.23	0	0	0
EQR_Outside	3,454	0.07	0.25	0	0	0
BigR Restatement Announcement Indicator	3,454	0.03	0.18	0	0	0
AbsAcrlTA	3,454	1.41	5.01	0.06	0.16	0.53
AbsAcrlCFO	3,454	3.99	11.11	0.44	1.00	2.67
AbsDD	2,860	0.26	0.47	0.04	0.09	0.23
AbsJonesAcrl	3,358	1.18	2.93	0.13	0.35	0.91
Going Concern Indicator (GC)	2,487	0.48	0.50	0	0	1

[a] Each issuer is classified into the three size groups according to its average market capitalization in the pre AS 1220 period. Note that because the filer status of a given issuer could change between years, our classification may differ from its actual filer status at a given point in time.

Table 3 AS 1220 and EQ reviewer hours

The table presents the regression results of Equation (1) with *LogEQRHours* as the dependent variable. The definitions of the dependent and independent variables are provided in Appendix A. The estimated coefficient of *Post_AS1220* indicates the change in the *LogEQRHours* between the pre and post AS 1220 periods. In Panel A, columns (1) and (3) present the results without the linear time trend included as a control variable for U.S. GNFs Sample 1 and U.S. GNFs Sample 2, respectively. Columns (2) and (4) present the results with the linear time trend included as a control variable for U.S. GNFs Sample 1 and U.S. GNFs Sample 2, respectively. In Panel B, columns (1) and (2) present the results without and with the linear time trend included as a control variable for the Tri. U.S. NAFs Sample, respectively. In Panel B, the inclusion of certain control variables results in substantial sample decrease and we estimate the regression with a more parsimonious set of control variables. The time periods in U.S. GNFs Sample 1, U.S. GNFs Sample 2, and Tri. U.S. NAFs Sample are issuer year-ends 2008-2013, 2004-2013, and 2004-2014, respectively (Panels A, B, and D in **Table 1**). See note *a* in **Table 1** for details on issuer year-ends. The standard-errors are clustered at the issuer-level and presented in the parenthesis below the estimated coefficient. Significance levels are * 10%, ** 5%, and *** 1%.

Panel A: U.S. GNFs

	(1) LogEQRHours (U.S. GNFs Sample 1)	**(2) LogEQRHours (U.S. GNFs Sample 1)**	**(3) LogEQRHours (U.S. GNFs Sample 2)**	**(4) LogEQRHours (U.S. GNFs Sample 2)**
Post_AS1220	0.249***	0.170***	0.349***	0.167***
	(0.0127)	(0.0171)	(0.0280)	(0.0388)
Linear Time Trend		0.028***		0.043***
		(0.0052)		(0.0082)
Log Total Assets	0.209***	0.208***	0.219***	0.216***
	(0.0068)	(0.0068)	(0.0138)	(0.0138)
Leverage Ratio	0.115***	0.116***	0.151**	0.145**
	(0.0279)	(0.0280)	(0.0585)	(0.0584)
Loss Indicator	0.103***	0.102***	0.118***	0.108***
	(0.0185)	(0.0185)	(0.0359)	(0.0357)
New Client Indicator	0.211***	0.205***	0.168***	0.181***
	(0.0360)	(0.0359)	(0.0643)	(0.0608)
Sales Growth	-0.055**	-0.034	-0.272***	-0.182***
	(0.0245)	(0.0247)	(0.0554)	(0.0579)
SD of Sales Growth over past 3 years	-0.007	-0.006	0.229**	0.213**
	(0.0322)	(0.0321)	(0.0943)	(0.0938)
CFO scaled by Total Assets	-0.178**	-0.170**	-0.090	-0.158
	(0.0770)	(0.0769)	(0.1898)	(0.1888)
SD of CFO scaled by Total Assets over past 3 years	0.193	0.207	0.375	0.400
	(0.1449)	(0.1448)	(0.3910)	(0.3890)
December Year End Indicator	0.006	0.000	-0.030	-0.036
	(0.0221)	(0.0222)	(0.0386)	(0.0387)
Multinational Corporation Indicator	0.089***	0.089***	0.007	0.002
	(0.0205)	(0.0205)	(0.0474)	(0.0473)

	(1) LogEQRHours (U.S. GNFs Sample 1)	(2) LogEQRHours (U.S. GNFs Sample 1)	(3) LogEQRHours (U.S. GNFs Sample 2)	(4) LogEQRHours (U.S. GNFs Sample 2)
Merger Indicator	0.053***	0.052***	0.046	0.052
	(0.0198)	(0.0197)	(0.0334)	(0.0335)
Restructure Indicator	0.039**	0.039**	0.063**	0.060**
	(0.0154)	(0.0154)	(0.0291)	(0.0288)
BigR Restatement Announcement Indicator	0.146**	0.146**	0.119	0.138*
	(0.0610)	(0.0601)	(0.0845)	(0.0813)
ICFR Material Weakness Indicator	0.314***	0.307***	0.307***	0.331***
	(0.0382)	(0.0381)	(0.0670)	(0.0670)
Book to Market Ratio	-0.021	-0.016	-0.039	-0.049
	(0.0151)	(0.0152)	(0.0456)	(0.0453)
Altman's Z	-0.007**	-0.007***	0.002	0.003
	(0.0027)	(0.0027)	(0.0058)	(0.0059)
Intangible Assets	0.064**	0.065**	0.121**	0.117**
	(0.0289)	(0.0290)	(0.0543)	(0.0545)
Current Assets to Total Assets	0.273***	0.274***	0.262**	0.263**
	(0.0565)	(0.0565)	(0.1059)	(0.1057)
Quick Ratio	-0.015***	-0.015***	-0.016	-0.018
	(0.0058)	(0.0058)	(0.0115)	(0.0114)
Constant	2.338***	2.329***	2.532***	2.421***
	(0.0911)	(0.0912)	(0.1702)	(0.1705)
Audit Firm FE	Yes	Yes	Yes	Yes
Issuer Industry FE	Yes	Yes	Yes	Yes
Observations	8,846	8,846	2,279	2,279
Adj. R-squared	0.453	0.454	0.465	0.471
Specification	OLS	OLS	OLS	OLS

Panel B: Triennially Inspected U.S. NAFs

	(1) LogEQRHours (Tri. U.S. NAFs Sample)	(2) LogEQRHours (Tri. U.S. NAFs Sample)
Post_AS1220	0.211***	0.054
	(0.0261)	(0.0450)
Linear Time Trend		0.033***
		(0.0083)
EQR_Outside	-0.132*	-0.120
	(0.0741)	(0.0752)
Log Total Assets	0.212***	0.209***
	(0.0092)	(0.0092)
Leverage Ratio	0.003**	0.003**
	(0.0012)	(0.0011)
Loss Indicator	0.199***	0.191***
	(0.0290)	(0.0291)

	(1) LogEQRHours (Tri. U.S. NAFs Sample)	(2) LogEQRHours (Tri. U.S. NAFs Sample)
New Client Indicator	0.062*	0.075**
	(0.0364)	(0.0365)
Sales Growth	0.001	0.001
	(0.0021)	(0.0021)
CFO scaled by Total Assets	-0.027***	-0.028***
	(0.0100)	(0.0100)
December Year End Indicator	0.059**	0.049*
	(0.0269)	(0.0271)
Multinational Corporation Indicator	0.192***	0.189***
	(0.0457)	(0.0456)
Restructure Indicator	0.012	0.012
	(0.0875)	(0.0882)
BigR Restatement Announcement Indicator	0.038	0.045
	(0.0637)	(0.0641)
Book to Market Ratio	-0.014***	-0.014***
	(0.0048)	(0.0048)
Intangible Assets	-0.024	-0.024
	(0.0226)	(0.0224)
Current Assets to Total Assets	-0.033	-0.042
	(0.0887)	(0.0889)
Quick Ratio	0.101	0.104
	(0.0896)	(0.0896)
Constant	1.414***	1.345***
	(0.1149)	(0.1152)
Audit Firm FE	Yes	Yes
Issuer Industry FE	Yes	Yes
Observations	3,454	3,454
Adj. R-squared	0.502	0.505
Specification	OLS	OLS

Table 4 AS 1220 and audit fees

The table presents the regression results of Equation (1) with *LogAuditFees* as the dependent variable. The definitions of the dependent and independent variables are provided in Appendix A. The estimated coefficient of Post_AS1220 indicates the change in the *LogAuditFees* between the pre and post AS 1220 periods. In Panel A, columns (1) and (3) present the results without the linear time trend included as a control variable for U.S. GNFs Sample 1 and U.S. GNFs Sample 2, respectively. Columns (2) and (4) present the results with the linear time trend included as a control variable for U.S. GNFs Sample 1 and U.S. GNFs Sample 2, respectively. In Panel B, columns (1) and (2) present the results without and with the linear time trend included as a control variable for the Tri. U.S. NAFs Sample, respectively. In Panel B, the inclusion of certain control variables results in substantial sample decrease and we estimate the regression with a more parsimonious set of control variables. The time periods in U.S. GNFs Sample 1, U.S. GNFs Sample 2, and Tri. U.S. NAFs Sample are year-ends 2008-2013, 2004-2013, and 2004-2014, respectively (Panels A, B, and D in **Table 1**). See note *a* in **Table 1** for details on issuer year-ends. The standard-errors are clustered at the issuer-level and presented in the parenthesis below the estimated coefficient. Significance levels are * 10%, ** 5%, and *** 1%.

