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ABSTRACT

This paper examines how audit oversight by a public-sector regulator affects investors' assessments of reporting credibility. We analyze whether market responses to unexpected earnings releases increase following the introduction of the Public Company Accounting Oversight Board (PCAOB), as predicted by theory if the new regime enhances reporting credibility. To identify the effects, we use a difference-in-differences design that exploits the staggered introduction of the inspection regime, which affects firms at different points in time depending on their fiscal year-ends, auditors, and the timing of PCAOB inspections. We find that market responses to unexpected earnings increase significantly following the introduction of the PCAOB inspection regime. Corroborating these findings, we also find an increase in abnormal volume responses to firms' 10-K filings after the new regime is in place. Overall, our results are consistent with public audit oversight increasing the credibility of financial reporting.

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1. Introduction

As the accounting scandals in the early 2000s illustrated, reliable financial reporting is a cornerstone of trust in the stock market, which in turn plays a key role for investor participation (Guiso et al., 2008). In an effort to restore trust in financial reporting after the scandals, the U.S. Congress passed the *Sarbanes-Oxley Act* (hereafter, "SOX"). One of its core provisions was the creation of the Public Company Accounting Oversight Board (hereafter, the "PCAOB") and the requirement that the PCAOB inspect all audit firms (hereafter, "auditors") of SEC-registered public companies (hereafter, "firms" or "issuers"). The introduction of the PCAOB represents a major regime shift in auditing, replacing self-regulation with public oversight.

Even after years of experience with the new regime, widespread skepticism remains that the PCAOB and its inspection regime have changed the credibility of financial reporting and reassured investors.[1] In response to this skepticism, there has been a call for more economic analysis of the PCAOB's activities and of SOX in general (e.g., House Oversight Committee, 2012; Coates and Srinivasan, 2014). While prior studies examine many aspects of PCAOB inspections, we lack evidence as to whether the new oversight regime has enhanced reporting credibility as well as on the broader economic question of whether audit oversight by a public-sector regulator enhances reporting credibility.[2]

In light of numerous agency problems in auditing (e.g., Watts and Zimmerman, 1983), public oversight could, in principle, increase audit quality and in turn raise the credibility of financial reporting. But it is not clear that public oversight necessarily improves upon peer

[1] See, for example, Wall Street Journal (7/2/2010) "A Missed Opportunity to Kill Sarbox" and Washington Post (7/11/2010) "Critics question effectiveness of auditing oversight board."

[2] We define reporting credibility as the extent to which investors trust or have confidence in firms' audited financial statements. Following prior work (e.g., Holthausen and Verrecchia, 1988; Hackenbrack and Hogan, 2002; Wilson, 2008; Chen et al., 2014), we operationalize this construct by measuring how strongly investors respond to a given amount of earnings news. Ceteris paribus, the market response should increase if investors trust the numbers more.

review. Prior work in auditing discusses the economic tradeoffs between expertise, incentives and independence (e.g., Hilary and Lennox, 2005; DeFond, 2010; Anantharaman, 2012; DeFond and Zhang, 2014). Similarly, work in regulatory economics suggests that public oversight is not necessarily an improvement over self-regulation considering the potential problems with public-sector regulators, such as resource constraints, inefficient bureaucracies, regulatory capture, and political pressures (e.g., Demsetz, 1968; Stigler, 1971; La Porta et al., 2006). Consistent with these concerns, Hilzenrath (2010) states that "the [PCAOB] looks a lot like the system it was designed to replace: slow to act, veiled in secrecy and weak—or weak willed." Similarly, Glover et al. (2009) characterize the PCAOB's inspection model as "inefficient and dysfunctional."

For these reasons, the effect of the new PCAOB regime on reporting credibility is not obvious. Another complication is that investors should respond negatively to restatements or the revelation of deficiencies in the audits of particular engagements or particular auditors. It is only if these outcomes indicate improvements in audit quality going forward, spilling over to other engagements and auditors and hence leading to broader improvements in audit quality, that we expect reporting credibility to increase. In this regard, it helps that the PCAOB does not reveal which audit engagements were inspected, but produces a number of publicly observable outcomes, notably auditor-level inspection reports, which allow investors to form updated assessments of the PCAOB regime. Similarly, investors can potentially draw inferences about the new regime from observed changes in corporate reporting (such as restatements).

The hypothesized mechanism for a link between public audit oversight and reporting credibility is that PCAOB inspections identify meaningful deficiencies in the way audits are conducted, leading to subsequent improvements in auditing procedures that extend beyond a single engagement. Investors learn about these broader changes and adjust their assessments of

reporting credibility accordingly.[3] While our primary analysis focuses on market-wide changes in reporting credibility around the rollout of the PCAOB inspection regime, we also provide extensive descriptive evidence on the proposed mechanism.

We assess changes in investors' assessment of reporting credibility based on changes in short-window stock market reactions to earnings announcements (i.e., earnings response coefficients or ERCs). We focus on ERCs for two reasons. First, conceptually, ERCs tie directly into reporting credibility. Based on Holthausen and Verrecchia (1988) and Kim and Verrecchia (1991), the magnitude of the ERC increases in investors' beliefs that reported earnings reflects economic performance (see also Kormendi and Lipe, 1987; Collins and Kothari, 1989; Easton and Zmijewski, 1989). Consistent with this interpretation, Wilson (2008) and Chen et al. (2014) show that ERCs decline after firms restate their earnings. Teoh and Wong (1993) also use ERCs as a credibility measure and show that firms with more reputable ("Big-8") auditors have higher ERCs. We also provide additional validation of the ERC as a reporting credibility measure. Second, ERCs allow us to measure changes in reporting credibility at specific points in time (e.g., before and after the first inspection), which facilitates the identification of capital-market effects attributable to the new audit oversight regime.

Given many other concurrent market and regulatory events could also affect reporting credibility, our primary empirical challenge is to isolate the effects of the PCAOB regime from these other events. Of particular concern are: (i) market responses to the accounting scandals that ultimately gave rise to SOX and (ii) other SOX provisions unrelated to audit oversight. For instance, after the Enron scandal, investors likely expected firms to provide more assurance about their financial reporting, even in the absence of a regulatory response (e.g., Leuz and

[3] Our analysis is based on the joint hypothesis that (i) audit oversight has effects and (ii) investors have reasonably accurate assessments of changes in audit oversight and audit quality. Thus, a no-result in our analysis could have several explanations and could occur even if public audit oversight has improved audit quality.

Schrand, 2009). Similarly, regulatory changes for internal controls (as stipulated by SOX Section 404[b]) could have improved reporting credibility independent of public audit oversight.

To overcome these challenges, our identification strategy exploits the staggered introduction of the PCAOB inspection regime, which affects firms at different points in time depending on their auditors, fiscal year-ends, and the timing of PCAOB inspections. The PCAOB introduced its inspections in three phases: (i) one-time limited-scope inspections for the U.S. Big-Four auditors in 2003 (i.e., Deloitte & Touche, Ernst & Young, KPMG, and PricewaterhouseCoopers); (ii) annual full inspections for auditors with more than 100 issuers beginning in 2004 (hereafter, "large auditors"); and (iii) triennial, full inspections for auditors headquartered in the U.S. that issued a report for at least one, but no more than 100 issuers, beginning in 2004 (hereafter, "small auditors"). We analyze all three phases using a difference-in-differences design comparing ERCs before and after the respective inspections have taken place. As it is difficult to predict exactly when the market would adjust its assessment of credibility, we estimate effects using two alternative cutoff dates for the start of the new regime, with the earliest being the conclusion of the PCAOB's fieldwork for a particular auditor and the latest being the release of the inspection report.

Our first set of analyses examines changes in reporting credibility around limited inspections of U.S. Big-Four auditors and full inspections of large auditors. As the one-time limited and the initial full inspections occurred at roughly the same time for all large auditors, we use non-U.S. firms traded on U.S. exchanges (i.e., cross-listed firms) with non-U.S., Big-Four (plus Grant Thornton) affiliated auditors as a benchmark. These cross-listed firms are subject to U.S. market events as well as other aspects of the U.S. regulatory regime, but their non-U.S. auditors were outside the scope of the PCAOB's initial inspections. We include country-fixed

effects as well as country-specific coefficients for unexpected earnings to control for unobserved heterogeneity in market responses to earnings news across countries. We also include year-quarter fixed effects to absorb intertemporal changes and market-wide shocks to ERCs.

Consistent with public audit oversight increasing investors' perceptions of financial reporting credibility, we find that the ERCs of firms whose auditors were subject to the new PCAOB inspection regime increase significantly compared to the ERCs of the control sample. The effect is statistically and economically significant after the PCAOB releases the reports from its 2003 limited inspections and strengthens after the PCAOB conducts the 2004 full inspections.

In light of prior research documenting that the transitory nature of losses leads to lower ERCs for firms with negative earnings (Hayn 1995), we separately examine market responses to unexpected earnings for profit and loss firms. If ERCs are significantly attenuated for loss firms, our results should be strongest for (or perhaps even limited to) profit firms. In addition, if the fraction of firms reporting losses varies over time (e.g., due to changes in macroeconomic conditions over the regime change), our inferences could be biased. Thus, we allow our estimated ERC coefficient to vary for profit and loss firms *and* over time. Results from this specification indicate that the documented increase in credibility following the introduction of the PCAOB inspection regime stems primarily from firms reporting profits. Similarly, we confirm that our results hold allowing for nonlinearities in the ERC as well as changes in nonlinearities (and extreme earnings surprises) over time.

We perform a number of additional analyses to corroborate or improve our identification strategy. First, we provide evidence on the validity of the parallel-trends assumption and report results based on a control sample constructed using coarsened exact matching. Second, we explore the possibility that other concurrent changes in firms' information environments affect

our analysis. We show that our findings cannot be explained by changes in: (i) the magnitude of unexpected earnings, (ii) the timing and relative amount of disclosures prior to the earnings announcement, (iii) analysts' forecast bias, (iv) the accrual component of reported earnings, (v) management earnings guidance or (vi) guidance bundling. Third, we show that ERC increases after the regime change are *not* concentrated in former Arthur Anderson clients and are present, and even stronger for, firms that were exempt from SOX Section 404[b] compliance—which indicates that our findings are not attributable to other SOX provisions or market responses to the accounting scandals. We also show that our results are robust to separately controlling for SOX Section 302 and Section 404[b] compliance.

To further disentangle the impact of the new oversight regime from other concurrent events, we examine changes in reporting credibility for firms with small auditors, for which the PCAOB phased in inspections over three years. This staggered implementation allows us to estimate ERC changes *within* small auditors using only variation in the timing of the inspections, which further mitigates concerns about the parallel-trends assumption compared to the earlier analysis, which relies on foreign firms as the control group. Specifically, in this analysis, we include year-quarter fixed effects to control for all observed *and* unobserved economic shocks, including other regulatory changes common to small auditors. We also show that, for small auditors, there is little overlap between the introduction of PCAOB inspections and other SOX provisions. Thus, our fixed effects structure should separate the effects of the PCAOB regime and other SOX provisions. Again, our results indicate a significant increase in ERCs, concentrated in profit firms, over the rollout of the PCAOB inspection regime.

Finally, we use abnormal trading volume around issuers' 10-K filings as an alternative proxy for reporting credibility. While this proxy is conceptually less appealing than ERCs, it

draws on the idea that investors trade more in response to 10-K filings if the reports are more credible. Consistent with this prediction, and the ERC results, we find that abnormal volume responses to firms' 10-K filings increase after the introduction of PCAOB inspections.

Overall, our analyses provide evidence of an increase in financial reporting credibility following the introduction of the PCAOB and its inspection regime. These findings contribute to the existing literature in several ways. First, we provide evidence that public audit oversight can have substantial capital-market benefits by enhancing the credibility of, and investor trust in, audited financial reports. This evidence contributes to the long-standing question of how to motivate and audit auditors. As noted in DeFond (2010 and 2012), prior studies focus primarily on litigation and reputation as mechanisms to incentivize auditors. Our study examines the effect of public oversight. As such, our results also add to the literature on the relative merits of private versus public enforcement of regulation (La Porta et al., 2006; Jackson and Roe, 2009).

There is already a large literature studying the introduction of the PCAOB (see Abernathy et al., 2013 and DeFond and Zhang, 2014; for reviews). Prior work investigates differences in audit quality across firms whose auditors are subject to PCAOB inspections (or not) using variation in inspections of non-U.S. auditors (e.g., Lamoreaux, 2013; Fung et al., 2014; Krishnan et al., 2014; Shroff, 2015) as well as the effects of inspection reports (including their content such as unfavorable findings) on equity prices, audit quality, and client responses (e.g., Hermanson et al. 2007; Lennox and Pittman, 2010; DeFond and Lennox, 2011; Gramling et al., 2011; Offermanns and Peek, 2011; Abbott et al., 2013; Gunny and Zhang, 2013; Boone et al., 2014; Acito et al., 2016; DeFond and Lennox, 2016). In addition, there is evidence on market reactions and client responses to PCAOB sanctions against Deloitte & Touche in 2007 (e.g., Dee et al., 2011; Boone et al., 2014). Although the evidence from these studies is somewhat mixed, it

generally supports the notion that markets and clients respond to PCAOB inspection reports. While these prior studies are informative about the mechanisms through which PCOAB inspections could increase investor confidence, our study focuses on capital-market responses to the regime change and examines overall changes in reporting credibility to provide a market-based assessment of the new public oversight regime. The two approaches are complementary.

Second, our paper lends further empirical support to the notion that financial reporting credibility is priced in markets by exploiting a setting in which a regulatory change could affect reporting credibility, yet required disclosures remain largely the same. We show that ERCs are quite sensitive to credibility changes, especially for profit firms.

Third, our study answers the call by Coates and Srinivasan (2014) for more evidence on the economic impact of SOX. There is a large literature evaluating the economic consequences of SOX (see Leuz, 2007; Coates and Srinivasan, 2014; Leuz and Wysocki, 2016). Many of these studies assess the effects of SOX as a whole. This evidence, however, does not speak to specific changes, such as the introduction of public audit oversight. We provide evidence that an integral part of SOX regulation—the introduction of the PCAOB and its inspection regime—is associated with significant capital-market benefits. While such evidence is important given the significant direct and indirect costs of PCAOB inspections, we hasten to add that our paper neither provides evidence of net benefits nor a complete cost-benefit analysis.

2. Market-based Approach and Institutional Setting

Our empirical analysis connects key dates for the rollout of the PCAOB oversight regime with subsequent changes in the market's assessment of reporting credibility for U.S. firms. We deliberately take this approach of studying market-wide shifts in investor perceptions. An alternative approach would be to study specific process outcomes (e.g., inspection findings, audit

hours, audit opinions, etc.). While studying such outcomes is clearly important, they do not tell us whether public oversight has enhanced reporting credibility as intended.[4] Inspection findings or increases in audit hours do not necessarily imply that investors trust the audited financials more. In fact, after negative outcomes (e.g., inspection findings, restatements), the reporting credibility of a particular firm and its auditor likely decreases. For this reason, we do not focus on individual inspection reports and specific audit outcomes, but examine whether the new public oversight regime has increased reporting credibility for U.S. firms as a whole.[5]

A drawback of this market-based approach is that it does not provide evidence on the specific mechanism through which PCAOB oversight affects reporting credibility. It is therefore useful to be explicit about the presumed mechanism that links the oversight regime to changes in investors' assessments of credibility. Specifically, a credibility effect presumes that: (1) the PCAOB regime represents a meaningful change in audit oversight relative to the peer-review regime; (2) PCAOB inspections identify meaningful deficiencies in the way audits are conducted, leading to subsequent improvements that extend beyond a single engagement; and (3) investors learn about these changes and adjust their assessments of the overall credibility of U.S. firms. To gauge the plausibility of this mechanism, we conduct an extensive search for descriptive, institutional and academic evidence for each of the three elements. Appendix A presents this evidence in detail. Below, we provide a short summary.

First, we ask whether the shift from peer review to PCAOB oversight represents a meaningful change in audit oversight. To this end, Appendix A §1 provides a detailed discussion of both the AICPA-coordinated, peer-review regime and the PCAOB inspection regime,

[4] In addition, there is the issue that audit quality proxies are typically slow moving and computed over several years (e.g., discretionary accruals), which makes it difficult to distinguish the effects of the PCAOB inspections from concurrent changes (e.g., other SOX provisions).

[5] Consistent with this point, we find stronger results (untabulated) when excluding firms with restatements. These findings for firms without restatements are consistent with credibility effects spilling over to other firms.

focusing on program independence, scope, and penalties. The peer-review regime was funded by the profession and auditors were inspected by other auditors. Peer reviews were typically conducted from an auditor's head office and focused primarily on firm-wide issues (e.g., personnel management, client acceptance, quality control). The public report provided only a summary opinion on the adequacy of the quality control system. Peer reviews were relatively infrequent—occurring only once every three years, even for large auditors. The peer review process was initially designed to be non-punitive and had little enforcement authority. Even when this authority was granted, enforcement powers were limited and penalties were seldom issued (Fogarty, 1996). Numerous commentators raised concerns about the perceived lack of independence and weak enforcement (e.g., Fogarty, 1996; Hilary and Lennox, 2005; Glover et al., 2009; Doty, 2011).

In contrast, the PCAOB is a quasi-public agency established by SOX, funded largely by issuers, and overseen by the SEC. Section 104 of SOX tasks the PCAOB with the responsibility to inspect registered accounting firms with respect to their audits of public issuers. PCAOB inspections extend to the (issuer-specific) engagement level. The inspectors are PCAOB employees and, often, former auditors. For large auditors (i.e., those that issued audit reports for more than 100 issuers during the prior calendar year), the PCAOB conducts annual inspections—all other auditors are subject to triennial inspections.[6] A PCAOB inspection provides an assessment of an auditor's compliance with SOX, the rules and standards of the PCAOB, SEC rules, and professional audit standards (PCAOB, 2004a). A full inspection consists of: (1) reviews of selected audits, (2) evaluations of the sufficiency, documentation, and communication

[6] Technically, the PCAOB inspects small auditors *at least* once every three years, i.e., some small auditors are inspected more frequently. The distinction between annual and triennial inspections applies to both U.S. and non-U.S. auditors. The PCAOB has inspected non-U.S. auditors since 2005, either in coordination or jointly with the home-country regulator, but not in all non-U.S. jurisdictions.

of the quality control systems, and (3) other testing of audit procedures as deemed necessary. The PCAOB is endowed with substantial enforcement authority and a wide array of penalties. Appendix A §2 details the extent of potential penalties and provides evidence on their use. From 2003 through 2012, the PCAOB issued 131 Rule 5300 sanctions based on 56 unique violations.

In sum, there are numerous important differences between the two regimes in terms of independence, scope, and penalties. Thus, the regime shift to public oversight is economically meaningful and as such has the potential to affect audit quality, for better or worse.

Second, we provide descriptive evidence that (i) PCAOB inspections identify meaningful weaknesses and deficiencies in the way audits are conducted and that (ii) these findings lead to subsequent changes in auditing and reporting, beyond a single engagement. Conceptually, future improvements in audit procedures beyond a single engagement are critical for the market to increase its overall assessment of reporting credibility, as the mere identification of previously unidentified deficiencies would likely lower investors' credibility assessments.

Appendix A §3 tabulates the frequency of restatements mentioned in PCAOB inspection reports over time as well as further details on the nature of the restatements. These restatements can arise because inspections and their findings: (i) uncover material departures from GAAP; (ii) lead auditors to perform additional procedures, which in turn uncover material departures from GAAP; and (iii) lead issuers to review their financial statements and uncover material departures from GAAP. From 2003 to 2005 alone, PCAOB inspection reports disclosed 84 restatements in connection with their inspection findings. Although not all subsequent restatements identified in the reports were necessarily caused by PCAOB inspections, some clearly were. This analysis provides concrete examples and descriptive evidence that PCAOB inspections lead to *publicly observable* reporting changes for audited issuers.

Next, we highlight that the PCAOB regime not only identifies deficiencies but also requires *subsequent* changes in audit procedures (so-called remediation). Appendix A §4 provides details on the remediation process. To briefly illustrate, we discuss the steps of a typical inspection. During fieldwork, inspectors might identify potential deficiencies in one or multiple audit engagements. The PCAOB gives the auditor the opportunity to respond. If the response is not satisfactory, the deficiency is included in the inspection report as a "Part I finding." The inspection report neither reveals which engagements were inspected nor which engagements had Part I findings. As evidenced by the inspection reports for the Big Four, initial limited and full inspections led to numerous Part 1 findings. Auditors are required under PCAOB Rules AS 2901 and 2905 to remediate Part 1 findings, both contemporaneously by performing additional audit work to validate the issued opinion, and prospectively on future audit engagements.

Appendix A §4 provides several replies by large auditors to PCAOB inspection reports, stating that the inspections lead to many changes in audit policies, procedures, technology, and training. The replies make it clear that these changes extend beyond a specific engagement and are typically firm wide. For example, during the 2004 inspection cycle, the PCAOB identified a GAAP misapplication for five Deloitte engagements (related to the classification of current liabilities under EITF 95-22). After the inspection finding, Deloitte undertook a firm-wide review of this practice and identified the same error in three additional engagements. The PCAOB also brought this issue to the attention of other auditors, which led to further restatements (see Appendix A §3). Thus, these examples illustrate how inspection findings can spillover to other engagements within the same auditor as well as across auditors.

In addition, the PCAOB evaluates auditors' firm-wide quality controls. This aspect of the inspections is particularly important to us because quality control criticisms by definition extend

beyond a single engagement and hence can lead to *auditor-wide* changes in procedures. If the PCAOB has quality control criticisms, but the auditor addresses them successfully within a twelve-month remediation period, the findings remain confidential. Otherwise, the PCAOB publicly releases these criticisms as "Part II findings." The PCAOB notes in its Release 104-2006-078 that all Big-Four auditors had quality control criticisms in their initial limited inspections in 2004 (see also Church and Shefchik, 2012). Importantly, these deficiencies were not disclosed as Part II findings because they were satisfactorily remediated, which provides further evidence on auditor-wide quality control changes as a result of PCAOB inspections.

Third, our proposed mechanism presumes that there is public information about the PCAOB regime and the resulting changes in auditing practices. Otherwise, it is not clear why the market's assessment of reporting credibility would change. In Appendix A §5, we illustrate that there are numerous public sources that would have allowed investors to learn about the scope and effectiveness of the PCAOB oversight regime. Starting with the legislation that created the PCAOB and the initial authoritative pronouncements issued by the PCAOB about the inspection and enforcement regime, investors could have formed expectations about the effects of the regime on reporting credibility. Subsequently, PCAOB inspection reports and auditors' responses to these reports are another important source of detailed public information about the regime that allow investors to update their expectations (see also Table 4C in Appendix A §4). In addition, investors can see changes in corporate reporting. For instance, Hennes et al. (2008) documents a large increase in restatements after the introduction of SOX and the PCAOB.

News media are another source of public information about the PCAOB regime and the ensuing changes. From the time of the initial limited inspections of the Big Four, there was substantial press coverage (e.g., by *The Wall Street Journal* and *The Financial Times*) of the

PCAOB's activities, inspection reports, and auditor responses. Table 5C presents examples of this media coverage. Finally, information about the PCAOB regime could also travel via private channels (e.g., audit committees). Thus, investors clearly had substantial amounts of meaningful information from several sources about the introduction of the PCAOB regime based upon which they could have formed and updated their assessments of its effects on reporting credibility.

In sum, there is substantial institutional and descriptive evidence supporting each of the three links of the presumed mechanism through which the PCAOB inspection regime could translate into greater reporting credibility for U.S. firms.

3. Research Design, Sample Selection, and Descriptive Statistics

3.1 Defining and Measuring Reporting Credibility

External audits are intended to provide reasonable assurance that firms have faithfully followed GAAP and that financial statements are free of material misstatements. As such, auditing should enhance reporting credibility. However, the accounting scandals in the early 2000s were a major shock to the credibility of U.S. corporate reporting as well as the assurance provided by auditors. SOX and the introduction of public audit oversight were meant to mitigate these concerns and restore investor trust in financial reporting and auditing (e.g., Economist, 2014). Given this regulatory motivation, our analysis focuses on investors' assessments of financial reporting credibility. This focus also makes sense considering that public oversight of external audits does not (necessarily) come with new disclosures, as do other SOX provisions.

We define reporting credibility as the extent to which investors trust or have confidence in firms' audited financial statements. We use the magnitude of short-term market responses to earnings news as our primary measure of reporting credibility, which is commonly called the earnings response coefficient (ERC). The theoretical motivation for this proxy is that, all else

equal, investors should respond more strongly to a given earnings surprise if they have more confidence that the reported earnings truthfully reflect economic performance. Holthausen and Verrecchia (1988) use a noisy-rational expectations model with two consecutive information releases, an analyst forecast and a subsequent earnings announcement, and show under fairly general conditions (i.e., their Proposition 1) that the variance of the price reaction to the second release (i.e., the earnings announcement) is unambiguously non-decreasing in the signal-to-noise ratio of the earnings surprise. An increase in reporting credibility is tantamount to an increase in the signal-to-noise ratio and, specifically, a decline in investors' assessments of the noise in the earnings signal (see also Kim and Verrecchia, 1991). Thus, if the introduction of public audit oversight is effective in increasing reporting credibility, the aforementioned theory predicts an increase in the market response to earnings news and hence the ERC.

We recognize that stricter audit oversight could have effects beyond reporting credibility and could, for instance, indirectly change firms' disclosure and reporting. For instance, when facing stricter oversight, auditors could force firms to provide additional explanations about their accounting choices. The effects of such changes are harder to sign and it is not clear when they would manifest in market responses. If such additional disclosures are provided in the earnings announcement itself, they are presumably also captured by the market response (ERC). If they are released prior to the earnings announcement, they should be reflected in investors' (or analysts') earnings expectations. And if such additional disclosures are made later (e.g., in the 10-K), then they do not affect the market responses at the earnings announcement. Thus, we acknowledge that our analysis of the market response around earnings announcements does not capture all reporting effects. But, regardless of their timing, as long as the news effects of such disclosures do not systematically go in one direction, they should not alter our prediction.

The same argument applies to reporting changes. For instance, auditors could become more forceful in reining in earnings management as a result of the new oversight regime. If managers sometimes over-report and at other times under-report earnings, and auditors equally reduce both forms of bias, then the prediction still is that stricter audit oversight increases market responses to earnings news. That said, it is conceivable that the effects of audit oversight on reporting changes are not symmetric. For instance, less under-reporting of losses (profits) should lead to stronger (weaker) market reactions, all else equal. There could also be differential effects on the composition of the transitory and permanent components of earnings. For example, with stricter oversight, auditors could insist more strongly on the recognition of impairments, which adds a transitory component to earnings. Given these possibilities, we carefully gauge the extent to which disclosure and reporting changes affect our inferences (see Section 4.2 for details).

In addition to having a sound theoretical underpinning, there is substantial empirical precedent for using ERCs as a proxy for investors' assessments of reporting credibility (see Kothari, 2001; Dechow et al., 2010, for reviews). Many empirical studies use ERCs in audit-specific settings to assess the capital-market effects of audit quality and as a proxy for reporting credibility (e.g., Teoh and Wong, 1993; Hackenbrack and Hogan, 2002; Francis and Ke, 2006; Wilson, 2008; Marshall et al., 2013; Chen et al., 2014). In Internet Appendix §7, we provide descriptive evidence on how ERCs align with other measures of reporting credibility and an ERC analysis around the PCAOB's first enforcement action against a Big-Four auditor (Deloitte & Touche) to lend further support to the use of ERCs as a proxy for reporting credibility.

From a research design perspective, ERCs are also well suited for assessing the impact of the PCAOB inspection regime on reporting credibility. ERCs are less anticipatory in nature than other capital-market outcomes such as returns or the (implied) cost of capital because the market

is not expected to change its response to unexpected earnings until after the new regime is in place and auditors have been treated. This feature of ERCs allows us to exploit the staggered rollout of the PCAOB inspection regime in our research design.

However, ERCs also require assumptions and have disadvantages. First, ERCs reflect features of earnings besides reporting credibility (e.g., the persistence of an earnings surprise) as well as other firm characteristics (e.g., Collins and Kothari, 1989; Hayn, 1995). Second, ERCs require a measure of expected earnings to determine earnings news. We use analyst forecasts, which are known to exhibit biases and to imperfectly reflect investors' expectations. Third, ERCs are not directly observable for a given earnings announcement but need to be estimated from a sample of announcements. This requirement likely introduces noise and reduces the power of our analyses. In general, however, as long as the regime change does not also systematically change the shortcomings in ERCs, they will be differenced away in our difference-in-differences design. Nevertheless, we use several approaches to deal with noise in the ERC estimation, and we also consider abnormal volume reactions around the release of firms' 10-Ks as an alternative measure of reporting credibility (see the discussion in Section 4.4).

3.2 Research Design, Control Firms, and Timing of Regime-Change

Our identification strategy exploits the staggered introduction of the PCAOB regime, which affects issuers at different points in time depending on their fiscal year-ends, their auditors, and the timing of PCAOB inspections. In June 2003, the PCAOB began limited inspections of U.S. Big-Four auditors.[7] The PCAOB conducted fieldwork and released inspection reports at approximately the same time for all limited inspections (see Appendix B,

[7] Limited inspections involved all components of full inspections, but were scaled down in extent (e.g., the number of individual audit engagements inspected) because at that time the PCAOB was in the process of staffing-up and building-out its inspection regime (PCAOB, 2004b). The U.S. Big Four voluntarily agreed to participate in the limited inspections since the official PCAOB registration process had not yet begun.

Panel A for details). In 2004, the PCAOB conducted full inspections of large auditors and the first round of triennial inspections of small U.S. auditors. We examine the effects of the new regime on reporting credibility for each of the three distinct phases over which the PCAOB regime was introduced (i.e., limited, full, and triennial inspections). For each phase, we use difference-in-differences estimation to identify the credibility effects of the regime change.

Because the limited and initial full inspections were clustered in time (see Appendix B, Panel A), our tests rely on non-U.S. firms that are cross-listed on U.S. exchanges as a control group. This control group has several desirable features. First, control firms are audited by non-U.S. Big-Four and Grant Thornton affiliates not subject to PCAOB inspections in 2003 or 2004. Second, the SEC required cross-listed, non-U.S. issuers to comply with other provisions of SOX at the same time as domestic issuers (with one exception discussed later).[8] Third, these issuers are exposed to U.S. market conditions and the U.S. information environment. These features increase the likelihood that the treatment and control groups would have had similar ERC trends in the absence of the PCAOB inspection regime (Lang et al., 2003). In Section 4.1, we empirically examine the validity of this parallel-trends assumption.

The non-U.S. control group also has limitations. First, cross-listed issuers could be subject to similar treatments in their home countries if they implement audit oversight reforms similar to those prescribed by SOX.[9] Furthermore, it is possible that non-U.S. auditors change their audit procedures because the PCAOB inspects their U.S. affiliates. Such regulatory spillover effects within an auditor network would lead us to underestimate the impact of the U.S. audit oversight regime. Finally, the non-U.S. control group is relatively small compared to the

[8] In Appendix A §6, we provide details on the timing of the adoption of other SOX provisions broken down by U.S. versus foreign firms and accelerated filer status.

[9] In Appendix A §6, we provide details on the adoption timing of public audit oversight regulation in other countries and discuss our basis for concluding that these regulations likely have little impact on our analyses.

treatment sample, which reduces the power of our tests.

In the triennial inspection analyses, we use firms with small auditors that the PCAOB has not yet inspected as the control group because the PCAOB phased-in inspections over three years. Thus, we can identify the effects of the new oversight regime based solely on differences in the timing of the inspections.[10] The staggered introduction and the within-group design greatly mitigate concerns about unrelated economic shocks, concurrent regulatory changes (including SOX), and the parallel-trends assumption. The primary drawbacks of this analysis are: (i) the relatively small sample of issuers with triennially-inspected, small auditors and (ii) the possibility that, in the later inspection years, auditors could make anticipatory adjustments ahead of PCAOB inspections based on the results from prior inspections of other auditors.[11] These drawbacks decrease the likelihood that we find a significant treatment effect.

Another important research-design challenge is determining when to measure changes in reporting credibility. In Appendix B, Panel B, we present a stylized timeline for the introduction of the PCAOB regime and the related changes in reporting credibility and ERCs. This timeline provides the conceptual underpinnings for our research design. We begin with the assumption that the accounting scandals in 2001-2002 represent a shock to reporting credibility, leading to a decline in the baseline level of credibility (at *t-5*). The market's assessment of credibility $C_t[\cdot]$ is not readily observable but can be measured at earnings announcements using the ERC. The credibility shock is captured by a decline in the ERC_{t-4} (relative to the ERC_{t-6}). Next, SOX passes and the PCAOB is established (at *t-3*). At that point, investors form expectations about the new

[10] It is possible that the PCAOB initially inspected auditors with a higher risk of having deficient audits. However, such selection does not pose a problem because we estimate average effects for a full three-year inspection cycle.

[11] The concern about adjustments ahead of PCAOB inspections also arises in our large-auditor analysis, though to a lesser extent. Anecdotally, the large number of Part I findings from the early inspection reports provides little indication of anticipatory improvements on the part of the auditors. Moreover, even if auditors did make anticipatory changes it is unclear whether market participants would find voluntary changes credible in the post-Enron period.

oversight regime, i.e., the expected treatment E(T), and the ensuing effects of the new regime on reporting credibility, C[E(T)].

The market response to earnings announcements should not change until auditors are actually treated by the new regime and have had an opportunity to adjust their audit procedures, as indicated by $ERC_{t-2} = ERC_{t-4}$. We assume that the earliest possible date this could occur is the completion of the PCAOB's inspection fieldwork for a particular auditor (at *t-1*). The ERC at this time may reflect an updated assessment of the treatment effects, indicated by E'(T). The latest date for an ERC response is the public release of the inspection report (at *t+1*). As it is not obvious when exactly the market assumes that treatment has taken place, and hence when ERCs respond, we use both dates as alternative cutoffs, and estimate treatment effects based on ERCs at the first earnings announcements after these alternative dates (EA_t and EA_{t+2}, respectively). Note that the first earnings announcement is not only determined by the respective cutoff date, but also depends on firms' fiscal year-ends, providing additional staggering in the rollout of the regime that we can exploit for identification (see Appendix B).

Using the fieldwork-end date as the cutoff, we define an issuer as treated if its fiscal year-end occurs in, or after, the month inspection fieldwork ends for its auditor.[12] By that time, the auditor can use information gathered from its PCAOB inspection to improve audits that have not advanced out of the planning stage. If the inspection leads to improvements in audit quality beyond the inspected engagements, and investors learn about these improvements (or expect them to have taken place), reporting credibility should increase shortly after the completion of the PCAOB's fieldwork (*t-1*). Note, however, that many fiscal year-ends occur well after the completion of fieldwork and there is an additional lag from a firm's fiscal year-end until its

[12] For the Big Four, the fieldwork typically lasts between five to seven months. For small auditors, inspections are shorter, and hence we add 30 days to the completion of the fieldwork in defining the cutoff date. See Appendix B, Panels C-E for more details on timing and an illustration of our research design.

earnings announcement (EA_t). Thus, there is generally a considerable amount of time between the completion of the fieldwork and the time we measure the ERC effect, giving auditors time to adjust their audit procedures and for the market to become aware of these changes. There is an even longer period during which the market can assess the new regime when we use the release date of the PCAOB inspection report as an alternative cutoff date (*t+1*). Using the report release as the cutoff, we define a firm as treated if it announces its earnings after the date on which the PCAOB posts the inspection report for the firm's auditor on its website (measured at EA_{t+2}).

Importantly, the inspection reports do not reveal which issuers were inspected, but rather provide investors with more general information about audit quality and potential future changes in audit procedures arising from the inspections. Thus, the reports primarily serve as a way for investors to update their assessments of PCAOB oversight and its effect on reporting credibility, C[E''(T)].[13] This adjustment could go in either direction (as indicated at *t+1*). For instance, it is conceivable that the inspection reports reveal information suggesting that the oversight regime is less strict than expected (i.e., C[E''(T)]<C[E'(T)]). For this reason, we do *not* compute incremental changes in the ERC from the end of fieldwork to the report release (i.e., a comparison of EA_t to EA_{t+2}). Rather, we estimate *long-run changes* in (short-window) ERCs *relative* to the pre-inspection-regime period. Specifically, our regime change analysis tests the hypotheses that the post-fieldwork and post-inspection-report-release ERCs exceed the pre-treatment ERCs (i.e., $ERC_t \geq ERC_{t-2}$ and $ERC_{t+2} \geq ERC_{t-2}$, respectively).

3.3 Sample Selection and Composition

We obtain: (a) accounting, auditor, and market data from Compustat, (b) additional

[13] While the reports could provide information about specific auditors, our focus is on regime-wide changes, not auditor variation. Besides, all large auditors had multiple Part I findings in their initial inspections. Thus, it is not clear there is much variation across auditors based on the reports. As discussed in Appendix A §4, all Big-Four auditors also had quality control criticisms in the initial inspections that were remediated and thus not disclosed as Part II findings.

auditor data from Audit Analytics, (c) analyst forecasts and accounting data from I/B/E/S, (d) market data from CRSP, and (e) fieldwork and inspection dates from the PCAOB's website. All data are publicly available. For the limited and full-inspection analyses of annually-inspected auditors, we use observations over a four-year window surrounding treatment, including two fiscal years *before* and *after* the respective cutoff date. For the limited inspections, using the fieldwork (inspection report) cutoff date, the sample includes firms with fiscal year-end dates between December 2001 and November 2005 (June 2002 and May 2006). Thus, for the limited inspections, we include the full sample of cross-listed control firms because, at that time, there were no formal cooperative agreements between the PCAOB and home-country regulators of non-U.S. firms to conduct similar inspections in non-U.S. jurisdictions. For the full inspections of Big-Four and Tier-Two auditors, using the fieldwork (inspection report) cutoff date, the sample includes firms with year-end dates between June 2002 and December 2006 (July 2003 and November 2007). For the full-inspection control sample, we exclude cross-listed firms from countries that have an inspection agreement with the PCAOB during or before the analysis window.[14] We include control firms from countries that are unavailable for inspections.[15]

Panel A of Table 1 provides details on the sample composition for the treatment and control groups, by auditor, inspection type, and treatment dates for the limited and full inspection analyses. For the limited inspections, the number of treatment firms is similar across auditors. For the full inspections, the Big Four again contribute a similar number of treatment firms, while the Tier-Two auditors have fewer firms. Combining inspections, our treatment sample includes

[14] The PCAOB commenced full inspections on some non-U.S. Big-Four affiliates in 2005. KPMG Canada was the first inspected, with fieldwork beginning in April 2005. Australia signed an agreement with the PCAOB on July 16, 2007. We exclude Australian control firms when there is overlap with the timing of the full inspection report release. We also exclude firms from South Korea, which signed a confidential undated agreement with the PCOAB. See: http://pcaobus.org/International/Pages/RegulatoryCooperation.aspx for details.

[15] http://pcaobus.org/International/Inspections/Pages/IssuerClientsWithoutAccess.aspx (Accessed January 2015).

4,289 unique domestically-audited firms over 37,001 firm-years and the control sample includes 579 unique non-U.S. firms over 3,765 firm-years.[16] In the Internet Appendix (§1), we provide a breakdown of the treatment and control samples by the location of the auditor.

Table 1, Panel B provides details on the number of newly-inspected triennial auditors and their clients for each of the two alternative cutoff dates. The sample size is 1,229 and 918 firm-year observations, respectively. As expected, there is significant variation in inspection timing because of the triennial cycle. To avoid overlap with the 2008 financial crisis, our analysis excludes fiscal years ending beyond Q2 of 2008.

3.4 Descriptive Statistics

Panels A, B, and C of Table 2 present descriptive statistics for domestic issuers with annually-inspected auditors, non-U.S. auditors with annually-inspected global network U.S. affiliates, and triennially-inspected auditors, respectively. Here, we discuss only the control variables that enter our primary analyses. The remaining variables are discussed along with the corresponding analyses. In Panel A, the median domestic firm has a cumulative abnormal return (*CAR*) and unexpected earnings (*UE*) of nearly zero, positive earnings (*Loss* equals zero), a market cap of about $1 billion (*Size*), a *Market-to-Book* ratio of 2.3, liabilities 1.2 times its total equity (*Leverage*), positively auto-correlated earnings (*Persistence*), and a *Beta* coefficient near one. We count the number of days from the cutoff date (i.e., the end of fieldwork or report release) for the auditor's treatment by the PCAOB regime and the firm's next earnings announcement at which the *first* post-period ERC is measured (*Timing: Treatment to First EA (in days)*). The variable indicates that our design allows for a substantial time lag during which auditors could adjust audit procedures and investors could price the effects of the regime change.

[16] Non-U.S. Grant Thornton affiliates are included in the full inspection control sample. Other Tier-Two auditors are not included because Audit Analytics does not identify foreign affiliates of these auditors. We do not include Grant Thornton in the control group for the limited inspections to provide a clean within-Big-Four comparison.

As shown in Panel B, the control sample is generally similar to the treatment sample along most dimensions, including median *CAR*, *UE*, *Loss*, *Market-to-Book*, *Leverage*, and *Persistence*. The two groups of firms do differ in terms of *Size* and *Beta*, which is not surprising given that exchange-traded, cross-listed firms tend to be quite large. We mitigate the potential influence of these differences in two ways. First, we include these variables as controls (interacted with *UE*) in our primary analyses. Second, we conduct an additional analysis in which we explicitly match firms based on these characteristics. The descriptive statistics for the control variables for the triennially-inspected firms are reported in Panel C. As expected, these firms are smaller, more highly levered, and have returns that are less correlated with the market.

4. Empirical Results

4.1 Main Analysis

Our first set of analyses examines changes in reporting credibility for firms whose auditors were subject to the 2003 limited inspections and initial full inspections in 2004. We estimate the following equation (suppressing time and firm subscripts):

$$\begin{aligned} CAR = {} & \alpha + \beta_1 UE + \beta_2 Post + \beta_3 Treated + \lambda_n Controls + \gamma_n FixedEffects + \\ & \beta_4 UE \times Post + \beta_5 UE \times Treated + \beta_n UE \times Controls + \beta_n UE \times FixedEffects + \\ & \beta_6 Post \times Treated + \beta_7 UE \times Post \times Treated + \varepsilon \end{aligned} \quad (1)$$

CAR is the 3-day (*t-1*, *t=0*, and *t+1*) cumulative abnormal return, centered on the earnings announcement date and market-adjusted by the CRSP value-weighted index.[17] *UE* is the difference between the actual, annual EPS and the median-forecasted, annual EPS, both from I/B/E/S. *Treated* is an indicator that equals one when a firm's auditor is a U.S. Big-Four or Tier-Two auditor, and zero otherwise. *Post* is an indicator that equals one for firm-years after the cutoff date that defines the treatment of a firm's auditor (or its U.S. global-network-affiliate

[17] Results (untabulated) are similar when we instead calculate abnormal returns using equal-weighted index returns and when we use a Fama and French (1993) three-factor model adjustment.

auditor for the control firms) by the PCAOB inspection regime, and zero otherwise. We use two alternative cutoff dates—the fieldwork-end and inspection-report-release dates (see Appendix B for details). For analyses using the fieldwork-end date, *Post* equals one if a firm's fiscal year-end is in the same month as the final month of fieldwork or later. For analyses using the inspection-report date, *Post* equals one if a firm's fourth-quarter earnings announcement falls on or after the release date of the inspection report. Our primary coefficient of interest is β_7, which measures the incremental change in the ERC for firms whose auditors have been treated by the PCAOB inspection regime. A positive coefficient indicates an increase in the response to earnings news following the new regime, which we interpret as an increase in reporting credibility.