Panel A: U.S. GNFs

	(1) LogAuditFees (U.S. GNFs Sample 1)	**(2) LogAuditFees (U.S. GNFs Sample 1)**	**(3) LogAuditFees (U.S. GNFs Sample 2)**	**(4) LogAuditFees (U.S. GNFs Sample 2)**
Post_AS1220	-0.080***	-0.065***	-0.105***	-0.031
	(0.0080)	(0.0086)	(0.0169)	(0.0240)
Linear Time Trend		-0.005		-0.018***
		(0.0033)		(0.0059)
Log Total Assets	0.485***	0.486***	0.501***	0.502***
	(0.0084)	(0.0084)	(0.0168)	(0.0168)
Leverage Ratio	0.055	0.055	0.080	0.082
	(0.0349)	(0.0349)	(0.0712)	(0.0710)
Loss Indicator	0.085***	0.085***	0.145***	0.149***
	(0.0176)	(0.0176)	(0.0387)	(0.0389)
New Client Indicator	-0.222***	-0.221***	-0.102*	-0.107*
	(0.0344)	(0.0344)	(0.0610)	(0.0603)
Sales Growth	-0.063***	-0.067***	-0.143***	-0.180***
	(0.0219)	(0.0224)	(0.0508)	(0.0545)
SD of Sales Growth over past 3 years	-0.027	-0.028	0.014	0.020
	(0.0298)	(0.0299)	(0.0935)	(0.0933)
CFO scaled by Total Assets	-0.316***	-0.318***	-0.192	-0.164
	(0.0838)	(0.0839)	(0.2196)	(0.2191)
SD of CFO scaled by Total Assets over past 3 years	-0.500***	-0.502***	-0.107	-0.118
	(0.1612)	(0.1613)	(0.4148)	(0.4128)
December Year End Indicator	0.042*	0.043*	-0.040	-0.037
	(0.0257)	(0.0257)	(0.0476)	(0.0475)
Multinational Corporation Indicator	0.271***	0.271***	0.139**	0.142**
	(0.0249)	(0.0249)	(0.0549)	(0.0549)

	(1) LogAuditFees (U.S. GNFs Sample 1)	(2) LogAuditFees (U.S. GNFs Sample 1)	(3) LogAuditFees (U.S. GNFs Sample 2)	(4) LogAuditFees (U.S. GNFs Sample 2)
Merger Indicator	0.055***	0.056***	0.084**	0.082**
	(0.0197)	(0.0197)	(0.0342)	(0.0342)
Restructure Indicator	0.165***	0.165***	0.150***	0.151***
	(0.0171)	(0.0171)	(0.0297)	(0.0297)
BigR Restatement Announcement Indicator	0.147**	0.147**	0.127*	0.119*
	(0.0590)	(0.0591)	(0.0695)	(0.0711)
ICFR Material Weakness Indicator	0.263***	0.264***	0.371***	0.362***
	(0.0338)	(0.0339)	(0.0634)	(0.0633)
Book to Market Ratio	-0.042**	-0.043**	-0.103***	-0.099***
	(0.0181)	(0.0183)	(0.0366)	(0.0367)
Altman's Z	-0.006*	-0.006*	-0.004	-0.004
	(0.0033)	(0.0033)	(0.0058)	(0.0058)
Intangible Assets	0.204***	0.204***	0.251***	0.252***
	(0.0338)	(0.0338)	(0.0667)	(0.0667)
Current Assets to Total Assets	0.677***	0.677***	0.582***	0.581***
	(0.0669)	(0.0669)	(0.1217)	(0.1218)
Quick Ratio	-0.052***	-0.052***	-0.042***	-0.042***
	(0.0069)	(0.0069)	(0.0131)	(0.0131)
Constant	10.384***	10.385***	10.664***	10.710***
	(0.1106)	(0.1106)	(0.1941)	(0.1949)
Audit Firm FE	Yes	Yes	Yes	Yes
Issuer Industry FE	Yes	Yes	Yes	Yes
Observations	8,846	8,846	2,279	2,279
Adj. R-squared	0.795	0.795	0.817	0.818
Specification	OLS	OLS	OLS	OLS

Panel B: Triennially Inspected U.S. NAFs

	(1) LogAuditFees (Tri. U.S. NAFs Sample)	(2) LogAuditFees (Tri. U.S. NAFs Sample)
Post_AS1220	0.026	-0.143***
	(0.0172)	(0.0291)
Linear Time Trend		0.035***
		(0.0057)
EQR_Outside	0.146**	0.160***
	(0.0569)	(0.0574)
Log Total Assets	0.314***	0.311***
	(0.0076)	(0.0077)
Leverage Ratio	0.006***	0.006***
	(0.0009)	(0.0009)
Loss Indicator	0.177***	0.168***

	(1) LogAuditFees (Tri. U.S. NAFs Sample)	(2) LogAuditFees (Tri. U.S. NAFs Sample)
	(0.0220)	(0.0220)
New Client Indicator	-0.120***	-0.107***
	(0.0318)	(0.0321)
Sales Growth	-0.003**	-0.003**
	(0.0015)	(0.0015)
CFO scaled by Total Assets	-0.028***	-0.029***
	(0.0066)	(0.0067)
December Year End Indicator	0.071***	0.060***
	(0.0228)	(0.0228)
Multinational Corporation Indicator	0.325***	0.321***
	(0.0340)	(0.0338)
Restructure Indicator	0.134**	0.133**
	(0.0659)	(0.0670)
BigR Restatement Announcement Indicator	0.116**	0.123**
	(0.0502)	(0.0496)
Book to Market Ratio	-0.019***	-0.019***
	(0.0034)	(0.0034)
Intangible Assets	-0.047***	-0.046***
	(0.0179)	(0.0179)
Current Assets to Total Assets	0.071	0.062
	(0.0674)	(0.0677)
Quick Ratio	0.012	0.015
	(0.0705)	(0.0709)
Constant	10.577***	10.503***
	(0.0862)	(0.0865)
Audit Firm FE	Yes	Yes
Issuer Industry FE	Yes	Yes
Observations	3,454	3,454
Adj. R-squared	0.728	0.731
Specification	OLS	OLS

Table 5 Sample selection process – inspected issuer audits

Panel A: U.S. Big Eight Inspected Sample	
U.S. Big Eight inspected issuer audits (2005-2014)	3,187
Missing control variables	(404)
Final issuer-year observations	2,783

Panel B: U.S. Big Eight AuditAdj Sample	
U.S. Big Eight inspected issuer audits with audit adjustments detected (2005-2014)	2,739
Missing control variables	(278)
Final issuer-year observations	2,461

Panel C: U.S. GNFs Internally Inspected Sample	
U.S. GNFs internally inspected issuer audits (2008-2013)	2,923
Missing control variables	(823)
Final issuer-year observations	2,100

Panel D: Tri. U.S. NAFs Inspected Sample	
Triennially inspected U.S. NAF issuers (2004-2014)	3,771
Missing control variables	(748)
Final issuer-year observations	3,023

Table 6 Descriptive statistics – inspected issuer audits

Panel A: U.S. Big Eight Inspected Sample

Variable	Observations	Mean	StDev	Perc25th	Median	Perc75th
PartIFinding	2,783	0.29	0.45	0	0	1
PartIEQR	541	0.59	0.49	0	1	1
Log Total Assets	2,783	7.41	1.80	6.13	7.32	8.51
Loss Indicator	2,783	0.26	0.44	0	0	1
Leverage Ratio	2,783	0.37	0.32	0.10	0.34	0.56
Book to Market Ratio	2,783	0.70	0.68	0.31	0.56	0.91
New Client Indicator	2,783	0.08	0.28	0	0	0
December Year End Indicator	2,783	0.73	0.44	0	1	1
CFO scaled by Total Assets	2,783	0.08	0.11	0.02	0.08	0.14
Merger Indicator	2,783	0.13	0.34	0	0	0
Multinational Corporation Indicator	2,783	0.57	0.50	0	1	1
Restructure Indicator	2,783	0.35	0.48	0	0	1
Sales Growth	2,783	0.14	0.37	-0.03	0.07	0.21
SD of CFO scaled by Total Assets over past 3 years	2,783	0.05	0.07	0.01	0.03	0.06
SD of Sales Growth over past 3 years	2,783	0.23	0.40	0.06	0.11	0.23
ICFR Material Weakness Indicator	2,783	0.08	0.26	0	0	0
EQRHrsPrelim	2,541	8.41	10.16	2.00	5.00	10.00
EQR Hours in Total Quarterly Review phase (%)	2,541	31.6	14.2	22.2	31.1	40.9
EQR Hours in Preliminary Review/Planning phase (%)	2,541	12.0	8.7	5.6	10.6	16.7
EQR Hours in Interim Field Work phase (%)	2,541	8.0	9.8	0.0	4.9	13.2
EQR Hours in Final Field Work to Issuance of Report phase (%)	2,541	45.2	14.7	34.8	44.4	54.3
EQR Hours in After Issuance of Report phase (%)	2,541	2.6	4.8	0.0	0.0	3.4

Panel B: U.S. Big Eight AuditAdj Sample

Variable	Observations	Mean	StDev	Perc25th	Median	Perc75th
Waived_Adj	2,461	1.43	1.96	0.28	0.78	1.74
Waived_Adj_Pct	2,461	0.70	0.38	0.36	1	1
Log Total Assets	2,461	7.27	1.82	5.92	7.19	8.42
Loss Indicator	2,461	0.29	0.45	0	0	1
Leverage Ratio	2,461	0.38	0.31	0.11	0.34	0.57
Book to Market Ratio	2,461	0.77	0.80	0.34	0.62	0.99
New Client Indicator	2,461	0.09	0.28	0	0	0
December Year End Indicator	2,461	0.73	0.44	0	1	1
CFO scaled by Total Assets	2,461	0.08	0.11	0.02	0.08	0.13
Merger Indicator	2,461	0.12	0.33	0	0	0
Multinational Corporation Indicator	2,461	0.55	0.50	0	1	1
Restructure Indicator	2,461	0.33	0.47	0	0	1
Sales Growth	2,461	0.15	0.43	-0.03	0.07	0.20

SD of CFO scaled by Total Assets over past 3 years	2,461	0.05	0.06	0.01	0.03	0.06
SD of Sales Growth over past 3 years	2,461	0.25	0.49	0.06	0.12	0.24
BigR Restatement Indicator	2,461	0.04	0.19	0	0	0
ICFR Material Weakness Indicator	2,461	0.08	0.27	0	0	0

Panel C: U.S. GNFs Internally Inspected Sample

Variable	Observations	Mean	StDev	Perc25th	Median	Perc75th
InternalRating_Unsatisfactory	2,100	0.08	0.27	0	0	0
Log Total Assets	2,100	7.46	2.04	6.02	7.38	8.82
Loss Indicator	2,100	0.28	0.45	0	0	1
Leverage Ratio	2,100	0.39	0.33	0.12	0.35	0.57
Book to Market Ratio	2,100	0.69	0.73	0.32	0.59	0.94
New Client Indicator	2,100	0.06	0.23	0	0	0
December Year End Indicator	2,100	0.77	0.42	1	1	1
CFO scaled by Total Assets	2,100	0.07	0.14	0.03	0.08	0.13
Merger Indicator	2,100	0.10	0.30	0	0	0
Multinational Corporation Indicator	2,100	0.56	0.50	0	1	1
Restructure Indicator	2,100	0.35	0.48	0	0	1
Sales Growth	2,100	0.09	0.32	-0.04	0.05	0.16
SD of CFO scaled by Total Assets over past 3 years	2,100	0.05	0.07	0.01	0.03	0.06
SD of Sales Growth over past 3 years	2,100	0.25	0.47	0.06	0.13	0.24
BigR Restatement Indicator	2,100	0.03	0.16	0	0	0
ICFR Material Weakness Indicator	2,100	0.05	0.21	0	0	0