We include controls for a variety of firm characteristics shown by prior research to be important determinants of a firm's ERC. First, we include *Loss*, an indicator variable that equals one if a firm experiences an accounting loss and zero otherwise, as well as *UE*×*Loss*, the interaction of *UE* and *Loss*. Because losses are expected to be less persistent than profits, the earnings response to negative earnings is likely to be lower than for positive earnings (Hayn, 1995). Second, we include *Size*, *Market-to-Book*, *Leverage*, *Persistence*, *Beta*, and the interaction of each of these variables with *UE*, given that prior work shows that ERCs are a function of the riskiness, growth, and persistence in earnings (e.g., Collins and Kothari, 1989; Easton and Zmijewski, 1989; Dhaliwal et al., 1991).[18]

We include fixed effects for the auditor's global network and country of domicile, the year-quarter of the firm's fiscal-year-end date, and interactions of these fixed effects with *UE* as

[18] Two additional (untabulated) analyses suggest that any effect of the PCAOB inspections on our control variables does not affect our inferences. First, we find that the magnitude of the treatment effect is similar when we exclude firm-characteristic controls. Second, we find similar results when we include the lagged values of the controls.

indicated in the tables.[19] The first two sets of fixed effects control for cross-sectional ERC differences across auditors and countries. The year-quarter fixed effects flexibly account for changes in ERCs over time. We truncate all continuous variables, with the exception of *UE*, at the 1% and 99% level. Unexpected earnings are known to exhibit large outliers, especially in the left tail (e.g., Beaver et al., 1980; Collins and Kothari, 1989; Teoh and Wong, 1993; Kothari, 2001). Hence, we truncate *UE* at the 2.5% and 97.5% level. As a further control for extreme observations we estimate a weighted-least-squares ("robust") regression that places less weight on estimates with large absolute residuals.[20] We rely on the robust regression as our primary specification because we view it as an effective and non-discretionary way to reduce the influence of outliers.[21] In all tests, we cluster standard errors by firm.[22] We provide definitions of each variable in Appendix B.

Table 3, Panel A, Row (1) presents the robust regression results of Eq. (1) using each of the four alternative dates for the onset of PCAOB regime: limited inspection fieldwork (Column 1), limited inspection report release (Column 2), full inspection fieldwork (Column 3), and full inspection report release (Column 4). Because there is significant overlap in the measurement windows, the estimated effects for each measurement date cannot be interpreted cumulatively (or incrementally); they simply provide alternative estimates for the effect of the regime change. In

[19] Degrees of freedom limitations restrict the number of fixed effects we can include and interact with *UE* in Eq. (1) (e.g., at the firm or industry level). In the Internet Appendix (§2), we present results for two additional analyses that confirm that our results are robust to the inclusion of fixed effects for the Fama and French 12 industries and "pseudo-firm fixed effects," which are based on firm-characteristic and industry groupings.

[20] We perform robust regressions using Stata's "*rreg*" procedure, which eliminates any observations with a Cook's distance greater than one and weights the remaining observations based on the absolute residuals.

[21] Prior studies use a variety of approaches to deal with extreme *UE* observations, including deleting observations for which *UE* exceeds a specified percentage of price (e.g., 100%) and deleting observations with large standardized residuals (e.g., Collins and Kothari, 1989; Teoh and Wong, 1993; Francis and Ke, 2006; Chen et al., 2014). In the Internet Appendix (§3), we present scatter plots for untrimmed and truncated data across a variety of truncation levels and discuss several additional analyses to assess the sensitivity of our results to this choice.

[22] For all robust regressions, we calculate robust, firm-level-clustered standard errors using a weighted-least-squares regression based on the weights (and coefficients) from the robust regression. We confirm that our results are robust to double clustering by firm and earnings announcement month (untabulated).

Column (1), using the limited inspection fieldwork end date, *UE*×*Post*×*Treated* is positive but statistically insignificant. In Column (2), the treatment effect following the limited inspection report release is significant at the 10% level. In Columns (3) and (4), where *Post* is defined based on the full inspection fieldwork end date and the full inspection report release, respectively, *UE*×*Post*×*Treated* is positive and significant at the 5% level (at least) and ranges in magnitude between 1.149 and 1.600. Overall, these results indicate that the ERC effect starts to manifest after the PCAOB releases the limited inspection reports and is most pronounced after the first full inspections have taken place.

While the fieldwork-end and inspection-report-release dates for Big-Four auditors are clustered in time, the *Post* variable is coded based on clients' fiscal year-end dates. As illustrated in Appendix B, Panel F, this design provides substantial variation in the timing of the treatment across firms. In Column (5), we present results stacking the samples for the limited and full inspections and the fieldwork-end and inspection-report-release dates (hereafter, the "combined" sample), which effectively provides the average change in ERC across the four alternative measurement dates. This presentation is parsimonious without favoring a particular date, which is why we use it for the subsequent analyses. Stacking also exploits the variation in fiscal year-ends more effectively. *UE*×*Post*×*Treated* is positive and significant at the 1% level (Column 5). We view the coefficient of 0.788 for the combined sample as a conservative estimate of the treatment effect because it pools the relatively small response following the limited inspections with the larger response to the full inspections.

To gauge the economic magnitude of the coefficients, following Kothari (2001), we calculate what the observed change in the ERC implies if translated into a change in a firm's cost of equity capital. We use 10% as a benchmark cost of capital and assume that the earnings

surprise is a permanent shock that persists in perpetuity. This calibration is admittedly a simplification (e.g., the shock to earnings surprise might not be permanent and the mapping of *UE* to future cash flows could change). Using this approach, the coefficient in Column (5) is as large as a change in firm value due to a decline in the cost of capital by about 73 basis points.[23]

The key assumption underlying our identification strategy is that our treatment (domestic) and control (cross-listed) firms would have had similar trends in their ERCs absent the introduction of the PCAOB inspection regime (i.e., the parallel trends assumption). In the Internet Appendix (§4), we examine past trends in ERCs for our treatment and control firms and find no evidence that calls into question the validity of the parallel-trends assumption. Another way to assess the validity of the design and the parallel-trends assumption is to map out the treatment effect over time. We use our preferred specification and replace the single *Post*×*Treated*×*UE* interaction term with separate interactions for each of the years in our sample period, except for year immediately before the introduction of the PCAOB inspection regime. We graphically depict these results in Figure 1. The coefficients in the pre-regulation period for the incremental ERC are small and statistically insignificant, providing support for the parallel-trends assumption. The treatment effect begins to increase in period *T* and becomes economically and statistically significant in periods *T+1* and *T+2* (consistent with the stronger results after the introduction of full inspections above).

Although, we find no evidence that calls into question the parallel trends assumption, recall that our treatment and control firms differ along two observable dimensions—the log of

[23] Assuming a cost of capital of 10%, the benchmark ERC is 11 (1/.10+1). The small magnitude of empirical ERC estimates (relative to its theoretical value) is a ubiquitous feature of prior research (e.g., Kothari, 2001). Our calculation assumes that any downward bias in the baseline ERC stays roughly constant through time. Following this approach, the 73-basis point decline in cost of capital is calculated as 0.1000 – 0.0927, where .0927 is the cost of capital implied by an increase in the ERC of 0.788 (1/r+1=11 + 0.788). The magnitude of the change in the ERC we document is similar to prior research. For example, using the same calibration approach, Wilson (2008) and Chen et al. (2014), which look at changes in ERCs following restatements, document a decline in the ERC that implies a change in the value of the firm equivalent to a 32-70 basis point change in the cost of capital.

market value of equity (*Size*) and CAPM beta (*Beta*). For this reason, we also conduct an analysis using coarsened exact matching (CEM) (see Blackwell et al., 2010) based on these two firm characteristics. CEM relies on covariate weighting to construct a synthetic control sample, allowing us to preserve sample size. We coarsen our sample into 20 CEM bins (per matching variable), which reflects a tradeoff between preserving observations and ex-post similarity of the distributions of the matching variables across the treatment and control groups. We then use the weights from this coarsening in estimations of our primary specifications of Eq. (1).

Table 1 reports descriptive statistics for the domestic and cross-listed samples prior to matching. Domestic and cross-listed firms are similar across all of the control variables, with the aforementioned exception of *Size* (7.018 and 8.102 at the mean, respectively) and *Beta* (1.092 and 0.939, respectively). After applying the CEM weights, the average *Size* and *Beta* are very similar for the treatment and the control samples and, more generally, the distribution of observable firm characteristics is more balanced. Column (6) presents the regression results. When we apply the CEM weights, the results are consistent with those in our main analysis and we observe little attenuation in the magnitude of the estimated coefficient compared to the corresponding specification in Column (5) without CEM weights.

In Table 3, Panel A, Row (2), we present results from an alternative design that excludes pre-period fiscal year-ends that occur during PCAOB fieldwork and prior to the release of the inspection report. The alternative design reduces potential contamination effects from overlap in the pre- and post-period for the alternative cutoff dates (e.g., the fact that in the main design the pre-period for the report release overlaps with the post-period for the fieldwork). Appendix B, Panels C and D provide an illustration of the limited and full inspection designs without such overlap and "dropped observations." Results for the dropped observation analysis are similar and

generally have larger estimated ERC effects, which is consistent with the described overlap biasing against our results. To be conservative, we use the design without dropped observations as our main specification.

In Table 3 Panel B, we extend the analysis accounting for the limited market responses to accounting losses (as distinct from a negative *UE*). As noted before, profitable firms are expected to exhibit larger and more consistent ERCs than loss firms due to the transitory nature of losses (Hayn, 1995). Consistent with this reasoning, in our primary specification (Table 3, Panel A, Column (5)) the ERC for firms with negative earnings is near zero (untabulated). While the inclusion of the *Loss* indicator and its interaction with *UE* already account for the differential response, it is possible that the proportion of profit firms changes around the introduction of the new regime, which in turn could bias our estimated treatment effects. We therefore estimate the effects of the regime change separately for profit and loss firms. Given the low ERCs for losses, the credibility effect is expected to be concentrated in profitable firms. Consistent with this expectation, we find similar and, in almost all cases, stronger results when we re-estimate Table 3, Panel B including the *Post*×*Treated*×*UE*×*Loss* interaction. Thus, as expected, the credibility effects are concentrated in profitable firms. Based on these results, we include the interactions of *Loss* with the treatment indicators in all subsequent analyses.[24]

4.2 Sensitivity Analyses: Changes in Information Environment and Concurrent Events

In this section, we conduct three sets of sensitivity analyses. First, we explore whether other contemporaneous changes in firms' information environments contaminate the estimated

[24] In the Internet Appendix (§5), we also consider nonlinearities in the ERC relation driven extreme values of *UE*. Freeman and Tse (1992) demonstrate that, because extreme realizations of unexpected earnings are likely to be less persistent, the relation between unexpected earnings and returns can be nonlinear (i.e., return responses decrease as the absolute magnitude of unexpected earnings increases). For the same reason, any credibility effect for extreme values of *UE* is likely to be smaller. Moreover, changes in the fraction of extreme and non-extreme values of *UE* across time could bias the estimated treatment effect. We perform several robust analyses to explore nonlinearities and their impact, including a plot of our estimated ERC function including and excluding the nonlinear term in a simple scatterplot of *CAR* and *UE* as well as a fractional polynomial regression. See Internet Appendix §5.

treatment effect. A maintained assumption of our analysis is that the PCAOB inspection regime affects financial reporting credibility but does not change other elements used in the construction of ERCs (e.g., analysts' forecasts). However, it is possible that PCAOB inspections could directly affect firms' information environments and the properties of their reported earnings.

To investigate this possibility, we examine changes in seven separate proxies for changes in firms' information environment or earnings properties subsequent to the introduction of the PCAOB, including: 1) unexpected earnings (*UE*); 2) analysts' earnings forecasts (*Forecast*); 3) the timeliness with which information is incorporated into prices (*Timeliness*); 4) the relative amount of information firms reveal prior to the earnings announcement as a proportion of the total amount of information released during the year, including the earnings announcement (*Relative Information*); 5) accruals (*Scaled Raw Accruals*); 6) the presence of management earnings guidance (*Earnings Guidance*); and 7) the bundling of the earnings announcement with management guidance (*Guidance Bundle*). We describe each of these measures in detail in Appendix C. We present descriptive statistics for each of the proxies in Panels A and B of Table 2 separately for our treatment and control firms.

To examine the influence of changes in these proxies on our analysis, we use our primary difference-in-differences design and successively replace *CAR* in Eq. (1) with each proxy and investigate whether there is a change in the proxy after the onset of the PCAOB inspection regime relative to the control group. In each specification, we include our set of control variables and auditor-, country-, and year-quarter fixed effects. Table 4 presents the regression results. Across all seven of the information environment proxies, the treatment effect, *Post*×*Treated*, is economically small, and generally not significant. The coefficient is significant for *UE* in Column (1) and for *Relative Information* in Column (4). The documented decrease in *UE* in

Column (1) suggests that analyst forecast bias decreases for treated firms in the post period, resulting in a smaller surprise for positive earnings. However, we already control for this effect by including the main effect of *UE* in Eq. (1).

The observed increase in *Relative Information* in Column (4) suggests that, in the post-inspection period, treated firms release more of the year's total information prior to the earnings announcement. Earlier information release is likely to lead to a smaller response to any earnings surprise, and thus likely works against us finding an increase in the ERC. In an untabulated test, we confirm that our results are robust to including *Relative Information* as an additional control variable (interacted with *UE*) in Eq. (1). In fact, the coefficient on *UE*×*Post*×*Treated* increases slightly (0.876) and is significant at the 1% level. Overall, the results of this analysis provide no evidence that significant changes in pre-earnings announcement disclosures, management guidance, properties of earnings, and/or analyst forecast behavior explain or alter our findings.

In our second set of sensitivity analyses, we address the possibility that the observed ERC change could be attributable to firms' voluntary efforts to improve their financial disclosures in response to the 2001-2002 accounting scandals. Although our use of U.S. registered non-U.S. firms as a control group mitigates this concern, it is possible that U.S.-domiciled firms respond more strongly to these scandals. To gauge this concern, we separately examine firms audited by Arthur Andersen ("AA") in 2000 and 2001. Leuz and Schrand (2009) show that former AA clients responded more strongly (i.e., with a larger increase in disclosure) than other firms with other auditors to the revelations at Enron. Thus, if our results reflect the effects of these market responses, rather than the PCAOB regime, we expect to see larger ERC changes for AA clients. Columns (1) and (2) of Table 5 present the results. Excluding former AA clients, the treatment effect is positive, significant, and larger than for former AA clients (*UE*×*Post*×*Treated*=1.030).

Inconsistent with a scandal-induced shift in reporting incentives, these coefficients are not significantly different and, if anything, indicate a larger ERC change for non-AA clients.

In the third set of analyses, we address the possibility that the ERC change could be attributable to other SOX provisions. Three provisions stand out as possibilities, including: 1) rules regarding audit committee independence, 2) Section 302 rules regarding executive certification of the financial statements, and 3) Section 404[b] rules regarding the assessment of internal controls.[25] Rules on audit committee independence became effective on April 25, 2003 for domestic *and* foreign issuers, and thus affect both our treatment and control groups simultaneously (SEC Release Nos. 33-8220; 34-47654). Similarly, Section 302 had an effective date of August 29, 2002 for all domestic and foreign issuers (SEC Release No. 33-8124).

In contrast, the adoption of Section 404[b] was staggered based on issuer size and domicile. For U.S. accelerated filers (i.e., firms with market capitalizations greater than $75 million), Section 404[b] became effective for fiscal-year-end dates on or after November 15, 2004. For non-accelerated filers, the SEC deferred the implementation because of cost concerns. In 2010, the Dodd-Frank Act made this exemption permanent. Foreign accelerated filers were not subject to Section 404[b] until July 15, 2006 or July 15, 2007, depending on their size. Prior research documents that the market responds negatively to the disclosure of 404[b] internal control weaknesses (e.g., Hammersley et al., 2008). Thus, if investors anticipate that firms improve their internal controls to avoid negative outcomes, and better internal controls lead to more credible reporting, then it is possible that the effects documented in Table 3 could be attributable to the implementation of SOX 404[b], rather than PCAOB inspections.

[25] In Appendix A (§6, Table 6C), we provide details on the adoption timing of new PCAOB auditing standards. If the adoption of these standards coincides with the introduction of the PCAOB inspection regime and these standards require auditors to conduct new procedures, our results could reflect the joint effects these auditing standard changes and the new inspection regime. Given the adoption timing, however, such a joint effect seems implausible.

We conduct two analyses to separate these effects. First, following an approach similar to Iliev (2010), we separately examine ERC changes for accelerated and non-accelerated filers. If the documented increase in credibility is attributable to PCAOB inspections, rather than 404[b], we expect similar effects for accelerated and non-accelerated filers. Results in Columns (3) and (4) of Table 5 are consistent with this prediction. The treatment effect for non-accelerated filers is 1.139 versus 0.871 for accelerated filers. These coefficients are not significantly different and, if anything, indicate a larger ERC change for non-accelerated filers—a result that goes against the alternative explanation.

Second, we separately examine ERC changes within the subsample of treatment firms based on whether a firm has an internal control opinion from its auditor—be it an effective, adverse, or disclaimer opinion. If it were the internal control opinions that made earnings more credible (rather than the PCAOB regime), then we would expect a larger treatment effect for firms with such opinions. The results, presented in Columns (5) and (6) of Table 5, do not support this conjecture. The estimated treatment effect for firms without a SOX 404[b] internal control opinion (0.923) is larger than that for firms with an opinion (0.234) and the coefficient difference is statistically significant at the 10% level.

Finally, in Column (7), we examine the effect of simultaneously controlling for the effects of both SOX 404[b] and SOX 302[a] by including both as additional control variables. Our estimated treatment effect is similar to that in Table 3, which further suggests that the documented increase in reporting credibility is not attributable to the implementation of other key SOX provisions. We provide further support for this conclusion in the next section.

4.3 Triennial Inspections

Next, we examine the initial triennial inspections of U.S.-registered, small auditors, beginning in 2004. The staggered introduction of these inspections has two advantages. First, for

clients of these auditors, the introduction of SOX and PCAOB inspections occur mainly at different points in time, which allows us to more cleanly identify the effect of the introduction of the PCAOB regime.[26] This staggered design is also less susceptible to confounding events arising from firm-specific responses to the accounting scandals of 2001-2002. Second, we no longer need foreign control firms. The variation in the timing of the inspections allows us to estimate ERC effects relative to other not-yet-inspected triennial auditors. The clients of triennially-inspected auditors provide a relatively homogenous control group, which mitigates concerns about the parallel-trends assumption.[27] The main drawback of this setting is that the sample of issuers with triennially-inspected auditors is fairly small.

We use difference-in-differences tests to measure the effect of the triennial inspections, estimating the following equation (suppressing time and firm subscripts):

$$\begin{aligned} CAR = \alpha + \beta_1 UE + \beta_2 Post + \beta_3 UE \times Post + \lambda_n Controls + \gamma_n Fixed\ \ Effects \\ \beta_n UE \times Controls + \beta_n UE \times Fixed\ \ Effects + \ \varepsilon_{i,t} \end{aligned} \tag{2}$$

CAR, *Post*, and *UE* are calculated as defined above.[28] We include controls as indicated in the table. We also include auditor- and year-quarter fixed effects, and the interactions of these fixed effects with *UE*.[29] With this fixed effects structure, the identification of the treatment effect comes solely from variation in the timing of the inspections among triennially-inspected

[26] In Appendix A (§6, Table 6D), we explicitly gauge the overlap in the timing of the PCAOB triennial inspections and the implementation of SOX provisions 404[b] and 302[a] and find that for the majority of our sample there is relatively little overlap (around 10% or less).

[27] A comparison of observable firm characteristics for the clients of triennially inspected auditors in the year in which the auditors' first triennial inspection concluded (or inspection report released) reveals no economically significant differences (untabulated).

[28] There are two exceptions. First, for triennially-inspected firms, fieldwork is shorter and it is less clear that the market is aware of the timing of the fieldwork. Thus, we code the *Post* variable equal to one for any earnings announcement occurring 30 days after the end of the PCAOB's inspection fieldwork (or alternatively the day following the inspection report release). Second, recognizing the low analyst coverage, we extend the window over which we measure the median analyst forecast (from which *UE* is computed) from 95 days to 360 days.