Panel D: Tri. U.S. NAFs Inspected Sample

Variable	Observations	Mean	StDev	Perc25th	Median	Perc75th
PartIFinding	3,023	0.38	0.49	0	0	1
AuditFees	3,023	150.9	180.4	45.2	87.5	182.1
LogAuditFees	3,023	11.4	1.1	10.7	11.4	12.1
Log Total Assets	3,023	3.06	2.76	1.49	3.20	4.96
Loss Indicator	3,023	0.5	0.50	0	1	1
Leverage Ratio	3,023	2.9	12.3	0.3	0.7	0.9
New Client Indicator	3,023	0.14	0.34	0	0	0
December Year End Indicator	3,023	0.71	0.46	0	1	1
CFO scaled by Total Assets	3,023	-1.90	11.23	-0.30	0.00	0.06
Multinational Corporation Indicator	3,023	0.09	0.28	0	0	0
Restructure Indicator	3,023	0.01	0.10	0	0	0
BigR Restatement Indicator	3,023	0.07	0.25	0	0	0
EQR_Outside	3,023	0.14	0.34	0	0	0

Table 7 AS 1220 and AQIs – U.S. GNFs

The table presents the regression results of Equation (1) but with the various AQIs as the dependent variables. The definitions of these dependent and independent variables are provided in Appendix A. Panel A presents the regression results for the AQIs based on PCAOB data and Panel B presents the regression results for the other AQIs based on publicly available data. For *GC* results in column (2) of Panel B, the inclusion of industry issuer fixed effects reduces the final sample size from 3,335 (Panel C in **Table 2**) to 3,283 because one issuer industry indicator variable perfectly predicts the outcome variable and issuers within that industry are excluded. For *TimelyMW* results in column (3) of Panel B, the inclusion of certain control variables results in substantial sample size decrease and we thus estimate the regression with a more parsimonious set of control variables. In Panel C, the final sample size for the analysis of *AbsDD* is reduced to 12,994 due to the requirement to have both prior and future year cash flow from operations data. The estimated coefficient of *Post_AS1220* indicates the change in these AQIs between the pre and post AS 1220 periods. For logistic regressions, we also report the average marginal effect of *Post_AS1220.* In Panel A, the time periods in U.S. Big Eight Inspected Sample, U.S. GNFs Internally Inspected Sample, and U.S. Big Eight AuditAdj Sample are year-ends 2005-2014, 2008-2013, and 2005-2014, respectively (Panels A, C, and B in **Table 5**). In Panel B, the time period in U.S. GNFs Sample 3 is year-ends 2004-2013 (Panel C in **Table 1**). See note *a* in **Table 1** for details on issuer year-ends. The standard-errors are clustered at the issuer-level and presented in the parenthesis below the estimated coefficient. Significance levels are * 10%, ** 5%, and *** 1%.

Panel A: AQIs based on PCAOB data

	(1) **PartIFinding (U.S. Big Eight Inspected Sample)**	**(2)** **Internal Rating (U.S. GNFs Internally Inspected Sample)**	**(3)** **Waived_Adj (U.S. Big Eight AuditAdj Sample)**
Post_AS1220	1.092***	1.109***	-0.242***
	(0.0926)	(0.2983)	(0.0797)
Avg. Marginal Effect	0.205***	0.058***	
Log Total Assets	0.012	-0.171***	-0.018
	(0.0351)	(0.0559)	(0.0337)
Leverage Ratio	0.229	0.480*	0.199
	(0.1608)	(0.2739)	(0.1557)
Loss Indicator	-0.113	-0.184	0.238*
	(0.1252)	(0.2544)	(0.1226)
New Client Indicator	0.102	0.081	0.345**
	(0.1624)	(0.3405)	(0.1630)
Sales Growth	0.023	-0.053	0.151
	(0.1553)	(0.2459)	(0.1349)
SD of Sales Growth over past 3 years	-0.048 (0.1320)	0.156 (0.1718)	-0.114 (0.0847)
CFO scaled by Total Assets	-1.722*** (0.5056)	0.611 (0.8078)	-0.258 (0.3698)
SD of CFO scaled by Total Assets over past 3 years	-2.679*** (0.8418)	-1.539 (1.4977)	-1.187** (0.5971)
December Year End Indicator	-0.302*** (0.1115)	-0.440** (0.2219)	0.085 (0.1188)
Multinational Corporation Indicator	-0.064 (0.1102)	0.209 (0.2080)	0.086 (0.1182)

	(1) PartIFinding (U.S. Big Eight Inspected Sample)	(2) Internal Rating (U.S. GNFs Internally Inspected Sample)	(3) Waived_Adj (U.S. Big Eight AuditAdj Sample)
Merger Indicator	0.416***	0.236	0.089
	(0.1283)	(0.2701)	(0.1199)
Restructure Indicator	0.156	-0.008	0.044
	(0.1072)	(0.2026)	(0.1063)
ICFR Material Weakness Indicator	0.398**	0.283	0.521***
	(0.1644)	(0.3460)	(0.1937)
Book to Market Ratio	0.227***	0.133	0.160**
	(0.0672)	(0.1112)	(0.0734)
Constant	-0.727**	-2.070***	1.346***
	(0.3604)	(0.7114)	(0.3099)
Audit Firm FE	Yes	Yes	Yes
Issuer Industry FE	Yes	Yes	Yes
Observations	2,783	2,100	2,461
Adj./Pseudo R-squared	0.095	0.107	0.061
Specification	Logit	Logit	OLS

Panel B: AQIs based on publicly available data

	(1) BigR (U.S. GNFs Sample 3)	(2) GC (U.S. GNFs Sample 3)	(3) TimelyMW (U.S. GNFs Sample 3)
Post_AS1220	-0.597***	0.216	-0.293
	(0.1402)	(0.2669)	(0.3866)
Avg. Marginal Effect	-0.020***	0.004	-0.050
Log Total Assets	-0.159***	-0.160	0.184*
	(0.0616)	(0.1325)	(0.1101)
Leverage Ratio	0.172	0.651*	-0.083
	(0.2455)	(0.3844)	(0.3958)
Loss Indicator	-0.144		0.233
	(0.1754)		(0.3825)
New Client Indicator	-0.557**	0.616	1.760**
	(0.2686)	(0.5553)	(0.6922)
Sales Growth	0.508***	-0.622	-0.001
	(0.1868)	(0.4132)	(0.4633)
SD of Sales Growth over past 3 years	-0.363*	-0.025	-0.482
	(0.1972)	(0.3027)	(0.3525)
CFO scaled by Total Assets	-0.251	-7.220***	-1.135
	(0.5733)	(1.8616)	(1.2263)
SD of CFO scaled by Total Assets over past 3 years	0.917	0.608	-1.478
	(1.1082)	(2.7122)	(1.8104)
December Year End Indicator	-0.051	0.081	0.062
	(0.1844)	(0.3945)	(0.3506)

	(1) BigR (U.S. GNFs Sample 3)	(2) GC (U.S. GNFs Sample 3)	(3) TimelyMW (U.S. GNFs Sample 3)
Multinational Corporation Indicator	0.138 (0.1632)	-0.683* (0.3796)	0.063 (0.3477)
Merger Indicator	0.226*	-1.734*	0.059
	(0.1315)	(1.0483)	(0.4961)
Restructure Indicator	0.229	0.680**	0.993***
	(0.1394)	(0.3110)	(0.3463)
ICFR Material Weakness Indicator	2.344*** (0.1205)	-0.425 (0.4299)	
Book to Market Ratio	-0.097	0.164	
	(0.1483)	(0.2291)	
Altman's Z	-0.022	0.011	
	(0.0243)	(0.0844)	
Intangible Assets	0.405	-0.959**	
	(0.2498)	(0.4046)	
Current Assets to Total Assets	-0.146 (0.4254)	0.434 (0.9446)	
Quick Ratio	-0.033	-1.260***	
	(0.0508)	(0.3470)	
Constant	-2.389***	-2.705	-2.188
	(0.7364)	(1.6447)	(1.5453)
Audit Firm FE	Yes	Yes	Yes
Issuer Industry FE	Yes	Yes	Yes
Observations	13,558	3,283	301
Adj./Pseudo R-squared	0.139	0.295	0.117
Specification	Logit	Logit	Logit

Panel B: AQIs based on publicly available data (cont'd)

	(4) AbsAcrlTA (GNFs Sample 3)	(5) AbsAcrlCFO (GNFs Sample 3)	(6) AbsJonesAcrl (GNFs Sample 3)	(7) AbsDD (GNFs Sample 3)
Post_AS1220	-0.004***	-0.007	-0.010***	-0.002**
	(0.0011)	(0.0476)	(0.0016)	(0.0007)
Log Total Assets	-0.005***	-0.088***	-0.004***	-0.002***
	(0.0006)	(0.0178)	(0.0007)	(0.0003)
Leverage Ratio	0.002	0.511***	0.012***	0.004**
	(0.0038)	(0.1231)	(0.0040)	(0.0018)
Loss Indicator	0.082***	2.110***	0.031***	0.008***
	(0.0027)	(0.0998)	(0.0031)	(0.0012)
New Client Indicator	-0.000	0.292*	0.002	0.003
	(0.0041)	(0.1729)	(0.0054)	(0.0024)
Sales Growth	0.014***	0.098	0.025***	0.002