[29] As in the large auditor analysis, the degrees of freedom limit the number of fixed effects we can include and preclude the use of firm fixed effects. However, in the Internet Appendix (§2), we confirm that results are robust to the consideration of pseudo-firm fixed effects based on firm characteristics and industry groupings.

auditors, which is quite stringent and requires that the ERC effects occur when the treatment indicators switch to one. The coefficient β_3, the interaction between *UE*×*Post*, captures the treatment effect of the triennial PCAOB inspections. We include all available firm-year observations for firms with small auditors from 2001 through 2007. We exclude fiscal year-ends subsequent to Q2 of 2008 to mitigate the potentially confounding effects of the financial crisis. As in Table 3, we separately examine both the fieldwork and inspection report release dates. In Appendix B, Panel E, we provide specific examples of how we code the *Post* indicator for a variety of fiscal year-end dates and inspection years.

Table 6 presents results for this analysis. In Column (1), we estimate a robust WLS regression of Eq. (2) where *Post* is based on the fieldwork-end date. The estimated treatment effect of 0.789 is positive and significant at the 5% level. In Column (2), *Post* is based on the report-release date. *UE*×*Post* is positive (1.063) and statistically significant at the 5% level. The larger coefficient magnitude for the inspection report release is consistent with less publicized fieldwork dates for triennial firms. In Column (3), we include additional controls for SOX 404[b] and 302[a] and find similar results (using the report release date), which indicates that the increases in reporting credibility are not attributable to other SOX provisions. Column (4) reports results for the dropped observations design, which excludes the post-fieldwork period from the pre-inspection report release sample to avoid overlap and contamination. The treatment effect (1.022) is similar to the other specifications.[30] Using the coefficient in Column (2) and a 10%-benchmark, the estimated treatment effect is as large as the change in firm value resulting from a decline in the cost of equity capital of about 96 basis points.

Overall, the results from our analysis of the triennial inspections are consistent with a

[30] In an untabulated analysis, we confirm that the results for the triennial analysis are robust to including controls for nonlinearities in the ERC relation as discussed in Internet Appendix §5. We find that, for example, in the dropped observation analysis, including controls for SOX 404[b] and 302[a], the coefficient of interest is 1.507.

significant increase in financial reporting credibility following the introduction of the PCAOB inspection regime.

4.4 Abnormal Trading Volume around 10-K filings as an Alternative Credibility Proxy

In this section, we examine abnormal trading volume around the SEC filing of firms' annual financial statements (10-Ks) as an alternative measure of reporting credibility. While prior empirical literature generally interprets abnormal trading volume as a measure of the information content of a disclosure (e.g., Asthana and Balsam, 2001; Asthana et al., 2004; Leuz and Schrand, 2009), it is also likely a function of the credibility of the information released. Kim and Verrecchia (1991) model the relation for abnormal trading volume and show that the results of Holthausen and Verrecchia (1988) concerning price reactions, on which we rely for the ERCs, extend to trading volume even when investors are diversely informed. Thus, the conceptual underpinnings, which we developed in Section 3.1, still apply here. If the new PCAOB regime increases the credibility and hence the signal-to-noise ratio of financial reports, then we predict a stronger volume reaction when the reports are released. The abnormal trading volume proxy also has some properties that are empirically desirable. Like ERCs, abnormal trading volume around the 10-K filing is not anticipatory in nature, and it can be measured over short intervals. Unlike the ERC, it does not have to be estimated from interactions but can be observed at the firm-year level, which should make it less noisy. The drawback of this measure is that there is no obvious way to isolate the news component given market expectations.

Following prior literature (e.g., Asthana et al., 2004; Leuz and Schrand, 2009), we calculate abnormal volume, *Abnormal 10-K Volume*, using trading volume within a window that begins one trading day prior to the 10-K and ends three trading days after. We normalize raw trading volume by subtracting the mean trading volume in the 45 trading days beginning five

trading days prior to the 10-K release and dividing by the standard deviation of trading volume calculated over the same window. We exclude from this calculation any days in the three-day earnings announcement window. We then define *Abnormal 10-K Volume* as the mean of the normalized trading volume in the five-day (from *t-1* to *t+3*) window surrounding the 10-K.

We perform difference-in-differences tests of changes in *Abnormal 10-K Volume* after the introduction of the PCAOB inspection regime by estimating the following equation:

$$Abnormal\ 10\text{-}K\ Volume = \alpha + \beta_1 Post + \beta_2 Treated + \beta_3 Post \times Treated + \beta_n Controls + \beta_n Fixed\ Effects + \varepsilon \quad (3)$$

We again use two alternative measurement dates, the completion of fieldwork and the release of the inspection report, and pool data across limited and full inspections in a single combined analysis. We use the same treatment and control samples as in our primary analyses for the large auditors. Following Leuz and Schrand (2009), we include several controls from the ERC tests including *Size*, *Market-to-Book*, *Leverage*, *Beta*, and *Loss*. We control for the number of days from a firm's fiscal year-end to the 10-K release (*Filing Delay after FYE*) and from the earnings announcement to the 10-K release (*Filing Delay after EA*) following Asthana et al (2004). We also include *Analyst Following*, as not all sample firms have analyst coverage.

We present descriptive statistics for the variables in the Internet Appendix (§6). While the sample size is much larger than the ERC analysis (because we do not require analyst forecasts), the majority of the sample observations (89%) are again from the treatment group. On average, *Abnormal 10-K Volume* is positive, as expected. The median firm files its 10-K 83 days after the fiscal year-end and 36 days after the earnings announcement.

We present regression results in Table 8. In Column (1), we estimate Eq. (3) using OLS and include auditor-, country-, and year-quarter fixed effects. In Column (2), we introduce firm-fixed effects. In both columns, the treatment effect, *Post*×*Treated*, is positive and significant (at

the 5% level or greater). In Column (2), which is our main specification, the coefficient of interest has a magnitude of 0.097, which translates into a 9.7% increase in abnormal trading volume. The following columns provide sensitivity analyses. In Column (3), following (Loughran & McDonald 2014), we include the log of the 10-K file size (*Log 10-K File Size*) as an additional control for information included in the 10-K (and instead to isolate credibility effects). In Column (4), we include additional controls for SOX provisions 404[b] and 302[a]. In Column (5), we employ CEM matching, based on *Size* and *Beta*, using a similar approach to that described for Table 3. Adding the SOX indicators in Column (5), the coefficient of interest is 0.089 and remains significant at 5% level. While the magnitudes and standard errors for coefficient of interest differ somewhat across specifications, the results and inferences are similar to those in our main specification in Column (2).

Overall, we find that firms' abnormal trading volume around 10-K filings increases after their auditors are subject to PCAOB inspections. This result is consistent with an increase in reporting credibility of audited 10-Ks and corroborates our ERC-based analyses.

5. Conclusion

This paper examines whether mandated audit oversight by a public-sector regulator affects the assessment of reporting credibility in capital markets. To this end, we analyze whether the introduction of the PCAOB and its inspection regime increased capital-market responses to firms' earnings surprises, as would be expected if the new audit oversight regime enhances the credibility of reported earnings.

We use a difference-in-differences research design that exploits the staggered introduction of the new regime, which affects firms at different points in time depending on their fiscal year-ends, auditors, and the timing of PCAOB inspections. Consistent with an increase in

reporting credibility after the introduction of the PCAOB, we find that capital-market responses to unexpected earnings increase significantly. The effects are present for firms with Big Four auditors, other annually-inspected auditors, and triennially-inspected auditors. Other SOX provisions unrelated to audit oversight do not appear to drive the findings. Corroborating these results, we find that abnormal trading volume reactions to 10-K filings increase after the introduction of the inspection regime. Overall, our study provides evidence on the capital-market effects of the PCAOB regime and suggests that public audit oversight can have capital-market benefits by enhancing the credibility of financial reporting. It also provides further support for the notion that financial reporting credibility is priced in capital markets.

Despite many sensitivity analyses, the aforementioned results should be interpreted cautiously as our study is subject to several limitations. First, although our analyses show sustained increases in reporting credibility for at least two years, ERCs are based on investor perceptions and hence can change as more information about the inspection regime (as well as reporting and audit quality) comes to the market. Second, attribution of the credibility effect to the PCAOB regime depends critically on our ability to control for other concurrent changes in regulation and in markets. We use difference-in-differences analyses around the staggered implementation of the inspection regime to address this issue, but this design requires that the parallel-trends assumption is satisfied. Third, because ERCs are difficult to measure and can be noisy, the magnitude of our estimates should be interpreted carefully. Fourth, while we provide evidence that other SOX provisions do not appear to drive our results, it is difficult to rule out the possibility that our results reflect the joint effect of other SOX provisions and public audit oversight. Fifth, our results are relative to the prior peer review regime and do not imply that a substantially reformed peer review system could not also have increased reporting credibility.

Sixth, our study focuses on the capital-market benefits of public audit oversight, but does not examine the costs of the new regime. Thus, we can neither show *net* benefits nor provide a complete cost-benefit analysis. Finally, our analysis is limited to equity investors. It is conceivable that public audit oversight also provides benefits to (and has costs for) other stakeholders, given the role of auditing in debt contracting (e.g., Costello and Wittenberg-Moerman, 2011; Minnis, 2011). We leave this question to future research.

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Appendix A: Institutional Analysis

This appendix provides supplemental descriptive information and institutional details about the PCAOB inspection regime and the prior AICPA peer-review program. The primary purpose of this descriptive analysis is to provide the institutional underpinnings for our empirical analysis in the manuscript "Public Audit Oversight and Reporting Credibility: Evidence from the PCAOB Inspection Regime." In the manuscript, we analyze the link between the introduction of the PCAOB inspection regime and changes in the market's credibility assessment of audited financial reports. In this appendix, we examine and provide descriptive evidence for the mechanism as well as each of the conditions that must be in place for the empirical link documented in the manuscript to be plausible. Specifically, (1) there must be meaningful changes in the way the PCAOB conducts inspections relative to the prior peer-review regime; (2) the PCAOB inspections must identify meaningful weaknesses or deficiencies in the way audits are conducted, leading to subsequent improvements, which go beyond a single engagement; (3) the market and investors learn about these changes; and (4) these effects are empirically separable from other contemporaneous events.

Section 1: Comparison of the AICPA peer review program and PCAOB inspection regime
In this section, we discuss major differences between the AICPA peer review program and the new PCAOB inspection regime.

Section 2: Penalties issued by the PCAOB
In this section, we provide a list of the possible penalties that can be imposed by the PCAOB for audit firm deficiencies as well as descriptive information on the actual frequency, by year, with which these penalties have been issued. The purpose is to provide descriptive evidence on one important difference between the PCAOB inspection regime and the prior AICPA peer review program.

Section 3: Analysis of restatements included in PCAOB inspection reports
In this section, we provide a descriptive analysis of restatements arising from PCAOB inspections. We also provide details on the nature of the restatement for large audit firms for the 2004 inspection year. The purpose of this analysis is to illustrate that the new inspections regime identifies meaningful weaknesses and deficiencies in the way audits are conducted.

Section 4: Details on the remediation process following PCAOB inspections
In this section, we provide details of the remediation process following PCAOB inspections. The section provides specific examples of firms' responses and specific remedial actions. The purpose of this section is to illustrate that the PCAOB regime gives rise to subsequent changes in the way audits are conducted.

Section 5: Survey of publicly-available information about the PCAOB inspection regime
In this section, we provide examples of publicly-available information through which capital-market participants could have learned about the scope and effectiveness of the PCAOB inspection regime, and hence could have updated their beliefs about the credibility of reported earnings.

Section 6: Timing of concurrent regulatory changes
In this section, we discuss the timing of other regulatory changes that occurred around the introduction of the PCAOB's inspections regime to assess the extent to which these changes are plausible alternative explanations for our results or could bias against our findings.

Section 1: Comparison of the AICPA Peer Review Program and PCAOB Inspection Regime

In this section, we discuss major differences between the AICPA peer review program and the PCAOB inspection regime. One major difference is that, even for large auditors with greater than 100 public issuers, peer reviews were conducted only every three years, whereas the PCAOB conducts inspections for large auditors annually. Setting frequency aside, the remainder of the discussion focuses on three primary areas of differences: 1) program independence, 2) program scope (or focus), and 3) program penalties. Within the PCAOB, inspections and enforcement are separate. We discuss them jointly here because we consider them to be complimentary changes in oversight.

Data sources: While the AICPA does not make available historic information on its peer review program, academics have catalogued its rules and output during the pre-SOX period. Current rules and output of the peer review program are quite different than those in place prior to SOX. The peer review program changed dramatically following the introduction of the PCAOB, both as a result of the perceived failures in the peer review program and the perceived overlap in outputs with the PCAOB inspection program. For the PCAOB, we primarily draw from PCAOB publications (first made available on the website during the first limited and full inspections in 2004 and hence observable to capital market participants). For the peer-review program, we attempt to provide sources that are independent of the PCAOB.

Table 1A presents quotations from academic publications related to the independence of the AICPA peer review program. Table 1B discusses the focus and scope of the peer review regime. Table 1C discusses the focus and scope of the PCAOB review regime. Table 1D discusses the scope of penalties under the peer review regime—for a discussion and summary of PCAOB penalties see Section 2.

Overall, the comparison presented in this section suggests that the differences between the AICPA and the PCAOB inspection regime are substantial in that the PCAOB regime results in greater independence, a larger array and more frequently-employed penalties, and a broader program scope.

Table 1A: Peer-review program independence

Author(s)	Year	Journal	Quotes
Fogarty	1996	Accounting Organizations and Society	Since peer reviewers are not centrally assigned, but instead are individually negotiated, nothing prevents the continuation of a reviewer from a pre-engagement appointment as a peer review consultant. This very likely shades what ultimately becomes an official program record and partially explains the high unqualified review rate (Wallace, 1991; Oliverio & Newman, 1993).
Public Oversight Board	2002	Self-Published	The current system of self-regulation of the accounting profession has significant problems. First, the funding of the [Public Oversight Board] (POB) is subject to control by the [audit] firms through the [Securities and Exchange Commission Practice Section] (SECPS), which in the past has cut off that funding in an effort to restrict POB activities. […] Other problems include the fact that the current governance structure does not have the weight of a congressional mandate behind it. There is also a perceived lack of candid and timely public reporting of why and how highly publicized audit failures and fraud occurred and what actions have or will be taken to ensure that such problems do not recur.
Hilary and Lennox	2005	Journal of Accounting and Economics	[It] was claimed that reviewers lacked incentives to perform independent reviews. For example, the Public Oversight Board (POB) stated in 2002, ‘‘peer review has come under considerable criticism from members of Congress, the media and others. ‘You scratch my back, I’ll scratch yours’ is the prevailing cynical view of peer

			review raised by many''. Along a similar vein, former Chair Williams of the Securities and Exchange Commission (SEC) testified before the Senate Banking Committee (on February 12, 2002) that the peer review process is ''too incestuous. A system needs to be established which is independent of the accounting profession.''
Glover, Prawitt, and Taylor	2009	Accounting Horizons	Though the profession had instituted and conducted "peer reviews" under the auspices of the AICPA prior to SOX, the peer review system lacked and still lacks independence and the enforcement authority invested in the PCAOB by federal law. [See also the footnote under "Penalties" below]
DeFond	2010	Journal of Accounting and Economics	Finally, studying the shift from the old AICPA Peer Reviews to the new PCAOB Inspections is potentially interesting because it represents a trade-off of expertise for independence. This is interesting because this trade-off is a central feature in long-standing debate between self-regulation and government regulation (e.g., Stigler, 1971; Peltzman, 1976). Traditionally, this trade-off arises because government regulators, while more objective than self-regulators, generally have less industry expertise. In contrast, self-regulators, while more expert than government regulators, are less objective. In the case being studied here, the PCAOB Inspectors are forbidden from being active auditing professionals, and the AICPA Peer Reviewers are practicing auditors.
Doty	2011	Texas Law Review	In twenty-five years of operation, the profession's self- regulatory system never issued an adverse or qualified report on a major accounting firm. In sharp contrast to the profession's quarter century of self-examination, PCAOB inspections have identified hundreds of deficiencies by firms in each of the large accounting firm networks and other firms that audit public company financial statements adequately to support their audit reports.

Table 1B: Peer review program scope (or focus)

Author(s)	Year	Journal	Quote
Hilary and Lennox	2005	Journal of Accounting & Economics	Under the self-regulated peer review program, auditors were 'audited' (i.e., peer-reviewed) by other auditors. A firm could opt to be reviewed by either: (1) an AICPA-appointed review team; (2) a private CPA association; or (3) an individual audit firm. For the first type of review, the AICPA selected reviewers by matching the specialties of the reviewed firms and the reviewers. In the second case, the firm was reviewed by a private association of CPA firms. In AICPA and association reviews, review team members were drawn from different firms. For the third type of review, all members of the review team came from the same firm and these were known as 'firm-on-firm' reviews. The reviewed firm could choose which firm would perform the review but the AICPA prohibited reciprocal reviews because of concerns about collusion between reviewing and reviewed firms. We find no cases of reciprocal reviews in our sample, which suggests the AICPA's prohibition was adequately enforced. In each type of review, the focus was on the reviewed firm's quality control system. The review team was required to evaluate whether: (1) the firm's system of quality control was adequately designed; (2) the firm complied with its quality control system; and (3) the firm complied with the membership requirements of the SECPS. Reviewers were required to evaluate the following five elements of the quality control system (AICPA, 1996): (1) Independence, (2) Personnel management, (3) Client acceptance and continuation, (4) Engagement performance, and (5) Monitoring… Reviews were conducted at the firm level rather than at the office level. Therefore, one opinion was issued for the entire firm, irrespective of the number of engagements performed by the firm. Reviewers collected evidence on quality control systems by interviewing staff and checking a sample of working papers. Since testing was done on a sample basis, reviewers were not expected to identify all significant weaknesses. After collecting evidence, the review team issued an opinion, which was made publicly available by the AICPA.

			There were four types of opinion: (1) clean, (2) unmodified with weaknesses, (3) modified, or (4) adverse. Clean opinions were issued if reviewers found no significant weaknesses. Weaknesses were disclosed in unmodified opinions if they were significant but not serious. Opinions were modified if weaknesses were serious or, in very serious cases, opinions were adverse. [Footnotes excluded.]

Table 1C: PCAOB inspection regime scope (or focus)

Author(s)	Year	Source	Quote
PCAOB	2004	Statement Concerning Inspection Reports	The [SOX] Act requires the Board to "conduct a continuing program of inspections to assess the degree of compliance of each registered public accounting firm and associated persons of that firm with this Act, the rules of the Board, the rules of the Commission, or professional standards, in connection with its performance of audits, issuance of audit reports, and related matters involving issuers." The Act provides that an inspection shall include at least the following three general components: 1. An inspection and review of selected audit and review engagements of the firm, performed at various offices and by various associated persons of the firm; 2. An evaluation of the sufficiency of the quality control system of the firm, and the manner of the documentation and communication of that system by the firm; and 3. Performance of such other testing of the audit, supervisory, and quality control procedures of the firm as are necessary or appropriate in light of the purpose of the inspection and the responsibilities of the Board.
PCAOB	2005	Annual Auditor Full Inspection Report Appendix B (using Deloitte as an example)	A. Review of Selected Audit Engagements The inspection team reviewed aspects of selected audits performed by Deloitte. The inspection team chose the engagements according to the Board's criteria. Deloitte was not allowed an opportunity to limit or influence the engagement selection process or any other aspect of the review. For each audit engagement selected, the inspection team reviewed the issuer's financial statements and certain SEC filings. The inspection team selected certain higher-risk areas for review and, at the practice offices, inspected Deloitte's work papers and interviewed engagement personnel regarding those areas. The areas subject to review included, but were not limited to, revenues, reserves or estimated liabilities, derivatives, income taxes, related party transactions, supervision of work performed by foreign affiliates, assessment of risk by the audit team, and testing and documentation of internal controls by the audit team. The inspection team also analyzed potential adjustments to the issuer's financial statements that had been identified during the audit but not recorded in the financial statements. For several engagements, the inspection team reviewed written communications between Deloitte and the issuer's audit committee. With respect to certain engagements, the inspection team also interviewed the chairperson of the issuer's audit committee. When the inspection team identified a potential issue, the inspection team spoke with members of the engagement team. If the inspection team was unable to resolve the issue through this discussion and any resultant review of additional work papers or other documentation, the inspection team ordinarily requested the engagement team to consult with Deloitte's professional practice personnel, who include local office professional practice directors ("PPDs"), regional professional practice partners ("RPPDs") and members of the National Office professional practice group.

			B. Review of Seven Functional Areas The inspection team conducted the procedures related to the review of the seven functional areas primarily at Deloitte's National Office. With respect to six of the functional areas, the inspection team also conducted procedures at certain of Deloitte's practice offices. These procedures built on the foundation that was laid during the Board's limited inspection during 2003. The inspection team performed these procedures both to identify possible defects in Deloitte's system of quality controls and to update the Board's knowledge of Deloitte's policies and procedures in the seven functional areas. A more detailed description of the scope with respect to each of the seven functional areas follows. 1. Review of Partner Evaluation, Compensation, Promotion, and Assignment of Responsibilities and Disciplinary Actions […] 2. Review of Independence Policies […] 3. Review of Client Acceptance and Retention Policies […] 4. Review of Internal Inspection Program […] 5. Review of Practices for Establishment and Communication of Audit Policies, Procedures and Methodologies, Including Training […] 6. Review of Policies Related to Foreign Affiliates […] 7. Tone at the Top […]
Church and Shefchik	2012	Accounting Horizons	The authors examine Part I findings for Big-Four and "Second-tier" auditors from inspection cycles from 2004 through 2009. They document disclosed inspection outcomes in areas including revenue recognition, fair value measurements, other accounting estimates, and internal controls, among others. Additionally, they find evidence that all sample auditors have remediated quality control criticisms in all years.
Hermanson, Houston, and Rice	2007	Accounting Horizons	The authors document the contents of 316 inspections reports for triennial auditors made available prior to July 2006. On average, these auditors have three issuer clients. The authors note Part I findings for about 60% of these audit firms. The scope of findings indicates a wide range including the auditing of revenue, equity, and investments. In a related paper, Hermanson and Houston (2008) find that triennial auditors also have many quality control criticisms, and a large fraction of them (179 of 199) successfully remediate to avoid Part II disclosures.