	(4) AbsAcrlTA (GNFs Sample 3)	(5) AbsAcrlCFO (GNFs Sample 3)	(6) AbsJonesAcrl (GNFs Sample 3)	(7) AbsDD (GNFs Sample 3)
	(0.0036)	(0.1148)	(0.0046)	(0.0019)
SD of Sales Growth over past 3 years	0.010**	0.006	0.012***	0.007***
	(0.0041)	(0.1155)	(0.0039)	(0.0017)
CFO scaled by Total Assets	0.250***	0.124	0.070***	0.009
	(0.0151)	(0.3801)	(0.0157)	(0.0056)
SD of CFO scaled by Total Assets over past 3 years	0.242***	0.112	0.304***	0.121***
	(0.0214)	(0.5284)	(0.0223)	(0.0104)
December Year End Indicator	0.001	0.090	0.006**	0.002*
	(0.0018)	(0.0680)	(0.0023)	(0.0010)
Multinational Corporation Indicator	-0.010***	0.082	0.002	-0.000
	(0.0019)	(0.0629)	(0.0025)	(0.0010)
Merger Indicator	0.007***	-0.025	0.010***	0.003***
	(0.0018)	(0.0679)	(0.0025)	(0.0011)
Restructure Indicator	0.007***	0.233***	0.001	-0.000
	(0.0014)	(0.0569)	(0.0020)	(0.0008)
ICFR Material Weakness Indicator	0.000	0.091	-0.001	0.001
	(0.0031)	(0.1136)	(0.0035)	(0.0017)
Book to Market Ratio	-0.004**	0.684***	0.004	0.001
	(0.0020)	(0.0878)	(0.0023)	(0.0010)
Altman's Z	-0.003***	-0.004	-0.001	-0.000
	(0.0003)	(0.0100)	(0.0003)	(0.0001)
Intangible Assets	-0.023***	0.019	-0.019***	-0.000
	(0.0026)	(0.0916)	(0.0043)	(0.0014)
Current Assets to Total Assets	0.016***	0.934***	0.051***	0.035***
	(0.0054)	(0.1768)	(0.0068)	(0.0030)
Quick Ratio	0.000	-0.087***	-0.002***	-0.003***
	(0.0006)	(0.0239)	(0.0007)	(0.0003)
Constant	0.048***	0.389	0.038***	0.033***
	(0.0079)	(0.2767)	(0.0105)	(0.0045)
Audit Firm FE	Yes	Yes	Yes	Yes
Issuer Industry FE	Yes	Yes	Yes	Yes
Observations	13,558	13,558	13,558	12,994
Adj./Pseudo R-squared	0.363	0.151	0.166	0.158
Specification	OLS	OLS	OLS	OLS

Table 8 AS 1220 and AQIs – triennially inspected U.S. NAFs

The table presents the regression results of Equation (1) but with the various AQIs as the dependent variables. The definitions of these dependent and independent variables are provided in Appendix A. For the *PartIFinding* results in column (1), the inclusion of certain control variables results in substantial sample decrease and we estimate the regression with a more parsimonious set of control variables. Given the relatively large number of audit firms in the sample with data available only for a short time period, we also exclude audit firm fixed effects in the logistic regression in columns (1), (2), and (3) to avoid sample size loss due to perfect prediction of outcome variables (i.e., the outcome variables for issuer audit(s) of a given audit firm are constant, all equal to either 1 or 0 for all available issuer-year observations). For the *GC* results in column (3), the sample size is smaller than the full sample of 3,454 (Panel D in **Table 1**) because only issuers in financial distress are included. For *AbsJonesAcrl* and *AbsDD* in columns (6) and (7), the sample sizes are smaller than 3,454 (Panel D in **Table 1**) due to missing data for explanatory variables used in the regressions for constructing these accrual-based measures. To preserve the sample size of our Tri. U.S. NAFs Sample, we do not require observations to have these explanatory variables during the sample selection process. The estimated coefficient of *Post_AS1220* indicates the change in these AQIs between the pre and post AS 1220 periods. For logistic regressions, we also report the average marginal effect of *Post_AS1220*. The time period in both Tri. U.S. NAFs Inspected Sample (Panel D in **Table 5**) and Tri. U.S. NAFs Sample (Panel D in **Table 1**) is year-ends 2004-2014. See note *a* in **Table 1** for details on issuer year-ends. The standard-errors are clustered at the issuer-level and presented in the parenthesis below the estimated coefficient. Significance levels are * 10%, ** 5%, and *** 1%.

	(1) **PartIFinding** **(Tri. U.S. NAFs Inspected Sample)**	**(2)** **BigR** **(Tri. U.S. NAFs Sample)**	**(3)** **GC** **(Tri. U.S. NAFs Sample)**
Post_AS1220	0.495***	-0.453***	-0.031
	(0.0794)	(0.1639)	(0.1093)
Avg. Marginal Effect	0.112***	-0.023***	-0.005
EQR_Outside	0.488***	0.556**	0.445**
	(0.1126)	(0.2579)	(0.2135)
Log Total Assets	-0.027	0.081	-0.776***
	(0.0214)	(0.0619)	(0.0505)
Leverage Ratio	-0.007**	-0.036**	-0.008
	(0.0033)	(0.0177)	(0.0154)
Loss Indicator	0.271***	-0.308*	0.956***
	(0.0944)	(0.1803)	(0.2323)
New Client Indicator	0.275**	-0.015	0.031
	(0.1080)	(0.2132)	(0.1467)
CFO scaled by Total Assets	0.002	-0.061	-0.347***
	(0.0035)	(0.0594)	(0.0916)
December Year End Indicator	-0.027 (0.0902)	0.198 (0.1779)	0.142 (0.1301)
Multinational Corporation Indicator	-0.320** (0.1629)	-0.078 (0.2538)	-0.198 (0.2936)
Restructure Indicator	-0.553	-0.605	0.354
	(0.4619)	(0.7702)	(0.5119)
Book to Market Ratio		-0.003	-0.181***
		(0.0332)	(0.0366)

	(1) PartIFinding (Tri. U.S. NAFs Inspected Sample)	(2) BigR (Tri. U.S. NAFs Sample)	(3) GC (Tri. U.S. NAFs Sample)
Sales Growth		-0.019*	0.020**
		(0.0099)	(0.0085)
Intangible Assets		0.537***	0.111
		(0.2075)	(0.1063)
Current Assets to Total Assets		-0.890	-1.471***
		(0.5719)	(0.4237)
Quick Ratio		0.011	-0.708
		(0.6183)	(0.4462)
Constant	-1.159***	-2.383***	1.404***
	(0.2160)	(0.5247)	(0.4380)
Audit Firm FE	No	No	No
Issuer Industry FE	Yes	Yes	Yes
Observations	3,023	3,454	2,487
Pseudo R-squared	0.032	0.044	0.358
Specification	Logit	Logit	Logit

	(4) AbsAcrlTA (Tri. U.S. NAFs Sample)	(5) AbsAcrlCFO (Tri. U.S. NAFs Sample)	(6) AbsJonesAcrl (Tri. U.S. NAFs Sample)	(7) AbsDD (Tri. U.S. NAFs Sample)
Post_AS1220	0.153	0.596	0.155*	0.039***
	(0.1494)	(0.4074)	(0.0902)	(0.0140)
EQR_Outside	-0.133	0.393	-0.203	-0.070
	(0.5741)	(1.4908)	(0.3405)	(0.0535)
Log Total Assets	-0.412***	0.155	-0.282***	-0.069***
	(0.0750)	(0.1859)	(0.0445)	(0.0081)
Leverage Ratio	0.147***	0.065**	0.067***	0.014***
	(0.0186)	(0.0297)	(0.0107)	(0.0018)
Loss Indicator	0.054	1.672***	0.086	0.028**
	(0.1292)	(0.4867)	(0.0668)	(0.0140)
New Client Indicator	0.080	0.015	0.079	-0.002
	(0.2148)	(0.5294)	(0.1439)	(0.0215)
December Year End Indicator	0.186	0.606	0.098	0.027*
	(0.1529)	(0.4285)	(0.1000)	(0.0165)
Multinational Corporation Indicator	0.135	-0.584	0.117	0.022*
	(0.1376)	(0.5854)	(0.0864)	(0.0134)
Restructure Indicator	0.272**	0.553	0.101	-0.005
	(0.1313)	(1.0756)	(0.1193)	(0.0169)
Book to Market Ratio	-0.077	-0.196**	-0.062*	-0.015*
	(0.0559)	(0.0931)	(0.0340)	(0.0079)
Sales Growth	0.121***	0.003	0.068***	0.003**
	(0.0326)	(0.0376)	(0.0168)	(0.0012)

	(4) AbsAcrlTA (Tri. U.S. NAFs Sample)	(5) AbsAcrlCFO (Tri. U.S. NAFs Sample)	(6) AbsJonesAcrl (Tri. U.S. NAFs Sample)	(7) AbsDD (Tri. U.S. NAFs Sample)
Intangible Assets	0.493***	-0.460	0.228**	0.007
	(0.1881)	(0.4607)	(0.1103)	(0.0225)
Current Assets to Total Assets	-1.327**	-2.116*	-0.589	-0.128**
	(0.5883)	(1.2327)	(0.3833)	(0.0606)
Quick Ratio	1.056*	0.583	0.543	0.183***
	(0.5878)	(1.2905)	(0.3952)	(0.0659)
Constant	1.563***	3.138	1.214***	0.218***
	(0.5137)	(2.2328)	(0.3290)	(0.0547)
Audit Firm FE	Yes	Yes	Yes	Yes
Issuer Industry FE	Yes	Yes	Yes	Yes
Observations	3,454	3,454	3,358	2,860
Adj. R-squared	0.311	0.028	0.265	0.427
Specification	OLS	OLS	OLS	OLS

Table 9 AS 1220 and EQ reviewer hours spent in *Preliminary Review/Planning* phase

The table presents the regression results of Equation (1) but with the proportion and the level of EQ reviewer hours in *Preliminary Review/Planning* phase (the *prelim* phase) as the dependent variables. The estimated coefficient of *Post_AS1220* indicates the change between the pre and post AS 1220 periods. Columns (1) and (2) present the results without the linear time trend as a control variable for the proportion and the level of EQ reviewer hours in *prelim* phase, respectively. Columns (3) and (4) present the results with the linear time trend as a control variable for the proportion and the level of EQ reviewer hours in *prelim* phase, respectively. The definitions of these dependent and independent variables are provided in Appendix A. The analyses in this table are performed on our U.S. Big Eight Inspected Sample where the breakdown of EQ reviewer hours by audit phase is available. The time period in U.S. Big Eight Inspected Sample is year-ends 2005-2014 (Panel A in **Table 5**). See note *a* in **Table 1** for details on issuer year-ends. The standard-errors are clustered at the issuer-level and presented in the parenthesis below the estimated coefficient. Significance levels are * 10%, ** 5%, and *** 1%.