Table 1D: Peer review program penalties

Author(s)	Year	Journal	Quote
Fogarty	1996	Accounting Organizations and Society	Peer review is purposefully non-punitive. The focus on positive improvement and educational direction is said to be jeopardized by structures whose aim was to penalize substandard professional practice. This is justified by a rather unsubstantiated belief that punitive actions are very likely to be brought by external groups (see Larson, 1983), and therefore are unnecessary to be duplicated within the profession. Discipline even as a theoretical possibility, was not part of the initial program. Even after its post facto incorporation, it has not materialized in actual operation (Berton, 1986; AICPA, 1990). By creating a separate body for the imposition of the occasional "corrective action", the main bodies that provide peer review further distance themselves from sanctions.
Public Oversight Board	2002	Self-Published	The current system of self-regulation of the accounting profession has significant problems. […] [The] disciplinary system is not timely or effective. Disciplinary proceedings are deferred while litigation or regulatory proceedings are in process. This results in years of delay and sanctions that have not been meaningful. The Professional Ethics

			Division of the AICPA, which handles disciplinary matters against individuals, does not have adequate public representation on its Board. Investigations by the Quality Control Inquiry Committee (QCIC) of the SECPS, which handles allegations of improprieties in litigation against member firms arising out of audits of SEC clients, do not normally include access to firm personnel and work papers. The disciplinary system does not include the power to issue subpoenas or compel testimony. Thus investigators must rely on the cooperation of the individual being investigated. The QCIC has no access to the complaining party or the client involved. Furthermore, there is no privilege or confidentiality protection for investigations or disciplinary proceedings, and disciplinary actions are often not made public.
Glover, Prawitt, and Taylor	2009	Accounting Horizons	[Footnote 18] Although the AICPA's peer review program lacks true enforcement authority, it should be noted that the process is not entirely without teeth. Follow-up actions are regularly imposed by the "administering entities" (AEs) that can range from requiring additional continuing education in a specific area to requiring the reviewed firm to have its next internal inspection overseen by an independent party that is pre-approved by the AE. More importantly, however, peer review reports are transparent and communicate any problems noted in the reviews through letters of comment appended to unmodified reports as well as through the issuance of modified or adverse report.

Section 2: Penalties issued by the PCAOB

In this section, we provide a list of the penalties that can be imposed by the PCAOB for auditor deficiencies (Table 2A) and the actual frequency, by year, with which these penalties have been issued (Table 2B). The availability of a substantial array of penalties and their frequent usage illustrates a specific mechanism through which the PCAOB can affect auditor behavior as well as provides an example for a meaningful difference between the PCAOB regime and the peer-review program. From 2003 through 2012, the PCAOB issued 131 Rule 5300 sanctions based on 56 unique violation events. The breakdown of these events by year and penalty type is presented below (Table 2B). Of these penalties, 75 were issued to individuals and 56 to audit firms. The average (median, total) value of the 18 civil monetary penalties is $331,611 ($25,000; $5,969,000).

Table 2A: PCAOB inspection regime penalties

Author(s)	Year	Source	Penalty
PCAOB	2004, 2007, 2014	Rule 4009 Firm Response to Quality Control Defects	(d) The portions of the Board's inspection report that deal with criticisms of or potential defects in quality control systems that the firm has not addressed to the satisfaction of the Board shall be made public by the Board: (1) upon the expiration of the 12-month period described in paragraph (a) of this rule if the firm fails to make any submission pursuant to paragraph (a); or (2) upon the expiration of the period in which the firm may seek Commission review of any board determination made under paragraph (c) of this rule, if the firm does not seek Commission review of the Board determination; or (3) in the event the firm requests Commission review of the determination, upon completion of the Commission's processes related to that request unless otherwise directed by the Commission.
PCAOB	2004, 2014	Rule 5300 Sanctions	If the Board finds, based on all of the facts and circumstances, that a registered public accounting firm or associated person thereof has engaged in any act or practice, or omitted to act, in violation of the Act, the Rules of the Board, the provisions of the securities laws relating to the preparation and issuance of audit reports and the obligations and liabilities of accountants with respect thereto, including the rules of the Commission issued under the Act, or professional standards, the Board may impose such disciplinary or remedial sanctions as it determines appropriate, subject to the applicable limitations under Section 105(c)(5) of the Act, including: (1) temporary suspension or permanent revocation of registration; (2) temporary or permanent suspension or bar of a person from further association with any registered public accounting firm; (3) temporary or permanent limitation on the activities, functions or operations of such firm or person (other than in connection with required additional professional education or training) Note: Limitations on the activities, functions or operations of a firm may include prohibiting a firm from accepting new audit clients for a period of time, requiring a firm to assign a reviewer or supervisor to an associated person, requiring a firm to terminate one or more audit engagements, and requiring a firm to make functional changes in supervisory personnel organization and/or in engagement team organization. (4) a civil money penalty for each such violation, in an amount not to exceed the maximum amount authorized by Sections 105(c)(4)(D)(i) and 105(c)(4)(D)(ii) of the Act, including penalty inflation adjustments published in the Code of Federal Regulations at 17 C.F.R. § 201 Subpart E; (5) censure;

(6) require additional professional education or training;
(7) require a registered public accounting firm to engage an independent monitor, subject to the approval of the Board, to observe and report on the firm's compliance with the Act, the Rules of the Board, the provisions of the securities laws relating to the preparation and issuance of audit reports and the obligations and liabilities of accountants with respect thereto, or professional standards;
(8) require a registered public accounting firm to engage counsel or another consultant to design policies to effectuate compliance with the Act, the Rules of the Board, the provisions of the securities laws relating to the preparation and issuance of audit reports and the obligations and liabilities of accountants with respect thereto, or professional standards;
(9) require a registered public accounting firm, or a person associated with such a firm, to adopt or implement policies, or to undertake other actions, to improve audit quality or to effectuate compliance with the Act, the Rules of the Board, the provisions of the securities laws relating to the preparation and issuance of audit reports and the obligations and liabilities of accountants with respect thereto, or professional standards; and
(10) require a registered public accounting firm to obtain an independent review and report on one or more engagements.

Table 2B: Count of Rule 5300 Sanctions by Year

		Year										
Rule 5300	**Sanction Description**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**Total**
1(a)	Revocation of registration	0	0	3	1	3	2	5	4	5	4	27
1(b)	Temporary suspension of registration	0	0	0	0	0	0	0	0	0	1	1
2(a)	Bar individual	0	0	3	3	8	4	5	7	8	6	44
2(b)	Temporarily suspend individual	0	0	0	0	1	1	2	1	0	1	6
3	Limitation of activities	0	0	0	0	0	1	0	0	1	2	4
4	Civil monetary penalty	0	0	0	0	1	1	1	2	6	8	18
5	Censure	0	0	2	2	3	1	0	1	3	13	25
6	Additional professional education	0	0	0	0	0	0	0	0	1	1	2
7	Engage independent monitor	0	0	0	0	0	0	0	0	1	1	2
8	Engage consultant	0	0	0	0	0	0	0	0	0	0	0
9(a)	Adopt or implement new policies	0	0	0	0	1	0	0	0	1	0	2
9(b)	Remedial measures	0	0	0	0	0	0	0	0	0	0	0
10	Independent engagement review	0	0	0	0	0	0	0	0	0	0	0
	Total Sanctions	0	0	8	6	17	10	13	14	26	37	131
	Total Unique Events	0	0	4	3	9	4	6	9	10	11	56

Section 3: Analysis of restatements included in PCAOB inspection reports

In this section, we provide descriptive evidence on restatements arising from PCAOB inspections that represent concrete examples of instances where PCAOB inspections led to publicly-observable reporting changes for audited issuers. In its inspection reports, the PCAOB notes instances when an (unnamed) issuer restates audited (and, less frequently, reviewed quarterly) financial statements or makes other financial reporting adjustments in connection with inspection findings. These restatements or reporting changes could arise by: (1) direct evidence of material departures from GAAP uncovered through PCAOB inspection procedures, (2) auditors performing additional procedures as a result of inspection findings that uncover material departures from GAAP, or (3) issuers finding and making corrections of material departures from GAAP as a result of inspection findings. We hasten to add that the link between the inspection findings and subsequent restatements is not necessarily causal in all instances and that PCAOB inspection reports make no claims to this effect. However, in many instances, the circumstances described suggest a clear link between a particular PCAOB finding, additional auditor procedures, and subsequent firm restatements or changes in reporting. In the first full inspection reports, the PCAOB also notes that "In some instances in which the inspection team identified GAAP departures, follow-up between the [audit] firm and the issuer led to a change in the issuer's accounting or disclosure practices." Table 3A tabulates instances in which restatements and other financial statement changes are noted in the inspection reports for the respective year and auditor. Importantly, the information in Table 3A is publicly available and hence investors could use it to update their assessments of the PCAOB regime as well as their assessments of reporting credibility. The example of restatements related to EITF 95-22 identified in the 2003 Limited Inspections are noteworthy as they illustrate how an identified issue can extend beyond an engagement and a single audit firm. In Table 3B, we provide further details on the nature of the restatements for large (annually-inspected) auditors for the inspection year 2004, as an example.

Table 3A: Count of Noted Restatements in Inspection Report Part 1

	Inspection Year									
Auditor	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**
Crowe Chizek (Horwath) LLP	-	0	0	1	0	0	1	0	0	0
BDO (USA), LLP	-	1	0	0	0	0	0	0	0	0
Deloitte & Touche LLP	11	4	1	1	2	1	0	0	2	1
Ernst & Young LLP	3	2	1	0	0	2	0	0	1	2
Grant Thornton LLP	-	2	4	1	0	0	0	1	1	1
KPMG LLP	7	1	2	1	0	0	0	0	0	2
McGladrey (Pullen) LLP	-	2	0	0	2	0	0	0	0	0
PricewaterhouseCoopers LLP	3	4	1	0	0	0	0	2	3	1
Annual Firm Subtotal	24	16**	9	4	4	3	1	3	7	7
Triennial: 75 audit firms with restatements	-	23	12	11	8	13	9	7	9	12
Total	24*	39	21	15	12	16	10	10	16	19
Fiscal years with annual report restatement announcements from Audit Analytics	409	494	749	789	512	366	281	320	337	378
Fiscal years (aligned with year of inspection)	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
Restated annual financial statements	1,003	1,100	970	664	491	395	409	430	467	420

*EITF 95-22 adjustments account for 23 of the 24 restatements in the 2003 (Limited) inspection year.

**Details on these 16 restatements are included in Table 3 below.

Table 3B: 2004 Inspection Year Restatements for Big-Four and Tier-2 Auditors

Auditor	Issuer & Report Page	Restatement Topic
BDO (USA) LLP	Issuer A, Page 4	EITF 95-22 – Deals with the Balance Sheet classification (current versus long-term) of borrowings under a revolving credit line that include a subjective acceleration clause and a lock-box arrangement. In the initial inspection years, failure to identify EITF 95-22 misclassifications were found to be a widespread issue among many auditors and firms.
Deloitte & Touche LLP	Issuer A, Page 4-5	Understated interest income
Deloitte & Touche LLP	Issuer B, Page 5	Overstated an impairment charge / Statement of cash flow misclassifications
Deloitte & Touche LLP	Issuer C, Page 5-6	EITF 95-22
Deloitte & Touche LLP	Issuer D, Page 6	Recorded leasing incentives from a landlord as a reduction in depreciation expense (as a result: also understated liabilities and fixed assets)
Ernst & Young LLP	Issuer A, Page 4	Misclassified capital lease(s) as operating lease(s)
Ernst & Young LLP	Issuer B, Page 4	Failed to comply with SFAS 131, consolidating several reportable segments into two segments
Grant Thornton LLP	Issuer A, Page 4-5	Reported securitization transactions as sales that did not qualify under SFAS 140
Grant Thornton LLP	Issuer B, Page 6-7	Reported various derivative instruments using hedge accounting that did not meet SFAS 133 criteria
KPMG LLP	Issuer A, Page 4	Recorded a non-qualifying transaction as a sale-leaseback transaction, understating fixed assets and debt
McGladrey & Pullen LLP	Issuer A, Page 4	Misclassified gains and losses as discontinued operations
McGladrey & Pullen LLP	Issuer A, Page 4	Recorded a non-qualifying gain on disposal of property to a related party
PricewaterhouseCoopers LLP	Issuer A or Issuer H, Page 5	Recorded revenue in the wrong period
PricewaterhouseCoopers LLP	Issuer S, Page 6-7	Failed to accrue a DTL related to foreign currency translation on unremitted earnings in a non-US subsidiary
PricewaterhouseCoopers LLP	Issuer V, Page 7	Misclassified investment securities as cash equivalents
PricewaterhouseCoopers LLP	Issuer L, Page 12	Overstated liabilities related to employee medical costs

Section 4: Details on the remediation process following PCAOB inspections

In this section, we discuss details of the PCAOB's remediation process and provide specific examples of auditors' responses and specific remedial actions. These details provide further insight into the specific interactions between auditors and the PCAOB as well as provide anecdotal evidence that these interactions precipitate meaningful changes in audit procedures that extend beyond a single engagement. Conceptually, *subsequent* improvements in audit procedures *beyond a single engagement* are critical for the market to increase its overall assessment of reporting credibility, as the mere identification of previously unidentified deficiencies would likely lower the market's overall assessment of credibility.

Addressing Inspection Report Part I Findings

Table 4A provides a description of the process through which auditors address and remediate Part I findings. Upon the identification of a potential issue during an inspection, the PCAOB begins a dialogue with the auditor to clarify the issue at hand. This dialogue can include the issuance of comment forms for the auditor to respond to the proposed issue. If after this process, the issue is not satisfactorily clarified, a Part I finding can be issued. Given a finding, the auditor is expected to remediate the issue, both contemporaneously by performing additional audit work to validate the issued opinion as well as prospectively on future audit engagements. Findings can also result in restatements by the issuer (see Section 3 of this Appendix). As shown below (and in Section 3), auditors' remediation efforts often extend *beyond the engagement* for which the issue was raised.

Addressing Inspection Report Part II Findings and Quality Control Criticisms

SOX also codified the process through which auditors could remediate firm-wide, Part II findings (e.g., specific criticisms of and defects in their quality control systems that were identified during the inspections). Satisfactory remediation of Part II findings within a one-year window avoids public disclosure of these findings. We describe the rules and process in Table 4B, including additional details that the PCAOB subsequently provided on its website. Importantly, in a report posted in March 2006, the PCAOB stated that, during the initial limited inspections of the Big-Four auditors in 2004, all four audit firms had quality control criticisms, which were satisfactorily remediated within a 12-month window (and hence not disclosed), clearly indicating firm-wide changes to Big-Four auditors' quality control systems in response to PCAOB inspections. Church and Shefchik (2012) note that all Big-Four auditors remediated quality control criticisms findings for inspection years 2004 through 2009.

In their replies to the initial limited and full inspection reports issued by the PCAOB, some of the Big-Four auditors provided their impressions of the PCAOB's inspection process as well as outlined planned responses to both specific engagement-level findings (Part I) and quality-control criticisms (Part II) in attachments to the publicly-released inspections reports. We provide examples in Table 4C.

Any inspection case is either resolved through remediation and remains nonpublic or fails to be resolved through remediation and is publicly disclosed. Examples of remedial actions that auditors could take and have taken in response to Part II findings include the following: updating audit templates (e.g., audit planning checklists), required reviews by concurring partners, required timing of completing various planning procedures, analytical procedures, substantive testing, review, enhanced training (e.g., more required, different content, different delivery, different levels of staff / partners). We obtained these examples from audit firm response letters to PCAOB inspection reports (with and without Part II disclosures) and in conversations with PCAOB staff.

When Part II findings are disclosed, the PCAOB does not provide specifics on the attempted remediation. One exception to the confidentiality of the Part II remediation efforts is that Deloitte, on release of its second Part II, included an explanatory letter about its efforts to remediate Part II

findings for inspection years 2009 and 2010, effectively disclosing that findings existed and were remediated to the satisfaction of the Board. Specifically, Deloitte writes:

> **"Resolution of 2009 and 2010—**We are pleased that the PCAOB has determined that the remedial actions we took in response to Part II of our 2009 and 2010 inspection reports addressed the quality control criticisms in those reports to the Board's satisfaction. These determinations close the inspection cycles for 2009 and 2010. We believe the PCAOB's determinations concerning our remediation of the quality control criticisms contained in Part II of our 2009 and 2010 inspection reports are reflective of the significant progress we have made toward the achievement of our audit quality objectives in more recent years."

Importantly, the auditor responses in Table 4C illustrate that PCAOB inspections prompt changes (both retroactive in the form of restatements and proactive in the form of audit policy) beyond the specific engagements under inspection. For example, the August 2004 PCAOB inspection report for Deloitte & Touche (PCAOB release no. 104-2004-002) notes that the PCAOB's finding of five EITF 95-22 misapplications led the auditor to undertake a firm-wide review in which it identified three additional engagements with the same misapplication.

Table 4A: Description of the process to address Part I findings in PCAOB inspection reports

Author	Date	Report	Description
PCAOB	August 26, 2004	Limited Inspection Report (Deloitte as example)	When the staff identified a potential issue, the staff spoke with members of the audit engagement team. If the staff was unable to resolve the issue through this discussion and any resultant review of additional work papers or other documentation, the staff ordinarily requested the engagement team to consult with Deloitte's professional practice personnel, who include local office professional practice directors ("PPDs"), regional professional practice directors ("RPPDs") and members of the national office professional practice group. In many cases, this consultation process resulted in resolution of the matter, either because Deloitte agreed with the position the staff had taken and the firm or the issuer took adequate steps, in light of the significance of the error, to remedy the exception, or because Deloitte was able to provide additional information that effectively addressed the staff's concerns.
PCAOB	Oct 2005 through Jan 2006	Full Inspection Report (Deloitte as example)	When audit deficiencies are identified after the date of the audit report, PCAOB standards require a firm to take appropriate actions to assess the importance of the deficiencies to the firm's present ability to support its previously expressed opinions, and failure to take such actions could be a basis for Board disciplinary sanctions. In response to the inspection team's identification of deficiencies, the Firm, in some cases, performed additional procedures or supplemented its work papers. In some instances in which the inspection team identified GAAP departures, follow-up between the Firm and the issuer led to a change in the issuer's accounting or disclosure practices or led to representations related to prospective changes. In some cases, the deficiencies identified were of such significance that it appeared to the inspection team that the Firm had not, at the time it issued its audit report, obtained sufficient competent evidential matter to support its opinion on the issuer's financial statements. In some of those audits, that conclusion followed from the omission, or insufficient performance, of a single procedure, while other audits included more than one such failure. The deficiencies that reached this degree of significance are described below [as Part I findings], on an audit-by-audit basis (without identifying the issuers). [footnotes omitted for brevity]

Table 4B: PCAOB remediation process rules and procedures

Author	Date	Forum	Description
107th Congress	July 30, 2002	Legislation	**Section 104(g)(2): REPORT**.—A written report of the findings of the Board for each inspection under this section, subject to subsection (h) shall be […] made available in appropriate detail to the public (subject to 105(b)(5)(A), and to the protection of such confidential and proprietary information as the Board may determine to be appropriate, or as may be required by law), except that no portions of the inspection report that deal with criticisms of or potential defects in the quality control systems of the firm under inspection shall be made public if those criticisms or defects are addressed by the firm, to the satisfaction of the Board, not later than 12 months after the date of the inspection report.
PCAOB	Sept – Oct 2003	PCAOB Website	**Rule 4009(a):** With respect to any final inspection report that contains criticisms of, or potential defects in, the quality control systems of the firm under inspection, the firm may submit evidence or otherwise demonstrate to the Director of the Division of Registration and Inspections that it has improved such systems, and remedied such defects no later than 12 months after the issuance of the Board's final inspection report. After reviewing such evidence, the Director shall advise the firm whether he or she will recommend to the Board that the Board determine that the firm has satisfactorily addressed the criticisms or defects in the quality control system of the firm identified in the final inspection report and, if not, why not.
PCAOB	March 21, 2006	PCAOB Website	*Observations on the Initial Implementation of the Process for Addressing Quality Control Criticisms within 12 Months after an Inspection Report* and *Description of the Process for Board Determinations Regarding Firms' Efforts to Address Quality Control Criticisms in Inspection Reports* **PCAOB Release 104-2006-078** […] In August 2004, the Public Company Accounting Oversight Board ("PCAOB" or "Board") issued its first inspection reports - reports on initial limited inspections of Deloitte & Touche LLP, Ernst & Young LLP, KPMG LLP, and PricewaterhouseCoopers LLP. Pursuant to Section 104(g)(2) of the Sarbanes-Oxley Act of 2002 ("the Act"), the Board did not make public any portions of those reports that dealt with criticisms of a firm's quality control systems. Both the Act and the Board's rules, however, made plain that the Board would publicly disclose such criticisms if the firm failed to address them to the Board's satisfaction within 12 months. Aware of the prospect of such disclosure, each firm engaged in substantial dialogue with the Board's staff during the 12-month period concerning the firm's efforts to address the criticisms, and each firm made a timely submission, pursuant to PCAOB Rule 4009, concerning those efforts ("Rule 4009 submission"). With respect to each of those Rule 4009 submissions, the Board determined that the firm addressed the quality control criticisms to the Board's satisfaction for purposes of Section 104(g)(2) of the Act. As a result, under the Act, "no portions of the inspection report that deal with (the quality control criticisms) shall be made public." **PCAOB Release 104-2006-077** Every Board inspection report that includes a quality control criticism alerts the firm to the opportunity to prevent the criticism from becoming public. The inspection report specifically encourages the firm to initiate a dialogue with the Board's Inspections staff about how the firm intends to address the criticisms. The Board provides the opportunity for dialogue so that a firm acting in good faith can receive timely feedback from the staff and enhance its efforts accordingly before the 12-month deadline. By the 12-month deadline, a firm that seeks to keep the criticism nonpublic may make a submission, pursuant to PCAOB Rule 4009, concerning the ways in which the firm has addressed the criticism (a "Rule 4009 submission"). […] After a firm makes a timely Rule 4009 submission, the Board must determine whether the firm has addressed the criticisms satisfactorily for purposes of Section 104(g)(2) of the Act.

	In connection with each Rule 4009 submission, the Board receives a recommendation from the Director of the Division of Registration and Inspections, which, among other things, takes into account any dialogue between the firm and the Inspections staff during the 12-month period. In some cases, the Board may make its determination on the basis of a firm's written submission in circumstances where there was little or no dialogue between the firm and the staff during the 12-month period. In other cases, the Board may make its determination on the basis of the firm's written submission in circumstances where the firm shaped its remediation efforts through substantial dialogue with the staff. In all cases, the process results in a determination favorable or unfavorable to the firm as to each quality control criticism in the inspection report. […]

Table 4C: Examples of replies made by (some) Big-Four auditors in response to the initial limited and full PCAOB inspection reports

Auditor	Date	Topic	Quotes
Deloitte & Touche LLP	7/22/04	EITF 95-22	The [PCAOB] staff initially identified several situations in which revolving credit debt had been misclassified. Further investigation [by Deloitte & Touche LLP] identified additional similar situations. In all cases, our clients restated their balance sheets to reflect the appropriate classification. We take these misclassifications very seriously, and we have undertaken a process to evaluate precisely what was omitted and how new processes and procedures can preclude a recurrence. We will be modifying our audit procedures and conduct appropriate training once our evaluation is complete.
Deloitte & Touche LLP	7/22/04	Documentation	We are actively reviewing and revising our documentation policies and procedures to address the new standards proposed by the PCAOB.
Ernst & Young LLP	7/22/04	EITF 95-22	[We] issued an alert to our partners and staff to reemphasize our firm's guidance regarding EITF 95-22, specifying that they particularly review debt agreements during our 2003 audits, and requiring consultation whenever the applicable conditions were present.
KPMG LLP	7/22/04	EITF 95-22	[KPMG's Department of Professional Practice] issued enhanced technical guidance and practice aids to assist our professionals in identifying the existence of financial agreements that might meet the criteria of EITF No. 95-22 and analyzing such agreements.
KPMG LLP	7/22/04	Firm-wide improvements	First, the Tax Provision Reviewing Partner Network was formed. These audit and tax partners will provide additional training to professionals in the area of tax provisions and have introduced a more extensive tax provision audit program to enhance substantive audit procedures in this area. Second, an audit training and methodology partner role was created. Residing in local offices, this partner specializes in the firm s audit methodology and serves as a resource to local engagement teams as we roll out the implementation of new professional auditing standards and continue to evolve our audit methodology to address today's changing environment. These individuals allow us to bring real time training, developed nationally and delivered locally, to our audit professionals.

KPMG LLP (continued)			Third, an Audit Quality Council (AQC) has been formed to reassess the firm's audit-related training. The AQC brings together the experiences of a group of partners to discuss issues arising from audit engagements and internal and PCAOB inspection results to recommend areas that training should address. For example, in our national and local office training sessions, we have increased the focus on the importance of including appropriate documentation within the audit work papers. Furthermore, we stress the critical need for the audit engagement partner and manager to analyze the accounting implications that the client's major contracts may have on the company's financial statements.
PricewaterhouseCoopers LLP	7/22/04	Part II Findings	Part II of the draft report describes some concerns about potential quality control defects that, under the Act and PCAOB rules, will be made public only if they are not addressed, to the satisfaction of the Board, within twelve months from the date of the final inspection report. In part because this is the first report the Board is issuing, but also because of our intention to be fully responsive, we would like to meet with members of the Board and its staff soon after the final report is issued so that we may ensure that we fully understand the potential quality control issues raised in Part II, as well as to discuss the Board's expectations as to our response. Our goal would be to come to an understanding of the process through which we can satisfy the Board that the actions we are and will be taking are adequate to address the matters contained in the report.
PricewaterhouseCoopers LLP	10/26/05	Firm-wide improvements	We have taken substantive steps to address the Board's concerns, and we believe the steps we have taken, and are continuing to take, will contribute to improved audit quality and responsive to these [PCAOB inspection report] findings. We have updated our policies, conducted training, improved technology, increased internal inspections, hired more resources, communicated our leadership expectations related to audit quality, and modified our partner evaluation and compensation process.

Section 5: Survey of publicly available information about the PCAOB inspection regime

In this section, we provide examples illustrating that capital market participants could have learned about the scope and effectiveness of the PCAOB inspection regime from public sources. Overall, the sources in this section (as well as in Table 4C of the previous section) support the notion that there was a substantial amount of meaningful public information based on which investors could have formed and updated their assessments of the new PCAOB regime, ensuing changes in auditing as well as reporting credibility. For example, Offermanns and Peek (2011) find evidence of a statistically and economically significant market response to the release of PCAOB inspection reports, which is consistent with the notion that investors use the reports in their assessments.

Table 5A: Authoritative pronouncements

Author	Topic	Date	Forum	Brief Description
107th Congress	Creation of the PCAOB	July 30, 2002	Legislation	Sections 104 (Inspections) and 105 (Enforcement) of SOX gave very specific mandates to the PCAOB in conducting its oversight program. SOX was highly publicized and widely followed during its creation and passage.
PCAOB	Proposed Inspection and Enforcement Rules	July 23 - 28, 2003	PCAOB Website	The PCAOB first made available publicly the proposed rules which would govern inspection and enforcement on registered firms.
PCAOB	Final Inspection and Enforcement Rules	Sept – Oct 2003	PCAOB Website	The PCAOB made available publicly the final rules.
PCAOB	Report on 2003 Limited Inspections of Big Four Accounting Firms	August 26, 2004	PCAOB Website	In conjunction with the limited inspection reports, the PCAOB release a supplemental report that described the nature and scope of the limited inspections. Because the limited inspection reports were highly publicized by the financial press, this report was likely useful in helping readers process the information.
PCAOB	"Appendix B": The Inspection Process	Oct 2005 – Jan 2006	Appendix to Full Inspection Reports	With each full inspection report, the PCAOB included an appendix which describes the inspection process. In this description, the PCAOB uses plainer language to describe an inspection and describes fully the "quality control" focus areas that greatly supplement the legal and broad wording used for the inspection rules. Like the prior report, this appendix is likely useful in updating readers on the underlying regime.

Table 5B: Media Coverage

Author	News Outlet	Date	*Title* / Brief Description and/or Quotes
Bryan-Low	The Wall Street Journal	July 23, 2003	*Corporate Reform: The First Year: Modest Digs, Tough Job for an Accounting Cop* The PCAOB started the limited inspections on the Big Four firms which focused on culture, compensation and career paths. The head of regulatory affairs at PwC said the board focused on detailed reviews of specific engagements while also emphasizing more structural issues such as partner compensation, client-retention procedures and processes for consulting on technical issues, and he was impressed with the work the inspectors had done.
O'Kelley	Financial Times	July 30, 2004	*Happy second birthday, Sarbanes-Oxley* Gene O'Kelley, chairman and chief executive of KPMG, acknowledged the work of the PCAOB, saying that "(inspection) reports will indicate some issues to be addressed by the accounting profession" and "we shall take those reports to heart and respond robustly. In the end, I see the PCAOB as there to help us be better auditors."

Johnson	The Washington Post	August 27, 2004	*Accounting Board Finds Violation; Inspections of Big Four Firms' Audits Reveal Poor Recordkeeping* "Our findings say more about the benefits of the robust, independent inspection process … than they do about any infirmities in these firms' audit practices," Chairman William J. McDonough said. […] Accounting scholars and industry experts who read the reports said they were surprised at their thoroughness, especially because board inspectors were operating at bare-bones staffing levels at the time. […] "We are taking all appropriate steps to address all findings and resolve any concerns," James S. Turley, Ernst & Young's chief executive, wrote in a letter posted on the firm's Web site."
Michaels	Financial Times	August 27, 2004	*Watchdog promises 'unflinching candour': Board found plenty to criticise in first reports, says Adrian Michaels* The US's new accounting regulator, in publishing its first reports on inspections at the Big Four auditors, cheerfully admits it is being harsh. The Public Company Accounting Oversight Board said: "An essential ingredient of the board inspection process is an unflinching candour with firms about the points on which we see a need for improvement." The board said it was not its job to repeat the good work it had found at the firms, acknowledging that the reports therefore "appear to be laden with criticism". […] KPMG went further than its rivals in explaining what it had done to answer criticisms - even revealing some of the PCAOB's issues in parts of the report that were kept private. The PCAOB said KPMG did not make clear internally that audit quality was the most important factor in evaluation and compensation reviews. That has changed. The PCAOB was also confused - no longer, says KPMG - by the fact that KPMG often sent audit proposals addressed to a company's management, not highlighting "that the audit committee is the 'primary' client".
Norris	The New York Times	August 27, 2004	*Federal Regulators Find Problems at 4 Big Auditors* The board reviewed the details of 16 audits in 2003 at each firm. The versions of the reports that were made public left out large parts of the actual reports because Congress ordered that the firms be given a year to clean up many problems before negative assessments could be made public. William J. McDonough, the board's chairman, tried to soften the blow on the firms by saying the "criticisms do not reflect any broad negative assessment of the firms' audit practices" and emphasizing that "our findings say more about the benefits of the robust, independent inspection process envisioned in the Sarbanes-Oxley Act of 2002 than they do about any infirmities in these firms' audit practices." He added that "none of our findings has shaken our belief that these firms are capable of the highest quality auditing." Nonetheless, the reports document cases where the four firms failed to apply one accounting rule, leading companies to understate the amount of their current liabilities -- debts due within one year -- and therefore overstate their working capital, an item that analysts often follow.
Weil	The Wall Street Journal	August 27, 2004	*Big Four Get Mixed Marks From U.S. Panel* Yesterday's reports by the accounting board, which was created by Congress in 2002 under the landmark Sarbanes-Oxley securities-overhaul legislation, mark the first time that auditors of publicly held companies have submitted to public evaluations by an independent authority. While the board's initial round of inspections was limited in scope, the fact that the reports contained any criticisms at all marks an improvement over the firms' prior system of "peer review." Under that approach, at a time when the auditing profession still was allowed to regulate itself, the major accounting firms reviewed each other every few years and refrained from criticisms.

Section 6: Timing of other concurrent regulatory changes

In this section, we discuss the timing of other regulatory changes that occurred around the introduction of the PCAOB regime to assess the extent to which the timing of these changes makes them potential alternative explanations for our findings. There are three specific regulatory changes that are particularly relevant: 1) foreign countries' adoption of their own public audit oversight regimes; 2) additional SOX provisions not related to the formation of the PCAOB, including: a) Section 302 (management certification of the financial statements); b) Section 404 (rules regarding the preparation and certification of internal control reports); c) rules regarding auditor independence; and 3) auditing standards.

Table 6A provides details on the adoption date of the other significant SOX provisions for both US and Foreign filers and across large accelerated, accelerated, and non-accelerated filers. Section 302 and auditor independence rules were passed at the same time and, importantly, they apply to both treatment and control groups simultaneously. Section 404 affects our treatment and control groups at different times depending on firm size. We conduct a variety of additional analyses (discussed in the manuscript in Section 4.2) to address the possibility that the adoption of SOX 404 represents an alternative explanation for our results. Overall, we find little evidence suggesting that our results are attributable to the adoption of SOX 404. In Table 6D, we explicitly gauge the overlap in fiscal-year ends with the onset of SOX sections 302 and 404 (more details below.)

Table 6B provides details on the timing of new public audit oversight regulation for major countries from which we draw control firms in our analyses. If the adoption of this regulation coincides with the introduction of the PCAOB, it could bias against finding an effect. As the table shows, there is some overlap between the legislation establishing audit oversight in our sample countries. However, further investigation of the cases where there is some overlap in timing with the introduction of the PCAOB inspection regime reveals that although many countries passed laws establishing audit oversight, few had already established an oversight process and actual inspection regime. Thus, it is unlikely that any of our sample countries experience practical changes in audit oversight that would materially bias against our findings. Additionally, we redo the combined, unmatched analyses from Table 3, Panels A and B excluding countries with legislation in years 2003 through 2005 and find comparable results. The Panel A equivalent coefficient of interest is 0.664 with a t-statistic of 2.2, and the Panel B equivalent coefficient of interest is 0.971 with t-statistic of 3.1.

Table 6C provides details on the timing of new PCAOB auditing standards. If the adoption of these standards coincides with the introduction of the PCAOB inspection regime and these standards require auditors to conduct new procedures, our results could reflect the joint effects of new auditing standards and the new inspection regime. Such effects would still be attributable to the introduction of the PCAOB but they would give rise to another mechanism through which the PCAOB could affect capital-market outcomes. As this mechanism has a qualitatively different interpretation, we provide an overview of changes in auditing standards to gauge the overlap with the rollout of the inspection regime. Initially, the PCAOB made existing Generally Accepted Auditing Standards effective on an interim basis and changed how auditing standards should be referred to in the audit report (AS1). This change should have no effect on our research design. AS2 and its subsequent replacement with AS5 pertain to the SOX Section 404 mandate and hence represent more substantive changes to the audit environment. However, as discussed above, we conduct a variety of additional analyses to assess the extent to which the adoption of (audited) internal control reporting affects our inferences. These tests would also capture Section 404-related changes in auditing standards. AS3 relates to the audit documentation firms must maintain. We view this change as intertwined with the new PCAOB inspection regime, and thus an element of what we aim to examine. It is not a confounding event. AS4 represents a relatively minor change to the internal control weaknesses reporting requirements and is not adopted until 2006. Accordingly, it is implausible that this standard has a significant impact on our results.

Table 6D presents details on the adoption timing of the other SOX provisions relative to the timing of the fiscal year in which our sample of triennial firms were first treated by the PCAOB inspection regime. Panel A presents the timing of SOX 302 adoption relative to the fiscal year of the first PCAOB inspection using the *inspection report release* cutoff date. The timing of the first SOX 302 opinion coincides with the initial inspection year for only 2.7% of our sample. Panel D presents the timing of SOX 404 adoption relative to the fiscal year of the first PCAOB inspection using the *inspection report release* cutoff date. The timing of the first SOX 404 opinion coincides with the initial inspection year for only 6.8% of our sample. Overall, the tables show little overlap between other SOX provisions and the treatment dates of the PCAOB inspection regime, suggesting that the triennial inspection analysis is unlikely to be confounded by the concurrent adoption of other SOX provisions.

Table 6A: Timing of the adoption of other SOX provisions by filer status

Provision	US large accelerated filers	US accelerated filers	US non-accelerated Filers	Foreign large accelerated filers	Foreign accelerated filers	Foreign non-accelerated filers
302	FYE on or after August 29, 2002	FYE on or after August 29, 2002	FYE on or after August 29, 2002	FYE on or after August 29, 2002	FYE on or after August 29, 2002	FYE on or after August 29, 2002
404(a)	FYE on or after November 15, 2004	FYE on or after November 15, 2004	FYE on or after December 15, 2007	FYE on or after July 15, 2006	FYE on or after July 15, 2006	FYE on or after December 15, 2007
404(b)	FYE on or after Nov. 15, 2004	FYE on or after November 15, 2004	N/A	FYE on or after July 15, 2006	FYE on or after July 15, 2007	N/A
Auditor Independence	FYE on or after August 29, 2003	FYE on or after August 29, 2003	FYE on or after August 29, 2003	FYE on or after August 29, 2003	FYE on or after August 29, 2003	FYE on or after August 29, 2003

Table 6B: International public audit oversight adoption years

Country	Year	Legal source	Country	Year	Legal source
Austria	2006	Quality Control for Audits Act 2005	Italy	2010	Lgs. Decree no. 39/2010
Argentina	2012	Nueva Ley de Mercado de Capitales N 26.831	Japan	2004	CPA Act as amended 2003
Australia	2001	Corporations Act 2001	South Korea	2008	Revised: The Act on the Establishment of Financial Services Commission
Bermuda	2011	Bermuda Public Accountability Act 2011	Luxembourg	2010	The law of 18 Dec. 2009
Brazil	1999	CVM Instruction 308/99	Mexico		N/A
Canada	2003	Canada Corporations Act	Netherlands	2006	Act of 19 January 2006
Chile	N/A	N/A	Norway	1992	Financial Supervision Act
China	N/A	N/A	Singapore	2004	ARCA Act
France	2003	Financial Security Act 2003 - 706	South Africa	2005	Auditing Profession Act
Germany	2004	Auditor Oversight Act WPO 12/2004	Spain	2011	Royal Legislative Decree 1/2011
Greece	2003	Law 3148/2003	Sweden	2002	Auditors Act (2001:883)
India	N/A	N/A	Switzerland	2005	Federal Act on the Licensing and Oversight of Auditors
Ireland	2003	Companies Act of 2003	Taiwan (China)	2007	CPA Act
Israel	N/A	N/A	United Kingdom	2004	Companies Acts 2004 and 2006

Table 6C: Auditing standards

Auditing Standard	Effective Date	Description
PCAOB Rules 3200T, 3300T, 3400T, 3500T , and 3600T	FYE on or after April 16, 2003	The PCAOB adopted certain preexisting auditing and related standards (i.e., GAAS). The standards that the Board adopted require registered public accounting firms and their associated persons to comply with these interim standards to the extent they are not superseded or amended by the Board.
AS1	FYE on or after May 24, 2004	This standard requires references in auditors' reports to the standards of the Public Company Accounting Oversight Board
AS2/AS5	FYE on or after November 15, 2004 with various amendments and postponements depending on accelerated filer status	This standard provides details on the rules regarding the preparation and certification of internal control reports.
AS3	FYE on or after November 24, 2004	This standard establishes general requirements for documentation the auditor should prepare and retain in connection with engagements conducted pursuant to the standards of the PCAOB.
AS4	FYE on or after February 6, 2006	This standard establishes requirements for reporting on whether a previously reported material weakness continues to exist.

Table 6D: Details on the Timing of the Adoption of other SOX Provisions for Small Auditors

Panel A: Timing of SOX 302 Adoption Relative to the Fiscal Year of Treatment for Small Auditors using the Inspection Report Release as the Cutoff Date

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Fiscal Year of Treatment	**Fiscal Year of Treatment minus Fiscal Year of First SOX 302 Opinion**									**No 302 Obs (&Other)**	**Total**
	-2	**-1**	**0**	**1**	**2**	**3**	**4**	**5**	**6**		
2005	1	3	1	4	5	15				35	64
2006		2	7	4	2	9	55			51	130
2007			4	1	2	2	9	73		90	181
2008				5	4	1	3	6	41	77	137
Other					1			1		15	17
Total	1	5	12	14	14	27	67	80	41	268	529

SOX Adoption Year	**Firm Count**
2002	184
2003	29
2004	11
2005	8
2006	15
2007	12
No Obs (&Other)	268
Total	529

Panel A compares the timing of the fiscal year when *Post* = 1 for the first time relative to the timing of the firm's first observed SOX 302 opinion using the inspection report release as the cutoff date (i.e., *Post* equals one if a firm's fourth quarter earnings announcement falls on or after the release date of the inspection report, and zero otherwise). Each row separates the firms by fiscal year—indicated in Column (1)—where the treatment indicator, *Post*, switches from 0 to 1. Each column separates the firms by timing distance—indicated in Columns (2) through (10)—to the fiscal year of the firm's first SOX 302 opinion. Each cell counts the number of unique firms for which the firm's initial PCAOB inspection overlaps with the firm's first SOX Section 302 opinion. For instance, the highlighted cell in column (5) shows that four firms had *Post* coded as 1 for the first time in 2006, but issued their first SOX 302 opinion one year earlier in 2005. Column (11) enumerates the number of firms where we observe no SOX 302 opinion. We indicate the SOX adoption year by color and include a reconciliation to the total. Note in Column (4), 12 firms of 529 total firms, only 2.3%, adopt SOX 302 at the same time as the initial PCAOB inspection. When the fiscal year of treatment exceeds 2007, the *Post* variable is equal zero for the series that includes fiscal years 2001 through 2007, i.e. our triennial tests in the manuscript.