	(1) EQRHrs Prelim%	**(2) LogEQRHrs Prelim**	**(3) EQRHrs Prelim%**	**(4) LogEQRHrs Prelim**
Post_AS1220	1.755***	0.440***	0.278	0.166**
	(0.3379)	(0.0338)	(0.6750)	(0.0646)
Linear Time Trend			0.306**	0.057***
			(0.1216)	(0.0119)
Log Total Assets	0.330***	0.193***	0.296**	0.186***
	(0.1247)	(0.0129)	(0.1249)	(0.0129)
Leverage Ratio	-0.563	-0.006	-0.602	-0.013
	(0.6235)	(0.0657)	(0.6230)	(0.0656)
Loss Indicator	-0.116	0.118***	-0.206	0.101**
	(0.4308)	(0.0449)	(0.4308)	(0.0450)
New Client Indicator	2.251***	0.244***	2.239***	0.242***
	(0.6890)	(0.0651)	(0.6924)	(0.0651)
Sales Growth	-0.558	-0.077	-0.456	-0.058
	(0.5008)	(0.0533)	(0.4979)	(0.0527)
SD of Sales Growth over past 3 years	-0.409	-0.039	-0.452	-0.047
	(0.5001)	(0.0496)	(0.4970)	(0.0493)
CFO scaled by Total Assets	-2.149	-0.053	-2.213	-0.064
	(1.6386)	(0.1629)	(1.6349)	(0.1619)
SD of CFO scaled by Total Assets over past 3 years	2.559	0.520*	2.619	0.531**
	(2.4961)	(0.2712)	(2.4815)	(0.2688)
December Year End Indicator	0.291	-0.026	0.232	-0.037
	(0.3983)	(0.0403)	(0.3981)	(0.0403)
Multinational Corporation Indicator	-0.201	0.024	-0.236	0.018
	(0.4289)	(0.0411)	(0.4294)	(0.0411)
Merger Indicator	-0.895*	-0.015	-0.952*	-0.026
	(0.4945)	(0.0525)	(0.4934)	(0.0522)
Restructure Indicator	0.344	0.046	0.279	0.034
	(0.3997)	(0.0396)	(0.3985)	(0.0394)
ICFR Material Weakness Indicator	-1.224**	0.066	-1.187**	0.072
	(0.5397)	(0.0624)	(0.5409)	(0.0624)
Book to Market Ratio	-0.115	0.000	-0.137	-0.004

	(1) EQRHrs Prelim%	(2) LogEQRHrs Prelim	(3) EQRHrs Prelim%	(4) LogEQRHrs Prelim
	(0.2759)	(0.0260)	(0.2749)	(0.0259)
BigR Restatement	-3.216***	-0.235*	-3.052***	-0.205
Announcement Indicator	(0.9985)	(0.1279)	(0.9891)	(0.1267)
Constant	5.227***	-0.006	4.317***	-0.174
	(1.2975)	(0.1329)	(1.3788)	(0.1399)
Audit Firm FE	Yes	Yes	Yes	Yes
Issuer Industry FE	Yes	Yes	Yes	Yes
Observations	2,541	2,541	2,541	2,541
Adj. R-squared	0.132	0.266	0.134	0.272
Specification	OLS	OLS	OLS	OLS

Table 10 Data on EQ reviewers and issuer audits with EQ reviewer turnovers

Panel A: U.S. GNF EQ reviewers

The table below shows the number of distinct partners that were assigned as EQ reviewers to issuer audits of operating companies (first two lines in Panel A of **Table 1**), and the number with partner admit year data. The sample of partners does not include those partners who in a particular year worked exclusively on audits of non-operating companies such as EBPs, mutual fund audits, etc. To the extent these same partners worked on operating company issuer audits in other years, they would be included in the sample for that year.

	Inspection Years						
	2010	2011	2012	2013	2014	2015	2010 - 2015
No. of partners in sample performing EQRs	1,421	1,446	1,507	1,569	1,567	1,631	9,141
No. of partners in sample performing EQRs with available admit year data	1,264	1,379	1,467	1,524	1,564	1,630	8,828

Panel B: U.S. GNF issuer audits with first EQ reviewer turnover in the post AS 1220 periods

The table below shows the number of issuer audits of operating companies (first two lines in Panel A of **Table 1**) with the first turnover in the EQ reviewer in the post AS 1220 periods, and the number of observations with available admit year data. Years 1 through 4 refer to audits with fiscal year ends in the first through fourth year after the effective date of AS 1220. That is, year 1 represents issuer fiscal year-ends during the first year that AS 1220 was effective, i.e., December 14, 2010 through December 13, 2011, year 2 represents the fiscal year-ends during the second year that AS 1220 was effective, i.e., December 14, 2011 through December 13, 2012, and so on.

	Years				
	1	2	3	4	Total
No. of issuer audits with the first turnover in the EQ reviewer	772	743	569	410	2,494
No. of issuer audits with the first turnover in the EQ reviewer in the post AS 1220 periods and with available admit year data for successor (predecessor) EQ reviewer	755 (767)	728 (589)	568 (617)	410 (377)	2,461 (2,350)

Table 11 Mean difference in assigned EQ reviewers

The table shows the differences in means for various partner characteristics between the post and pre AS 1220 periods for a sample of EQ reviewers that were assigned to U.S. GNF issuer audits of operating companies. Differences are calculated using available data across each partner characteristic, i.e., the sample is not restricted to those EQ reviewers with data available for all partner characteristics and hence sample sizes differ for each characteristic.[a] The definitions for certain partner characteristics are provided in Appendix A. Partner experience is calculated as the number of years since the partner has been admitted to the partnership. *Quality Pos. (0/1)* and *Leadership Role (0/1)* are indicator variables denoting whether the partner holds such positions. *Cumulative (3yr) Restatements (0/1)* is an indicator variable denoting whether the partner had any restatements in the prior three years. *No. of Prior Year Part I Findings* denotes the number of Part I inspection findings and *Prior Year Part I Findings (0/1)* is an indicator variable denoting whether the partner had any Part I findings from the prior year inspection. Post refers to post AS 1220 time period (i.e. data collected during inspection years 2011-2015) and Pre refers to pre AS 1220 time period (i.e. data collected during inspection year 2010). Tests are two-sided *t*-tests assuming unequal variances. Significance levels are * 10%, ** 5%, and *** 1%.

Partner characteristics	Difference (Post – Pre)	*t* statistics
Partner Experience	0.863***	(4.45)
Quality Pos. (0/1)	-0.0185	(-1.41)
Leadership Role (0/1)	-0.0301**	(-2.01)
No. of Issuers-EP	-0.578	(-0.76)
No. of Non-Issuers-EP	-0.464	(-1.20)
No. of EBP-EP	-0.683***	(-5.03)
No. of Issuers-EQ Reviewer	-2.024	(-1.40)
No. of Non-Issuers-EQ Reviewer	-1.009**	(-1.98)
No. of EBP-EQ Reviewer	-0.143	(-1.44)
Utilization (%)	2.537***	(4.75)
Managed Hours	-2,553.3***	(-3.70)
Cumulative (3yr) Restatements	-0.290***	(-8.04)
Cumulative (3yr) Restatements (0/1)	-0.155***	(-9.81)
Quality Ratings (lower values denote higher quality)	-0.17**	(-5.27)
No. of Prior Year Part I Findings	0.212***	(10.49)
Prior Year Part I Findings (0/1)	0.0314***	(5.23)

[a] Collection of certain partner characteristics data for partners that served only as EQ reviewers on issuer audits did not begin until inspection year 2013. After backfilling data where possible using the identity of EQ reviewers (collected throughout the sample period), the magnitude of this issue for a time-invariant characteristic such as partner admit year is about 3.4 percent of partners assigned as EQ reviewers in our sample (*see* Panel A in **Table 10**). The magnitude would be higher for time-varying partner characteristics. *No. of Prior Year Part I Findings* and *Prior Year Part I Findings (0/1)* would not be affected by this issue as the identity of EQ reviewers was collected throughout the sample period.

Table 12 Mean difference in assigned EQ reviewers – turnover sample

The table shows the differences in the means for various partner characteristics between the successor and predecessor EQ reviewers in U.S. GNF issuer audits of operating companies with the first turnover in the EQ reviewer. Differences are calculated using available data for successor and predecessor EQ reviewers across each characteristic, i.e., the sample is not restricted to those observations with data available for all partner characteristics and hence sample sizes differ for each characteristic.[a] The definitions for certain partner characteristics are provided in Appendix A. Partner experience is calculated as the number of years since the partner has been admitted to the partnership. *Quality Pos. (0/1)* and *Leadership Role (0/1)* are indicator variables denoting whether the partner holds such positions. *Cumulative (3yr) Restatements (0/1)* is an indicator variable denoting whether the partner had any restatements in the prior three years. *No. of Prior Year Part I Findings* denotes the number of Part I inspection findings and *Prior Year Part I Findings (0/1)* is an indicator variable denoting whether the partner had any Part I findings from the prior year inspection. After (Before) refers to the sample of successor (predecessor) EQ reviewers assigned to audits after (before) the first turnover in the EQ reviewer in the post AS 1220 period. Tests are two-sided t-tests assuming unequal variances. Significance levels are * 10%, ** 5%, and *** 1%.

Partner characteristics	Difference (After – Before)	*t* statistics
Partner Experience	-2.226***	(-12.77)
Quality Pos. (0/1)	-0.0520***	(-4.00)
Leadership Role (0/1)	-0.009	(-0.62)
No. of Issuers-EP	0.287	(0.66)
No. of Non-Issuers-EP	0.0591	(0.14)
No. of EBP-EP	-0.0039	(-0.04)
No. of Issuers-EQ Reviewer	0.205	(0.58)
No. of Non-Issuers-EQ Reviewer	-0.801**	(-2.47)
No. of EBP- EQ Reviewer	-0.134	(-1.28)
Utilization (%)	0.758	(1.36)
Managed Hours	-828.0	(-1.53)
Cumulative (3yr) Restatements	-0.0307	(-1.04)
Cumulative (3yr) Restatements (0/1)	-0.0283**	(-2.05)
Quality Ratings (lower values denote higher quality)	0.04	(1.12)
No. of Prior Year Part I Findings	-0.06*	(-1.66)
Prior Year Part I Findings (0/1)	-0.03***	(-4.28)

[a] Collection of certain partner characteristics data for partners that served only as EQ reviewers on issuer audits did not begin until inspection year 2013. After backfilling data where possible using the identity of EQ reviewers (collected throughout the sample period), the magnitude of this issue for a time-invariant characteristic such as partner admit year is about 1.3 percent (5.7 percent) for the After (Before) sample (*see* Panel B in **Table 10**). The magnitude would be higher for time-varying partner characteristics. *No. of Prior Year Part I Findings* and *Prior Year Part I Findings (0/1)* would not be affected by this issue as the identity of EQ reviewers was collected throughout the sample period.