Table 6D: Details on the Timing of the Adoption of other SOX Provisions for Small Auditors (continued)

Panel B: Timing of SOX 404 Adoption Relative to the Fiscal Year of Treatment for Small Auditors using the Inspection Report Release as the Cutoff Date

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(10)	(11)
Fiscal Year of Treatment	**Fiscal Year of Treatment minus Fiscal Year of First SOX 404 Opinion**							**No 404 Obs (&Other)**	**Total**
	-2	**-1**	**0**	**1**	**2**	**3**	**4**		
2005	6	5	6	5				42	64
2006		10	12	17	29			62	130
2007			10	20	20	41		90	181
2008				8	13	26	30	60	137
Other					1	1	1	14	17
Total	6	15	28	50	63	68	31	268	529

SOX Adoption Year	**Firm Count**
2004	105
2005	69
2006	50
2007	34
No Obs (&Other)	271
Total	529

Panel B compares the timing of the fiscal year when *Post* = 1 for the first time relative to the timing of the firm's first observed SOX 404 opinion using the inspection report release as the cutoff date (i.e., *Post* equals one if a firm's fourth quarter earnings announcement falls on or after the release date of the inspection report, and zero otherwise). Each row separates the firms by fiscal year—indicated in Column (1)—where the treatment indicator, *Post*, switches from 0 to 1. Each column separates the firms by timing distance—indicated in Columns (2) through (8)—to the fiscal year of the firm's first SOX 404 opinion. Each cell counts the number of unique firms for which the firm's initial PCAOB inspection overlaps with the firm's first SOX Section 404 opinion. For instance, the highlighted cell in column (5) shows that 17 firms had *Post* coded as 1 for the first time in 2006, but issued their first SOX 302 opinion one year earlier in 2005. Column (10) enumerates the number of firms where we observe no SOX 404 opinion. We indicate the SOX adoption year by color and include a reconciliation to the total. Note in Column (4), 28 firms of 529 total firms, only 5.3%, adopt SOX 404 at the same time as the initial PCAOB inspection. When the fiscal year of treatment exceeds 2007, the *Post* variable is equal zero for the series that includes fiscal years 2001 through 2007, i.e. our triennial tests in the manuscript.

Appendix B – Details on the Timing of the Introduction of the PCAOB Inspection Regime and Identification Strategy

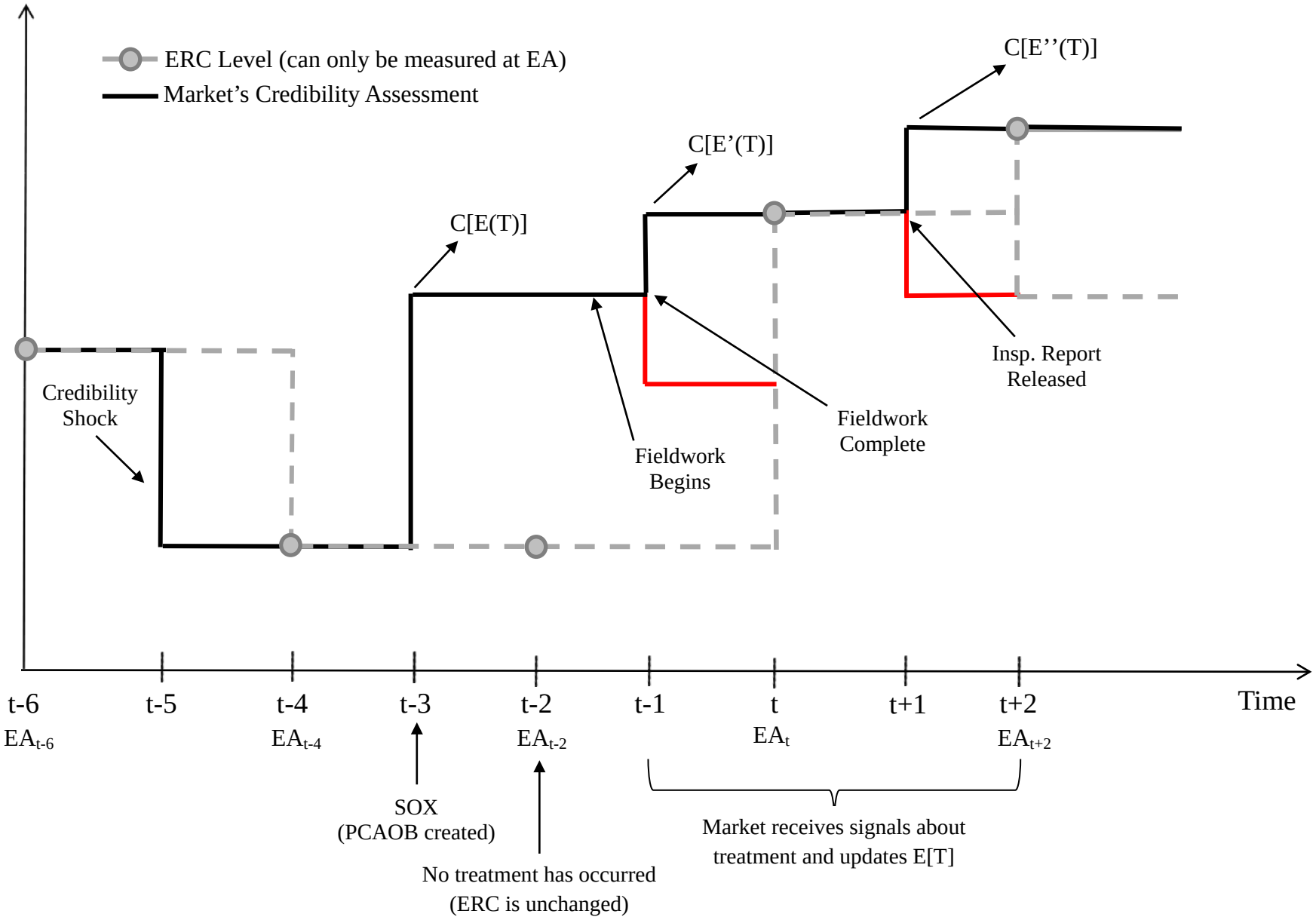
Panel A: Annually-Inspected Auditor Fieldwork and Inspection Report Release Dates

Auditor	Fieldwork		Report Date
	Commences	Concludes	
Limited Inspections			
Big-Four Auditors			
Deloitte & Touche	June 2003	December 2003	Aug 28, 2004
Ernst & Young	June 2003	December 2003	Aug 28, 2004
KPMG	June 2003	December 2003	Aug 28, 2004
PricewaterhouseCoopers	June 2003	January 2004	Aug 28, 2004
Full Inspections			
Big-Four Auditors			
Deloitte & Touche	May 2004	November 2004	Oct 06, 2005
Ernst & Young	July 2004	December 2004	Nov 17, 2005
KPMG	June 2004	October 2004	Sep 29, 2005
PricewaterhouseCoopers	May 2004	January 2005	Nov 17, 2005
Tier-Two Auditors			
BDO	May 2004	July 2004	Nov 17, 2005
Crowe Chizek	November 2004	December 2004	Jan 19, 2006
Grant Thornton	May 2004	March 2005	Jan 19, 2006
McGladrey & Pullen	October 2004	December 2004	Nov 30, 2005

Appendix A provides details on the timing of the introduction PCAOB inspection regime. Panel A provides the beginning and end dates for PCAOB fieldwork and the inspection report release dates for both limited and full inspections by auditor.

Appendix B – Details on the Introduction of the PCAOB Inspection Regime (continued)

Panel B: Stylized Timeline



Appendix B – Details on the Introduction of the PCAOB Inspection Regime (continued)

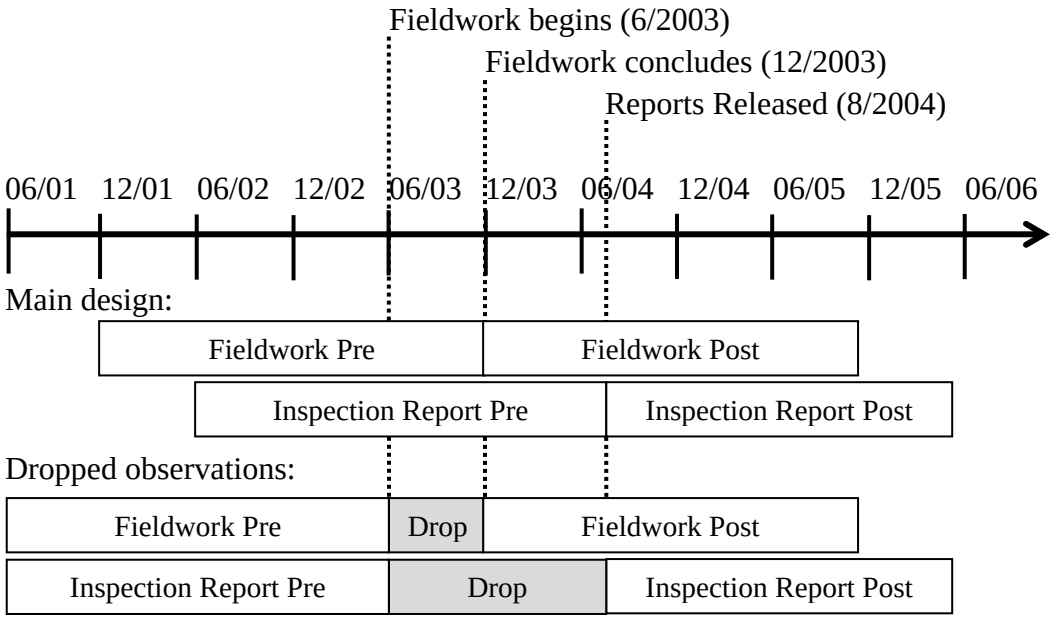
Time	Event(s)	Market Assessment of Credibility (C)		Earnings Response Coefficient (ERC)	
t-6	Pre-treatment EA_{t-6} "normal" times	C_{t-6}	Baseline credibility	$ERC_{t-6} = C_{t-6}$	Baseline ERC
t-5	Shock to credibility (e.g., Enron)	$C_{t-5} < C_{t-6}$	Credibility declines	N/A (measured only at EA)	
t-4	Pre-treatment EA_{t-4}	$C_{t-4} = C_{t-5}$	No change	$ERC_{t-4} = C_{t-5} < ERC_{t-6}$	ERC declines
t-3	SOX & PCAOB established	$C_{t-3}[E(T)] > C_{t-4}$	Under the hypothesis that regime has impact, credibility increases based on E(T)	N/A (measured only at EA)	
t-2	Pre-treatment EA_{t-2}	$C_{t-2} = C_{t-3}$	No new info about E(T)	$ERC_{t-2} = ERC_{t-4}$	No change as auditor has not yet been treated
t-1	Fieldwork Completed	$C_{t-1}[E'(T)] \lesseqgtr C_{t-2}^{*}$	Market may have received new info about regime and updates to E'(T)	N/A (measured only at EA)	
First (potential) cutoff date					
t	Post-treatment EA_t	$C_t = C_{t-1}$	No change	$ERC_t = C_t$	ERC based on updated credibility assessment; Test $ERC_t \geq ERC_{t-2}$
t+1	Inspection Report Release	$C_{t+1}[E''(T)] \lesseqgtr C_t^{*}$	Market receives new info about regime and updates to E''(T)	N/A (measured only at EA)	
Latest (potential) cutoff date					
t+2	Post-treatment EA_{t+2}	$C_{t+1} = C_{t+2}$	No change	$ERC_{t+2} = C_{t+2}$	ERC based on updated credibility assessment; Test $ERC_{t+2} \geq ERC_{t-2}$

Panel B provides a stylized timeline of changes in the market's assessment of credibility and the earnings response coefficient surrounding the introduction of the PCAOB inspection regime. The predictions are formed under the hypothesis that the PCAOB regime increases reporting credibility. We denote the market's expectation of the treatment with E(T), reflecting that the treatment is not directly observable. ERCs are assumed to be a function of the market's credibility assessment $C_t[\bullet]$ given the prevailing state of the expectation about treatment.

[*] Note that under the hypothesis that the regime has impact, $C_{t-1}[E'(T)] > C_{t-4}$ and $C_{t+1}[E''(T)] > C_{t-4}$. The regime change analysis benchmarks against the pre-treatment ERCs, i.e., $ERC_t \geq ERC_{t-2} = ERC_{t-4}$ and $ERC_{t+2} \geq ERC_{t-2} = ERC_{t-4}$, respectively.

Appendix B –Details on the Introduction of the PCAOB Inspection Regime (continued**)**

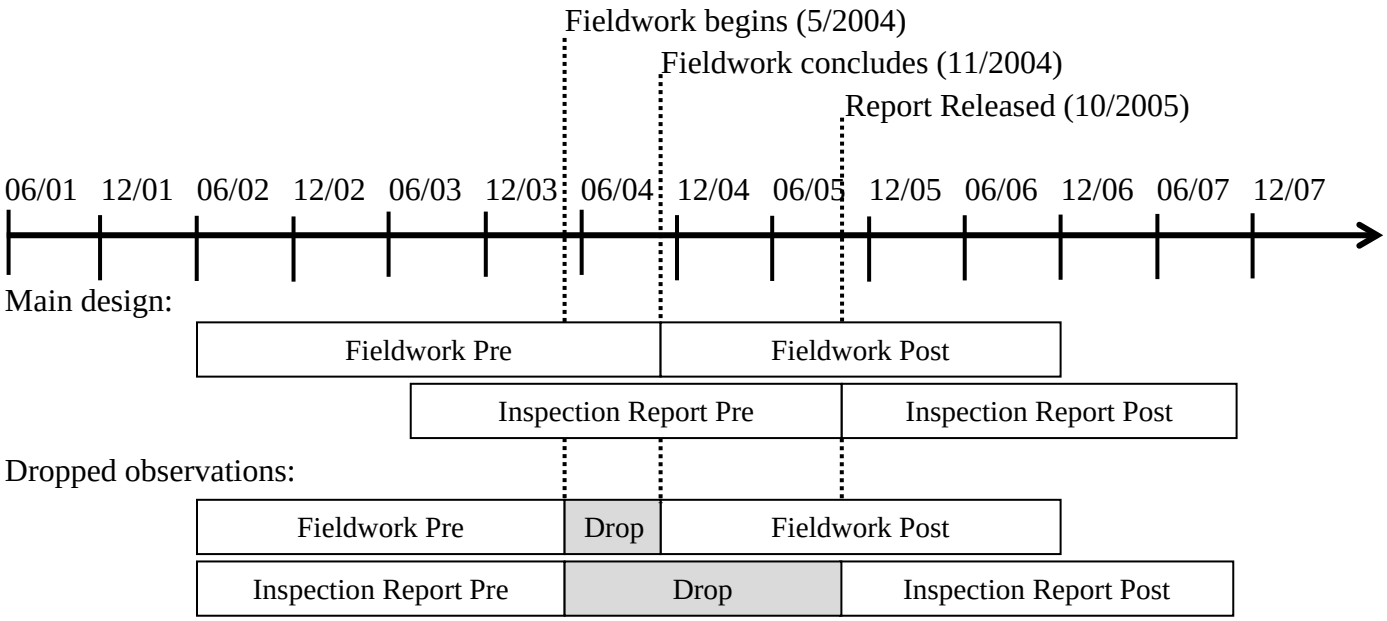
Panel C: Limited Inspections – Treatment Timing



Panel C describes the coding of the *Post* variable around the Limited Inspections. We use two different designs. In the "Main design," we use the conclusion of the fieldwork or the release of the inspection report as alternative cutoff dates to define adjacent pre and post periods. We then use two earnings announcements in the pre- and the post period for a given firm. In the "Dropped observations" design, we exclude fiscal year-ends that occur *during* PCAOB fieldwork when using the fieldwork end as the cutoff date and fiscal year-ends that occur between the start of fieldwork and the release of the inspection report when using the inspection report release as the cutoff date. The idea of the dropped observations design is to avoid contamination. Timeline dates are presented MM/YY.

Appendix B –Details on the Introduction of the PCAOB Inspection Regime (continued**)**

Panel D: Full Inspections – Treatment Timing (specific dates presented from Deloitte & Touche as an example)



Panel D describes the coding of the *Post* variable around the Full Inspections. We use two different designs. In the "Main design," we use the conclusion of the fieldwork or the release of the inspection report as alternative cutoff dates to define adjacent pre and post periods. We then use two earnings announcements in the pre and the post period for a given firm. In the "Dropped observations" design, we exclude fiscal year-ends that occur *during* PCAOB fieldwork when using the fieldwork end as the cutoff date and fiscal year-ends that occur between the start of fieldwork and the release of the inspection report when using the inspection report release as the cutoff date. The idea of the dropped observations design is to avoid contamination. Timeline dates are presented MM/YY.

Appendix B –Details on the Introduction of the PCAOB Inspection Regime (continued**)**

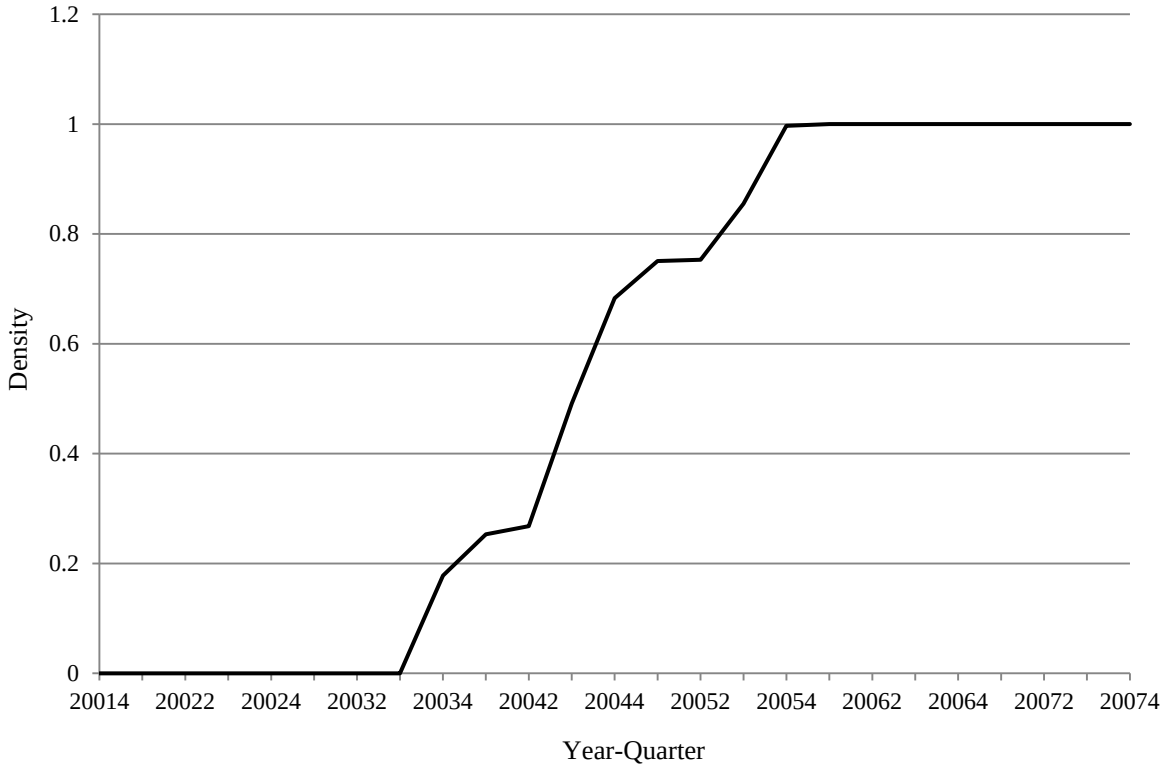
Panel E: Examples illustrating our coding of the *Post* variable for triennially-inspected auditors

	Fiscal Year-End												
Issuer	Q4 2003	Q1 2004	Q2 2004	Q3 2004	Q4 2004	Q1 2005	Q2 2005	Q3 2005	Q4 2005	Q1 2006	Q2 2006	Q3 2006	Q4 2006
Nu Horizons Electronics (February FYE) Auditor: Lazar Levine & Felix LLP Auditor Inspected: 11/8/04 – 11/18/04		**0** 5/5 N/A				**1** 5/11 174				**1** 5/9 537			
Mediware Info Systems (June FYE) Auditor: Eisner LLP Auditor Inspected: 5/10/04 – 6/5/04			**0** 8/31 N/A				**1** 9/2 454				**1** 9/6 823		
Bio Reference Labs (October FYE) Auditor: Moore Stephens PC Auditor Inspected: 5/10/04 – 5/14/04				**1** 1/6 237				**1** 1/5 601				**1** 12/19 949	
Madden Steven LTD (December FYE) Auditor: Eisner LLP Auditor Inspected: 5/10/04 – 6/5/04	**0** 2/26 N/A				**1** 3/1 269				**1** 3/2 635				**1** 3/1 999
TXCO Resources Inc. (December FYE) Auditor: Akin Doherty Klein & Feuge PC Auditor Inspected: 5/17/05 – 5/20/05	**0** 3/5 N/A				**0** 3/14 N/A				**1** 3/8 292				**1** 3/12 661
First Merchants Corp (December FYE) Auditor: BKD LLP Auditor Inspected: 5/22/06–5/25/06	**0** 1/21 N/A				**0** 1/28 N/A				**0** 1/27 N/A				**1** 1/23 243

Panel E provides examples illustrating how we code the *Post* variable for analyses using the end of the inspection fieldwork as the cutoff date. For triennially-inspected auditors, *Post* is an indicator variable that equals one for any firm fiscal year-end 30 days after the conclusion of PCAOB inspection fieldwork of the firm's auditor, and zero otherwise. As illustrated by the examples above, the inspection dates, and therefore the time series of the *Post* variable, vary across auditors. Each 0/1 coded cell (emphasized in bold) represents a firm-year observation. Each cell also includes the earnings announcement date and the time interval, in days, between the end of PCAOB fieldwork and the earnings announcement date of the firm. The latter highlights that there is often a substantial lag between the conclusion of the PCAOB inspection and the client's earnings announcement, giving auditors time to adjust their audit procedures. Although the issuers listed in the table are clients of the inspected auditor, the table does not imply that the specific engagement with the issuer was or was not inspected (this information is not publicly available). The purpose of the analysis is to examine whether treatment of the auditor with the PCAOB inspection regime increases reporting credibility of the issuers, irrespective of inspections of specific engagements (and their outcomes).