Table 13 Distribution of EQ reviewers by years of experience

The table shows the distribution of partner experience for a sample of EQ reviewers that were assigned to issuer audits of operating companies (*see* Panel A in **Table 10**). Partner experience is calculated as the number of years since the partner has been admitted to the partnership. Post refers to post AS 1220 time period (i.e. data collected during inspection years 2011-2015) and Pre refers to pre AS 1220 time period (i.e. data collected during inspection year 2010).

	Pre	Post					
Partner Experience	2010	2011	2012	2013	2014	2015	2010 - 2015
Up to 5 years	14.40	11.46	8.11	5.45	5.37	6.56	8.30
6 to 10 years	32.20	33.94	36.47	34.51	34.08	30.18	33.54
11 to 15 years	26.03	26.83	27.06	29.86	27.17	28.77	27.70
16 to 20 years	11.87	12.11	13.70	15.94	19.31	20.86	15.89
21 to 25 years	13.05	12.18	11.04	9.71	8.63	7.79	10.25
26 to 30 years	2.22	3.12	3.41	4.40	5.24	5.58	4.09
31 years & more	0.24	0.36	0.20	0.13	0.19	0.25	0.23
Mean	12.24	12.49	12.80	13.10	13.43	13.61	12.98
Observations	1,264	1,379	1,467	1,524	1,564	1,630	8,828

Table 14 Quality ratings comparison

The table shows the mean change in partner quality ratings for EQ reviewers who served on U.S. GNF issuer audits of operating companies with fiscal year end *t* with: only Part I Findings (Only Part I); Part I Findings and the EQR was found to be deficient (Part I and Part II-EQR); and Part I Findings and the audit is referenced in Part II of the inspection reports under other quality control criticisms (Part I and Part II-Other). Analysis is restricted to the post AS 1220 period, i.e. inspection years 2011 through 2015 (*see* Section V.C.iii). Differences are calculated by subtracting the two means within each panel. Panels A1 (A2) and B1 (B2) show the results of statistical tests conducted on the mean difference in changes in partner quality ratings for the samples obtained by matching deficiencies on audits with fiscal year end *t* to EQ reviewers' quality ratings at t+1 (t+2). Tests are two-sided t-tests assuming unequal variances. Significance levels are * 10%, ** 5%, and ***1%.

Panel A1: Mean Difference in Change in Quality Ratings (t+1) for EQ reviewers

Part I and Part II-EQR	**Only Part I**	Diff. [b]	
Mean [a]	Mean [a]	Est.	t
-0.20***	0.04	-0.24** [c]	(-2.03)

Panel A2: Mean Difference in Change in Quality Ratings (t+2) for EQ reviewers

Part I and Part II-EQR	**Only Part I**	Diff.	
Mean	Mean	Est.	t
-0.39***	-0.06	-0.33*** [c]	(-3.44)

Panel B1: Mean Difference in Change in Quality Ratings (t+1) for EQ reviewers

Part I and Part II-EQR	**Part I and Part II-Other**	Diff.	
Mean	Mean	Est.	t
-0.20***	0.02	-0.22* [c]	(-1.79)

Panel B2: Mean Difference in Change in Quality Ratings (t+2) for EQ reviewers

Part I and Part II-EQR	**Part I and Part II-Other**	Diff.	
Mean	Mean	Est.	t
-0.39***	-0.10	-0.30*** [c]	(-3.06)

[a] Negative *mean* values imply that a partner's rating worsened over time.

[b] Differences that are negative imply that ratings for partners with both Part I and Part II – EQR deficiencies fell more relative to those that either only had Part I deficiencies (Panels A1 and A2), or both Part I and other Part II deficiencies (Panels B1 and B2).

[c] Unreported results of the one-tailed test (Ha: Diff. < 0) also indicate significance at the conventional levels.

Table 15 SECPS versus non-SECPS member firms

The table presents the results from following regression with the *LogEQRHours, LogAuditFees,* and various AQIs as the dependent variables.

$$Dependent\ variable = \alpha + \beta_1 Post_{AS1220} + \beta_2 SECPS + \beta_3 Post_{AS1220} \times SECPS + \sum \beta_i Controls_i + \sum \beta_j FE_j + \varepsilon$$

SECPS is an indicator variable equal to one if the issuer was audited by a SECPS member firm The estimated coefficient of *Post_AS1220×SECPS* indicates the difference between SECPS and non-SECPS member firm audits, in terms of the change in reviewer hours or AQIs, over the pre and the post AS 1220 period. The definition of these dependent and independent variables are provided in Appendix A. For the *PartIFinding* results in column (1) of Panel B, the inclusion of certain control variables results in substantial sample decrease and we estimate the regression with a more parsimonious set of control variables. Audit firm fixed effects are excluded because they are perfectly collinear with the indicator variable *SECPS*. The time period in Tri. U.S. NAFs Sample (Panel D in **Table 1**) is year-ends 2004-2014. See note *a* in Table 1 for the construction of issuer year-ends. The standard-errors are clustered at the issuer-level and presented in the parenthesis below the estimated coefficient. Significance levels are * 10%, ** 5%, and *** 1%.

Panel A: EQ reviewer hours and audit fees

	(1) LogEQRHours (Tri. U.S. NAFs Sample)	**(2) LogAuditFees (Tri. U.S. NAFs Sample)**
Post_AS1220	-0.014	-0.046
	(0.0753)	(0.0511)
SECPS	-0.006	0.145***
	(0.0721)	(0.0480)
Post_AS1220×SECPS	0.238***	0.043
	(0.0810)	(0.0544)
EQR_Outside	-0.208***	0.014
	(0.0659)	(0.0444)
Log Total Assets	0.246***	0.382***
	(0.0106)	(0.0075)
Leverage Ratio	0.003**	0.007***
	(0.0015)	(0.0010)
Loss Indicator	0.201***	0.254***
	(0.0358)	(0.0245)
New Client Indicator	0.043	-0.110***
	(0.0407)	(0.0321)
CFO scaled by Total Assets	-0.043*** (0.0114)	-0.036*** (0.0071)
December Year End Indicator	0.012 (0.0349)	0.066** (0.0256)
Multinational Corporation Indicator	0.197*** (0.0552)	0.404*** (0.0390)
Restructure Indicator	-0.093	0.222***
	(0.0938)	(0.0655)

	(1) LogEQRHours (Tri. U.S. NAFs Sample)	(2) LogAuditFees (Tri. U.S. NAFs Sample)
BigR Restatement Announcement Indicator	0.052 (0.0786)	0.073 (0.0543)
Sales Growth	-0.000	-0.005***
	(0.0023)	(0.0017)
Book to Market Ratio	-0.011**	-0.020***
	(0.0053)	(0.0039)
Intangible Assets	-0.027	-0.073***
	(0.0305)	(0.0206)
Current Assets to Total Assets	0.088 (0.1094)	0.231*** (0.0762)
Quick Ratio	0.127	0.049
	(0.1118)	(0.0793)
Constant	1.562***	10.054***
	(0.1090)	(0.0775)
Audit Firm FE	No	No
Issuer Industry FE	Yes	Yes
Observations	3,454	3,454
Adj. R-squared	0.241	0.640
Specification	OLS	OLS

Panel B: AQIs

	(1) PartIFinding (Tri. U.S. NAFs Inspected Sample)	(2) BigR (Tri. U.S. NAFs Sample)
Post_AS1220	0.219	-0.057
	(0.1484)	(0.3742)
SECPS	-0.819***	-0.044
	(0.1244)	(0.2943)
Post_AS1220×SECPS	0.205	-0.542
	(0.1781)	(0.4250)
EQR_Outside	0.406***	0.483*
	(0.1146)	(0.2651)
Log Total Assets	0.010	0.092
	(0.0223)	(0.0608)
Leverage Ratio	-0.006*	-0.036**
	(0.0033)	(0.0179)
Loss Indicator	0.263***	-0.310*
	(0.0941)	(0.1800)
New Client Indicator	0.166	-0.027
	(0.1112)	(0.2154)

	(1) PartIFinding (Tri. U.S. NAFs Inspected Sample)	(2) BigR (Tri. U.S. NAFs Sample)
CFO scaled by Total Assets	0.002 (0.0035)	-0.060 (0.0592)
December Year End Indicator	-0.053 (0.0906)	0.185 (0.1782)
Multinational Corporation Indicator	-0.316* (0.1616)	-0.082 (0.2537)
Restructure Indicator	-0.577 (0.4797)	-0.599 (0.7725)
Sales Growth		-0.019* (0.0100)
Book to Market Ratio		-0.005 (0.0327)
Intangible Assets		0.526** (0.2056)
Current Assets to Total Assets		-0.884 (0.5717)
Quick Ratio		0.020 (0.6191)
Constant	-0.590** (0.2430)	-2.367*** (0.5916)
Audit Firm FE	No	No
Issuer Industry FE	Yes	Yes
Observations	3,023	3,454
Pseudo R-squared	0.048	0.047
Specification	Logit	Logit

Table 16 Analysis of engagements with EQR-related Part II Findings

Based on the sample and methodology used in Tables 2 and 3 in Aobdia (2018a), this table presents similar analyses but also incorporates whether a Part II Finding is related with EQR. *Part II EQR* is an indicator variable equal to one when a Part II Finding is related with the EQR role. The variables of interest on the interactions *Inspected Part II No Part I × Part II EQR × After*, and *Inspected Part I Part II × Part II EQR × After*. Variable definitions are provided in Appendix A of Aobdia (2018a). The t-statistic (in bracket) is below the coefficient. Standard-errors are clustered at the issuer-level. Significance levels are * 10%, ** 5% and *** 1%.

	One Year Ahead			**Two Years Ahead**		
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Dependent Variables	**Logaudit hours**	**Logpartner hours**	**Logeqr hours**	**Logaudit hours**	**Logpartner hours**	**Logeqr hours**
After	0.005	-0.091***	0.075***	0.041	-0.169***	0.124***
	[0.365]	[-3.345]	[3.282]	[1.450]	[-3.605]	[3.636]
Inspected No Part I No Part II	0.062*	0.072*	0.087**	0.088*	0.144**	0.106**
	[1.654]	[1.667]	[2.240]	[1.818]	[2.532]	[2.080]
Inspected Part II No Part I	0.103**	0.046	0.055	0.083	-0.007	0.035
	[2.144]	[0.811]	[1.057]	[1.537]	[-0.105]	[0.541]
Inspected Part I No Part II	0.030	0.021	0.095	-0.117	-0.139	0.016
	[0.352]	[0.220]	[0.922]	[-1.190]	[-1.104]	[0.127]
Inspected Part I Part II	0.046	0.035	0.096	0.015	-0.093	0.102
	[0.789]	[0.513]	[1.615]	[0.199]	[-0.993]	[1.371]
Inspected Part II No Part I × Part II EQR	0.010	-0.035	-0.037	0.033	0.168	-0.050
	[0.132]	[-0.381]	[-0.470]	[0.284]	[1.236]	[-0.470]
Inspected Part I Part II × Part II EQR	0.053	0.081	-0.120	-0.028	0.091	-0.049
	[0.418]	[0.558]	[-0.843]	[-0.197]	[0.535]	[-0.291]
Inspected No Part I No Part II × After	-0.019	-0.036	-0.064*	-0.094**	-0.204***	-0.116**
	[-0.829]	[-0.795]	[-1.780]	[-2.208]	[-3.027]	[-2.235]
Inspected Part II No Part I × After	0.013	0.109**	-0.052	-0.058	0.085	-0.078
	[0.386]	[2.008]	[-1.053]	[-1.074]	[0.988]	[-1.187]
Inspected Part I No Part II × After	0.113**	0.163**	-0.004	-0.056	-0.168	-0.116
	[2.366]	[2.103]	[-0.053]	[-0.738]	[-1.129]	[-0.919]
Inspected Part I Part II × After	0.047	0.148**	-0.013	0.102*	0.225*	-0.003
	[0.971]	[1.996]	[-0.227]	[1.706]	[1.928]	[-0.043]
Inspected Part II No Part I × Part II EQR × After	-0.050	0.211	0.220**	0.090	-0.228*	0.239*
	[-0.349]	[1.065]	[1.993]	[1.068]	[-1.887]	[1.764]
Inspected Part I Part II × Part II EQR × After	0.084	0.084	0.135*	-0.048	-0.343**	0.100
	[1.250]	[0.755]	[1.748]	[-0.455]	[-2.270]	[0.970]

	One Year Ahead			Two Years Ahead		
	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Variables	Logaudit hours	Logpartner hours	Logeqr hours	Logaudit hours	Logpartner hours	Logeqr hours
ForeignPifo	0.212***	0.188***	0.078***	0.211***	0.163***	0.091***
	[7.998]	[6.409]	[2.976]	[7.667]	[5.981]	[3.339]
Log Total Assets	0.339***	0.302***	0.184***	0.355***	0.314***	0.182***
	[30.164]	[24.220]	[17.409]	[26.379]	[22.244]	[15.598]
Geoseg	0.051***	0.042***	0.018***	0.049***	0.040***	0.019***
	[8.004]	[5.967]	[3.158]	[6.648]	[4.515]	[2.811]
Busseg	0.051***	0.039***	0.004	0.046***	0.023**	0.009
	[5.491]	[3.953]	[0.506]	[4.220]	[2.005]	[0.995]
SD of CFO scaled by Total Assets over past 3 years	0.796***	0.892***	0.597***	0.734***	0.595**	0.527**
	[3.146]	[3.285]	[2.916]	[3.503]	[2.369]	[2.372]
CFO scaled by Total Assets	-0.232**	-0.210*	-0.160	-0.237*	-0.001	-0.210
	[-2.103]	[-1.767]	[-1.525]	[-1.829]	[-0.005]	[-1.559]
Leverage	-0.024	-0.050	0.050	0.003	-0.022	0.099*
	[-0.489]	[-0.943]	[1.209]	[0.052]	[-0.351]	[1.785]
Book to Market Ratio	-0.076***	-0.048*	-0.026	-0.060*	-0.014	0.022
	[-2.772]	[-1.758]	[-1.470]	[-1.957]	[-0.458]	[1.044]
Litigation	0.098**	0.060	0.006	0.115**	0.055	0.015
	[2.164]	[1.236]	[0.151]	[2.260]	[0.935]	[0.306]
Salegrowth	-0.054*	-0.073*	-0.012	-0.089**	0.009	0.006
	[-1.665]	[-1.725]	[-0.428]	[-2.199]	[0.195]	[0.175]
Weakness	0.179**	0.413***	0.425***	0.165*	0.414***	0.373***
	[2.166]	[5.117]	[6.347]	[1.918]	[3.571]	[4.181]
HiTech	-0.025	0.067	0.113***	0.039	0.102*	0.156***
	[-0.595]	[1.461]	[3.236]	[0.816]	[1.943]	[3.365]
IntegratedAudit	-0.100	-0.069	-0.011	-0.037	-0.155	0.096
	[-1.400]	[-0.768]	[-0.154]	[-0.434]	[-0.981]	[1.048]
Observations	3,028	3,024	3,002	1,978	1,974	1,954
Adjusted R-squared	0.698	0.564	0.478	0.665	0.528	0.435
Firm-Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Clustering	Issuer	Issuer	Issuer	Issuer	Issuer	Issuer
F-test: Inspected Part II No Part I × After + Inspected Part II No Part I × Part II EQR × After = 0						
F-test	0.07	2.73*	2.61	0.176	1.773	1.574

	One Year Ahead			Two Years Ahead		
	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Variables	Logaudit hours	Logpartner hours	Logeqr hours	Logaudit hours	Logpartner hours	Logeqr hours
p-value	0.791	0.099	0.107	0.675	0.183	0.210
F-test: Inspected Part I Part II × After + Inspected Part I Part II × Part II EQR × After = 0						
F-test	7.07***	6.67***	4.08**	0.570	0.305	0.237
p-value	0.008	0.010	0.044	0.665	0.528	0.435

Appendix C – Prior Work

In this appendix, we review studies on EQR published after the adoption of AS 1220 in July 2009. For a synthesis of academic literature on EQR published prior to adoption of AS 1220, *see* Schneider and Messier (2007). Our literature review also does not encompass any recent working papers on EQ reviewers.

Dickins et al. (2015) survey 32 practicing audit partners, experienced in EQRs, about changes in the EQR process and investigate how these changes are perceived to have impacted audit quality. Based on their survey, the authors conclude that AS 1220 impacted the role and approach of the EQ reviewer, the extent of procedures performed, and the nature of communications between the EQ reviewer and engagement team. Prior to AS 1220, participants more often described the role of an EQ reviewer as that of a "team member" versus that of an "inspector" and described the approach to EQR as "consulting" versus "second-guessing." Survey participants reported that, in the post AS 1220 period, EQ reviewers review more work-papers and spend more time documenting the results of the review. Participants also reported increases in the frequency and breadth of communications between EQ reviewers and engagement team members, including specialists. Overall, participants reported that AS 1220 enhanced audit quality but adversely impacted efficiency.

Emby and Favere-Marchesi (2010) administer a questionnaire to 127 partners, also experienced in second partner reviews, to understand the review process from the perspective of a review partner. The authors ask participants to recall an engagement where they served as a review partner and where the review process involved negotiation with the engagement partner to resolve one or more issues. The authors conclude that the results of the questionnaire describe a professional, collegial, non-adversarial process, primarily focused on the objective of resolving difficult and complex client accounting issues. While the paper provides insights on the negotiation process that may take place between a reviewer and an engagement partner, it does not compare and contrast the process pre and post AS 1220. This is likely due to the fact that all of the data accumulated for the study almost certainly pertains to audits performed under the SECPS requirements. Moreover, as the authors acknowledge, responses to the questionnaire may suffer from self-serving or bolstering behavior on the behalf of respondents.

Messier et al. (2010) identify and analyze 28 SEC and PCAOB enforcement actions from 1993 to 2008 (i.e., in the pre AS 1220 period) that involve some type of sanction against a concurring review partner. A significant majority of the allegations involve a lack of due professional care and professional skepticism, over-reliance on management representations and a failure to obtain sufficient appropriate audit evidence. Kraussman and Messier (2015) update this study in light of the adoption of AS 1220. The authors identify 16 additional SEC and PCAOB enforcement actions that involve some type of sanction against an EQ reviewer. The authors note that whereas all of the cases charged under the SECPS requirements involve sanctions resulting from an inadequate EQR, all of the AS 1220 cases involve sanctions resulting from a failure to *perform*

an EQR.

In December 2013, the PCAOB issued a Board General Report to summarize information regarding audit firms' implementation of and compliance with AS 1220.[159] The report is based on inspection observations from the inspection year immediately subsequent to the effective date of AS 1220. The report finds that while firm methodologies were typically consistent with the requirements of AS 1220, EQRs were often deficient. In particular, in 39 percent of 111 deficient audits performed by the seven largest domestic firms, inspection staff concluded that the EQ reviewer should have identified deficiencies that resulted in insufficiently supported opinions. The report also identified several potential root causes that may have contributed to the deficiencies: insufficient documentation by the engagement team, EQ reviewers' over-reliance on engagement team's responses, insufficient time devoted to the review, and firms' failure to appoint competent EQ reviewers.

[159] PCAOB Release No. 2013-011, *Observations Related to the Implementation of the Auditing Standard on Engagement Quality Review*, December 6, 2013.

Appendix D – Enforcement Actions

Standard	Authority	Respondent	Release No.	Release Date	Link to Disciplinary Orders	Type of Violations
SECPS	SEC	Dohan & Company CPAs, Steven H. Dohan, CPA, Nancy L. Brown, CPA, and Erez Bahar, CA	No. 3232	1/20/2011	Click Here	Inadequate review
SECPS	SEC	Livingston & Haynes, P.C., Evin F. Howley, CPA and William W. Wood, CPA	No. 64607	6/6/2011	Click Here	Inadequate review
SECPS	SEC	Kempisty & Company, Certified Public Accountants, P.C., Philip C. Kempisty, CPA, and John Anthony Rubino, CPA	No. 65950	12/14/2011	Click Here	EQ reviewer competency/objectivity issues Inadequate review
SECPS	PCAOB	Ernst & Young LLP, Jeffrey S. Anderson, CPA, Ronald Butler, Jr., CPA, Thomas A. Christie, CPA, and Robert H. Thibault, CPA	No. 105-2012-001	2/8/2012	Click Here	Inadequate review
AS 1220	PCAOB	Michael F. Cronin, CPA and Michael F. Cronin, CPA	No. 105-2013-003	5/14/2013	Click Here	No EQR
SECPS	PCAOB	Rehan Saeed	No. 105-2013-004	5/21/2013	Click Here	EQR after audit report issued
AS 1220	PCAOB	Bravos & Associates and Thomas W. Bravos, CPA	No. 105-2015-028	6/30/2013	Click Here	No EQR
AS 1220	SEC	Malcolm L. Pollard, CPA and Malcolm L. Pollard, Inc.	No. 70564	9/30/2013	Click Here	No EQR
AS 1220	SEC	Wilfred W. Hanson	No. 70567	9/30/2013	Click Here	EQ reviewer competency/objectivity issues Inadequate review
SECPS AS 1220	SEC	Sherb & Co., LLP, Steven J. Sherb, CPA, Christopher A. Valleau, CPA, Mark Mycio, CPA, and Steven N. Epstein,	No. 70823	11/6/2013	Click Here	Inadequate review Violation of two year cooling off period

Standard	Authority	Respondent	Release No.	Release Date	Link to Disciplinary Orders	Type of Violations
		CPA				
AS 1220	PCAOB	Harris F Rattray CPA, PL, and Harris F. Rattray, CPA	No. 105-2013-009	11/21/2013	Click Here	No EQR
AS 1220	PCAOB	Hood & Associates CPAs, P.C., and Rick C. Freeman, CPA	No. 105-2013-012	11/21/2013	Click Here	No EQR
AS 1220	SEC	Eugene M. Egeberg III, CPA	No. 3529	1/17/2014	Click Here	No EQR
SECPS AS 1220	SEC	Child, Van Wagoner & Bradshaw, PLLC, Russell E. Anderson, CPA, and Marty Van Wagoner, CPA	No. 74262	2/11/2014	Click Here	Inadequate review
AS 1220	SEC	Sam Kan, CPA, and Sam Kan & Company	No. 71585	2/20/2014	Click Here	No EQR Violation of two year cooling off period EQR after audit report issued
AS 1220	PCAOB	Berman W. Martinez	No. 105-2014-003	5/6/2014	Click Here	No EQR
AS 1220	PCAOB	Morrill & Associates, LLC, Douglas W. Morrill, CPA, and Grant L. Hardy, CPA	No. 105-2015-001	1/12/2015	Click Here	Inadequate review
AS 1220	PCAOB	Dustin M. Lewis, CPA, and Eric S. Bullinger, CPA	No. 105-2015-005	4/1/2015	Click Here	Inadequate review Violation of two year cooling off period
AS 1220	PCAOB	Hazel-Leilani De Los Reyes Bradford, CPA	No. 105-2015-006	4/1/2015	Click Here	Violation of two year cooling off period
AS 1220	PCAOB	Mark Shelley CPA, Mark A. Shelley, CPA, and Allan J. Ricks	No. 105-2015-010	5/28/2015	Click Here	EQ reviewer competency/objectivity issues Inadequate review
AS 1220	PCAOB	Harris & Gillespie CPA's, PLLC, and Thomas J. Harris, CPA	No. 105-2015-011	6/16/2015	Click Here	No EQR EQR after audit report issued
AS 1220	PCAOB	Cowan, Gunteski & Co., P.A. and William Meyler, CPA	No. 105-2015-021	7/23/2015	Click Here	Violation of two year cooling off period
AS 1220	PCAOB	Weaver and Tidwell, LLP	No. 105-2015-022	7/23/2015	Click Here	Violation of two year cooling off period
AS 1220	PCAOB	Dale Jensen, CPA	No. 105-2015-023	7/23/2015	Click Here	Violation of two year cooling off period

Standard	Authority	Respondent	Release No.	Release Date	Link to Disciplinary Orders	Type of Violations
AS 1220	PCAOB	HDSG & Associates	No. 105-2015-024	7/23/2015	Click Here	No EQR
AS 1220	PCAOB	Anil Bedi, CPA	No. 105-2015-025	7/23/2015	Click Here	No EQR
AS 1220	PCAOB	Timothy Alan Coons, CPA and Timothy Coons, CPA	No. 105-2015-026	7/23/2015	Click Here	No EQR
AS 1220	PCAOB	R.R. Hawkins & Associates, International A Professional Corporation and R. Richard Hawkins, II, CPA	No. 105-2015-027	7/23/2015	Click Here	No EQR
AS 1220	PCAOB	Keith K. Zhen, CPA and Keith Zhen, CPA	No. 105-2015-029	7/23/2015	Click Here	No EQR
AS 1220	SEC	Terry L. Johnson, CPA	No. 75944	9/7/2015	Click Here	No EQR
AS 1220	SEC	John Briner, ESQ., Diane Dalmy, ESQ., De Joya Griffith, LLC, Arthur De Joya, CPA, Jason Griffith, CPA, Chris Whetman, CPA, Philip Zhang, CPA, M&K Cpas, PLLC, Matt Manis, CPA, Jon Ridenour, CPA, and Ben Ortego, CPA	No. 75947	9/18/2015	Click Here	Inadequate review
AS 1220	PCAOB	David A. Aronson, CPA, P.A., and David A. Aronson, CPA	No. 105-2015-034	10/2/2015	Click Here	No EQR
AS 1220	PCAOB	Stein & Company, LLP and Jon H. Stein, CPA	No. 105-2015-040	12/3/2015	Click Here	No EQR
AS 1220	PCAOB	LL Bradford & Company LLP	No. 105-2015-041	12/3/2015	Click Here	Violation of two year cooling off period
AS 1220	SEC	Peter Messineo, CPA and Messineo & Co., CPAS, LLC	No. 76607	12/10/2015	Click Here	No EQR Inadequate review EQR after audit report issued
AS 1220	SEC	Joseph E. Mohr, CPA	No. 76611	12/10/2015	Click Here	EQ reviewer competency/objectivity issues EQR after audit report issued
AS 1220	PCAOB	Clay Thomas, P.C., and Clay Thomas, CPA	No. 105-2016-006	2/18/2016	Click Here	No EQR

Standard	Authority	Respondent	Release No.	Release Date	Link to Disciplinary Orders	Type of Violations
AS 1220	SEC	Thakkar CPA, PLLC, Gregory Scott Williford, CPA, Mahesh Thakkar, CPA, and Poorvesh Thakkar	No. 77542	4/6/2016	Click Here	No EQR
AS 1220	SEC	David S. Hall, P.C. The Hall Group CPAs, David S. Hall, CPA, Michelle L. Helterbran Cochran, CPA, and Susan A. Cisneros	No. 77718	4/6/2016	Click Here	No EQR EQ reviewer competency/objectivity issues
AS 1220	PCAOB	The Hall Group, CPAs and David S. Hall, CPA	No. 105-2016-015	4/26/2016	Click Here	EQ reviewer competency/objectivity issues
AS 1220	PCAOB	AWC (CPA) Limited, Wong Chi Wai, CPA, and Wong Fei Cheung, CPA	No. 105-2016-016	5/18/2016	Click Here	EQ reviewer competency/objectivity issues
AS 1220	PCAOB	AWC LLP, Mun Leung Chung, CPA, and Lam Shan Mui, CPA	No. 105-2016-017	5/18/2016	Click Here	EQ reviewer competency/objectivity issues Violation of documentation requirement
AS 1220	PCAOB	Michael F. Albanese, CPA	No. 105-2016-018	6/14/2016	Click Here	No EQR
AS 1220	PCAOB	Jerry L Stanford, CPA	No. 105-2016-019	6/14/2016	Click Here	No EQR
AS 1220	PCAOB	Donahue Associates LLC	No. 105-2016-020	6/14/2016	Click Here	No EQR
AS 1220	PCAOB	Maillie LLP and Laurie Harvey, CPA	No. 105-2016-021	6/14/2016	Click Here	EQ reviewer competency/objectivity issues
AS 1220	PCAOB	Goldman Kurland and Mohidin, LLP and Ahmed Mohidin, CPA	No. 105-2016-027	9/13/2016	Click Here	EQ reviewer competency/objectivity issues
AS 1220	PCAOB	James Roderick Talbot Oram	No. 105-2016-036	12/5/2016	Click Here	Inadequate review
AS 1220	PCAOB	David Lee Hillary, Jr. and David Lee Hillary, Jr., CPA	No. 105-2016-049	12/13/2016	Click Here	No EQR
AS 1220	PCAOB	Bojan Stokic, CPA	No. 105-2016-048	12/13/2016	Click Here	Inadequate review

Appendix E – Interviews

In inspection cycle 2015, interviews of 74 audit partners across 13 audit firms of different sizes provided audit partner perspectives on the effects of AS 1220. In total, 42 of the partners interviewed were partners in the U.S. affiliates of Big Four firms. Of the 74 partners interviewed, 38 served as EP for the inspected engagement and 36 served as the EQ reviewer. Audit practice leaders of the same 13 firms were also interviewed to obtain their views on the impact of AS 1220. Interview questions generally related to: how AS 1220 impacted the EQR process, EQR assignments, and the usage of assistants; the nature and extent of the communication between the EQ reviewer and the engagement team, and the EQ reviewer and the audit committee; if there were any unintended consequences; and if/how AS 1220 could be improved. We do not provide further details on the interview process or the questions asked to preserve the confidentiality of the PCAOB inspection process. While interviews provide useful insights into audit firms' and partners' perceptions of the effects of AS 1220 and can help us interpret quantitative results, we acknowledge that the use of such interviews is also subject to inherent limitations including, for example, response bias and other systematic incentives.