Appendix B – Details on the Introduction of the PCAOB Inspection Regime (continued)

Panel F: Breakdown of the *Post* variable for Annually-Inspected Auditor Fieldwork and Inspection Report Release Dates



Panel F provides a breakdown of the *Post* variable for annually-inspected auditor fieldwork and inspection report release dates, i.e. using the "combined" sample as described in Section 4.1. The y-axis is defined as the percentage of firms for which *Post*=1 (i.e., the density). The x-axis is defined as the calendar year-quarter.

Appendix C - Variable definitions

Variables Used in Calculating Earnings Response Coefficients

$CAR_{i,t}$	A firm's 3-day return, centered on the earnings announcement date, less the CRSP market return over the same period. The earnings announcement date is defined as the earliest date available on Compustat or I/B/E/S. If the earnings announcement date is taken from I/B/E/S, the announcement date is the same (next) trading day if the announcement time is earlier (later) than 4pm EST.
$UE_{i,t}$	The difference between the I/B/E/S actual, annual EPS and the median I/B/E/S forecast of annual EPS from each analyst's most recent forecast in a window beginning 95 calendar days prior to the earnings announcement and ending 3 days prior to the earnings announcement scaled by the CRSP price from 2 days prior to the earnings announcement. For the triennially-inspected-auditor analysis, we supplement these forecasts by including the difference between the I/B/E/S actual, annual EPS and the median I/B/E/S forecast of annual EPS from each analyst's most recent forecast in a window beginning 360 calendar days prior to the earnings announcement and ending 3 days prior to the earnings announcement when the shorter window, detailed above, does not contain a forecast.

PCAOB Inspection Indicators

$Post_{i,t}$	An indicator variable, based on an auditor's global network, that equals one for all firm-years subsequent to a firm's auditor's U.S. affiliate's treatment through the PCAOB inspection process, defined for each event as follows: 1) Big Four limited and full inspection fieldwork and Tier Two full inspection fieldwork: *Post* equals one if a firm's fiscal year-end is in the same month as the final month of fieldwork (as indicated in Appendix A Panel A) or later, and zero otherwise; 2) triennially-inspected auditor full inspection fieldwork: *Post* equals one if a firm's fiscal year-end is after the auditor-specific fieldwork end date plus 30 days, and zero otherwise; 3) Big Four limited and full inspection report release, triennially-inspected auditors' inspection report release, and Tier Two full inspection report release: *Post* equals one if a firm's fourth quarter earnings announcement falls on or after the release date of the inspection report (as indicated in Appendix A Panel A), and zero otherwise.
$Treated_{i,t}$	An indicator variable coded as one if a firm is audited by an auditor subject to a (limited or full) PCAOB inspection, and zero otherwise. In the limited and annual full inspection settings, this variable is collinear with the USA fixed effect.

Control Variables

Analyst Following$_{i,t}$	The count of the number of unique analysts who issue at least one forecast on I/B/E/S in a window beginning 360 days prior to the earnings announcement and ending 3 days prior to the earnings announcement. When no forecasts are observed, we set this count to zero.
$Beta_{i,t}$	The coefficient from regressing excess daily returns for firm *i* on excess market returns over one calendar year, ending on the fiscal year-end date. The risk free rate is collected from Ken French's data library.
Filing Delay after $EA_{i,t}$	The count of the number of days between the earnings announcement date defined as the earlier of that available on Compustat or I/B/E/S and the filing date of the 10-K defined as the earlier of the date reported by Audit Analytics or WRDS SEC Analytics.
Filing Delay after $FYE_{i,t}$	The count of the number of days between the firm's fiscal year-end date from Compustat and the filing of the 10-K, defined as the earlier of the date reported by Audit Analytics or WRDS SEC Analytics.
$Leverage_{i,t}$	The ratio of total liabilities to total equity, measured at the fiscal year-end, from Compustat.
Log 10-K File Size	The natural logged value of the file size for the firm's 10-K SEC filing from WRDS SEC Analytics.

$Loss_{i,t}$	An indicator variable coded as one when basic earnings per share excluding extraordinary items (Compustat epspx) is less than zero, and zero otherwise.
Market-to-Book$_{i,t}$	The ratio of the market value of equity to the book value of equity, measured at the fiscal year-end, from Compustat.
$Nonlinear_{i,t}$	A variable equal to $UE_{i,t} \times \lvert UE_{i,t} \rvert$, equivalent to using a cubic term in the regression.
$Persistence_{i,t}$	The coefficient from regressing basic EPS excluding extraordinary items from Compustat on lagged EPS using (where available) up to 10 years of data.
$Size_{i,t}$	The log of market value of equity, measured at fiscal year-end, from Compustat.
$SOX302a_{i,t}$	An indicator variable coded as one when the "IS EFFECTIVE" variable in the Audit Analytics SOX 302 data set is coded as a '0', '1', or '2', and zero otherwise. This variable is only coded 1 for domestic firms.
$SOX404b_{i,t}$	An indicator variable coded as one when the auditor internal control opinion (AUOPIC) variable in Compustat shows an adverse, qualified, or unqualified indicator, and zero otherwise. This variable is only coded 1 for domestic firms.

Alternative Dependent Variables

Abnormal 10-K Volume$_{i,t}$	The mean abnormal trading volume from one day prior to the filing date of the 10-K to three days after. Abnormal trading volume is defined as raw volume less mean daily volume over a window from 49 days prior to the annual financial statement report release to five days prior to the report release (excluding any 3-day earnings announcement window days) divided by the standard deviation of daily volume over the same window. All volume data is from CRSP. The 10-K filing date is defined as the earlier of the date reported by Audit Analytics (as long as it is after the earnings announcement date) and the first observable 10-K date from WRDS SEC Analytics in a 180-calendar-day window beginning on the earnings announcement date.
Earnings Guidance$_{i,t}$	An indicator variable coded as one when a guidance observation, quarterly or annual, is available for the fiscal year-end date on either First Call or I\B\E\S, and zero otherwise.
$Forecast_{i,t}$	The median I/B/E/S forecast of annual EPS from each analyst's most recent forecast in a window beginning 95 days prior to the earnings announcement and ending 3 days prior to the earnings announcement scaled by the CRSP price from 2 days prior to the earnings announcement.
Guidance Bundle$_{i,t}$	An indicator variable coded as one when management provides earnings guidance for any fiscal period, quarterly or annual, within one day of the earnings announcement on either First Call or I\B\E\S, and zero otherwise.
Relative Information$_{i,t}$	This variable captures the share of information arriving prior to the earnings announcement relative to the total amount over a firm's fiscal year. Calculated as the sum of the absolute value of daily, market-adjusted CRSP returns from 345 calendar days prior to the earnings-announcement window until the day before the earnings-announcement window, divided by the same plus predicted returns (based on the implied return to a given level of earnings surprise using the firm's estimated ERCs) for the 3-day earnings announcement window, scaled by 100. $$100 \cdot \frac{\sum_{d=-345}^{0} \left| r_{i,d} - r_{M,d} \right|}{\left| \widehat{\alpha_{lag2}} + UE_i \cdot \widehat{ERC_{lag2}} + Loss_i \cdot \widehat{\beta_{lag2}^{Loss}} + UE_i \cdot Loss_i \cdot \widehat{\beta_{lag2}^{LossERC}} \right| + \sum_{d=-345}^{0} \left| r_{i,d} - r_{M,d} \right|}$$ Returns are from CRSP and *d* represents the number of calendar days relative to two trading days prior to the earnings announcement. To increase the precision of the measurement, we allow separate ERC coefficients for profits and losses.

Scaled Raw Accruals$_{i,t}$	The difference between net income and cash flow from operations scaled by average total assets from Compustat.
Timeliness$_{i,t}$	This variable captures how quickly market prices impound the information reflected in price at $p_{d=0}$, calculated following Beekes and Brown (2006), given by the equation: $$-1 \cdot \frac{\sum_{d=-345}^{0} \left\lvert \log(p_{d=0}) - \log(p_d) \right\rvert}{\sum_{d=-345}^{0} 1_d}$$ We multiply by -1 so the measure is increasing in timeliness. Prices are from CRSP and *d* represents the number of calendar days relative to two trading days prior to the earnings announcement. The indicator function in the denominator turns on when *d* is a trading day.

Throughout the table, subscripts *i* and *t* refer to a particular firm and fiscal year, respectively.

Figure 1: Mapping Out the Treatment Effect: Simultaneously Estimated US Incremental ERC in Event Time

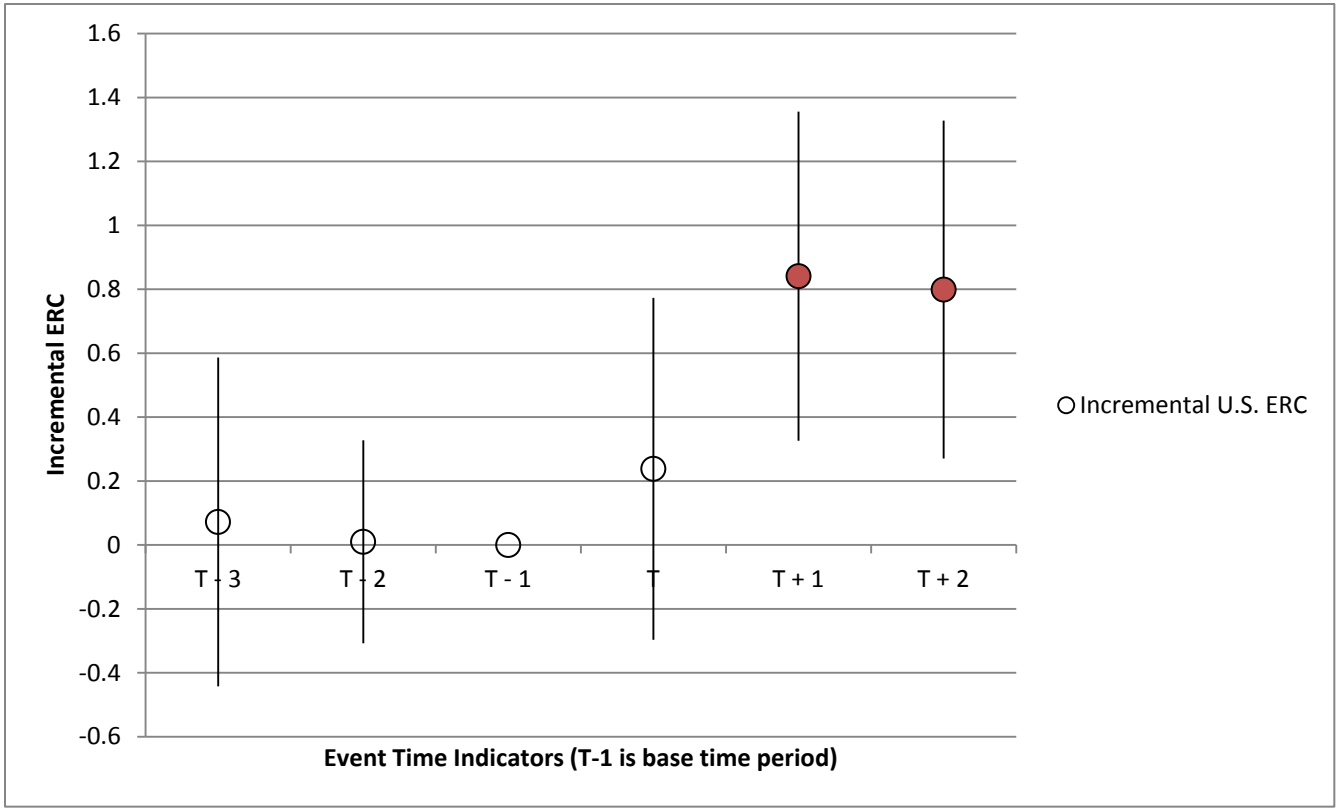


Figure 1 presents simultaneously-estimated trends in earnings response coefficients (ERCs) for firms audited by Big-Four and Tier-Two U.S. auditors and for cross-listed firms audited by the non-U.S. Big Four and Grant Thornton in event time. The figure presents the incremental U.S. ERC for the combined sample using profit firms only (i.e. Loss = 0), which stacks the limited and full inspections analysis for each cutoff date (end of fieldwork and report release) using the dropped observation design (see Appendix B, Panels C and D). We include firms used in our primary analyses (i.e., Table 3 Panel A of the manuscript) plus added years "T-3" and "T+2" to better map out the pre-treatment period and treatment response. Each unshaded [red] dot on the graph represents insignificant [significantly positive] incremental ERC regression coefficient for U.S. firms in event-time (i.e. UE× Treated interacted with event-time dummies) from a robust regression (based on Stata "rreg" command) estimation of Eq. (1). We include auditor and country fixed effects interacted with UE. Each line bar represents two standard errors on either side of the coefficient. For all robust regressions, we calculate robust, firm-level-clustered standard errors using a weighted least squares regression based on the weights (and coefficients) from the robust regression. We provide detailed variable definitions in Appendix C of the manuscript

Table 1: Sample Composition

Panel A: Number of Unique Issuers by Auditor, Inspection Type, and Measurement Cutoff Date

	Unique Firms					Firm-Years
	Limited Inspections		Full Inspections		Combined	
	(1)	(2)	(3)	(4)	(5)	(6)
Treatment Sample	**Fieldwork**	**Reports**	**Fieldwork**	**Reports**		
Big Four Auditors						
Deloitte & Touche	679	714	768	728	825	7,456
Ernst & Young	986	1,028	1,122	1,044	1,198	10,878
KPMG	772	787	830	760	881	8,066
PwC	888	873	920	844	999	9,249
Tier Two Auditors						
BDO Seidman	-	-	118	117	124	464
Crowe Chizek	-	-	46	43	46	185
Grant Thornton	-	-	166	167	179	566
McGladrey & Pullen	-	-	33	36	37	137
Subtotal	**3,325**	**3,402**	**4,003**	**3,739**	**4,289**	**37,001**
Control Sample						
Big Four Auditors						
Deloitte & Touche	95	109	63	59	126	746
Ernst & Young	108	123	89	81	137	953
KPMG	122	125	67	61	138	891
PwC	156	158	95	76	176	1,169
Tier Two Auditor						
Grant Thornton	-	-	2	2	2	6
Subtotal	**481**	**515**	**316**	**279**	**579**	**3,765**
Total	**3,806**	**3,917**	**4,319**	**4,018**	**4,868**	**40,766**

Table 1 provides details on the sample composition for our limited, full, and triennial-inspection analyses. Panel A describes the sample composition for the limited and full inspections by auditor, inspection type, and measurement cutoff date. Columns (1) through (4) report the count of unique firms with available data for each of the four separate measurement dates (limited inspection fieldwork end, limited inspection report release, full inspection fieldwork end, and full inspection report release). We define the exact timing for each of these events in Appendix A, Panel A. In Column (5), we report the number of unique firms in the combined analysis in which we stack all inspections and measurement periods. The combined analysis therefore includes the same firm up to four times. In Column (6), we report the number of firm-years for the combined analysis. We include any firm fiscal year-end that is within two years (before or after) of the respective cutoff date. We require that a firm have available data on Audit Analytics, Compustat, CRSP, and I/B/E/S.

Table 1: Sample Composition (continued)

Panel B: Number of Newly-Treated, Triennially-Inspected Auditors and Firm-Years

	Fieldwork		Inspection Reports	
Calendar Year	**Newly Inspected Auditors (1)**	**Unique Firms (2)**	**Newly Reported-on Auditors (3)**	**Unique Firms (4)**
2004	24	98	-	-
2005	54	98	36	68
2006	73	297	44	131
2007	14	32	56	179
Other	4	4	32	150
Total	**169**	**529**	**169**	**529**
Total Firm-Years		**1,338**		**1,338**

Panel C provides a sample breakdown of the number of newly-treated, triennially-inspected auditors and the number of their unique client firms and firm-years. We include all firm-years on Compustat with fiscal years ending between Q2 2001 and Q2 2008 that meet the following requirements: 1) the firm has available data on Audit Analytics, Compustat, CRSP, and I/B/E/S and 2) the auditor had registered with the PCAOB. At the end of the sample period, all but four auditors in our sample have been inspected, and thirty-two had not yet had an inspection report released. Column (1) [Column (2)] reports the number of newly-treated auditors by calendar year, using the inspection fieldwork [report release] as cutoff date. Column (3) [Column (4)] reports the number of unique client firms associated with the newly-inspected auditors. In the last row, we report the number of firm-years contributed by these firms.

Table 2: Descriptive Statistics for the Limited, Full, and Triennial Inspection Samples

Panel A: Annually-Inspected U.S. Auditors

Variable	N	Mean	Std. Dev	P25	Median	P75
CAR	37,001	0.002	0.064	-0.030	0.001	0.034
UE	37,001	0	0.008	-0.001	0	0.002
Loss	37,001	0.182	0.386	0	0	0
Size	37,001	7.018	1.518	5.948	6.926	7.990
Market-to-Book	37,001	2.973	2.639	1.594	2.254	3.487
Leverage	37,001	2.654	3.991	0.506	1.153	2.643
Persistence	37,001	0.282	0.446	0	0.285	0.553
Beta	37,001	1.092	0.548	0.708	1.033	1.436
Forecast	36,659	0.032	0.074	0.025	0.046	0.063
Timeliness	36,596	-0.201	0.157	-0.256	-0.155	-0.093
Relative Information	36,586	99.81	0.144	99.74	99.84	99.92
Scaled Raw Accruals	34,855	-0.055	0.076	-0.084	-0.046	-0.014
Earnings Guidance	37,001	0.530	0.499	0	1	1
Guidance Bundle	37,001	0.394	0.489	0	0	1
Post	37,001	0.504	0.500	0	1	1
Timing: Treatment to First EA (in days)	12,436	241.0	193.3	88	165	386

Table 2 presents descriptive statistics for the variables used in the limited, full, and triennial inspection analyses. We provide detailed variable definitions in Appendix C. We include observations from limited inspections and full inspections for annually-inspected auditors using both the end of fieldwork and the inspection report release as cutoff dates (i.e., the combined sample), so the same firm enters multiple times (see Table 1). We truncate all continuous variables, except *UE*, at 1% and 99% by fiscal year. *UE* is truncated at 2.5% and 97.5% by fiscal year. Panel A presents descriptive statistics for firms with U.S. annually-inspected auditors. The sample includes 37,001 firm-year observations from the treatment (i.e., firms with domestic Big-Four or Tier-Two auditors). The last row in this panel provides the average number of days from the respective cutoff date (end of fieldwork or inspection report release) to the (treated) firm's first earnings announcement.

Table 2: Descriptive Statistics for the Limited, Full, and Triennial Inspection Samples (continued)

Panel B: Non-U.S. Auditors with Annually-Inspected Global Network U.S. Affiliates

Variable	N	Mean	Std. Dev	P25	Median	P75
CAR	3,765	-0.001	0.058	-0.031	-0.001	0.030
UE	3,765	-0.001	0.012	-0.003	0	0.003
Loss	3,765	0.171	0.376	0	0	0
Size	3,765	8.102	1.848	6.733	8.243	9.580
Market-to-Book	3,765	2.914	2.414	1.510	2.299	3.597
Leverage	3,765	2.711	5.045	0.470	1.118	2.198
Persistence	3,765	0.257	0.529	-0.001	0.260	0.544
Beta	3,765	0.939	0.566	0.529	0.833	1.292
Forecast	3,694	0.042	0.064	0.026	0.050	0.074
Timeliness	3,733	-0.218	0.160	-0.279	-0.177	-0.106
Relative Information	3,714	99.83	0.125	99.75	99.85	99.92
Scaled Raw Accruals	3,625	-0.063	0.078	-0.097	-0.055	-0.020
Earnings Guidance	3,765	0.148	0.355	0	0	0
Guidance Bundle	3,765	0.098	0.297	0	0	0
Post	3,765	0.538	0.499	0	1	1

Table 2 presents descriptive statistics for the variables used in the limited, full, and triennial inspection analyses. We provide detailed variable definitions in Appendix C. We include observations from limited inspections and full inspections for annually-inspected auditors using both the end of fieldwork and the inspection report release as cutoff dates (i.e., the combined sample), so the same firm enters multiple times (see Table 1). We truncate all continuous variables, except *UE*, at 1% and 99% by fiscal year. *UE* is truncated at 2.5% and 97.5% by fiscal year. Panel B presents descriptive statistics for firms with annually-inspected auditors. The sample includes 40,766 firm-year observations from the control sample (i.e., U.S. cross-listed firms with non-U.S. Big-Four or non-U.S. Grant Thornton auditors that have annually inspected global network affiliates).

Table 2: Descriptive Statistics for the Limited, Full, and Triennial Inspection Samples (continued)

Panel C: Triennially-Inspected Auditors

Variable	N	Mean	Std. Dev	P25	Median	P75
CAR	1,338	-0.005	0.070	-0.036	-0.003	0.027
UE	1,338	-0.009	0.033	-0.006	0	0.001
Loss	1,338	0.254	0.436	0	0	1
Size	1,338	4.800	0.890	4.309	4.831	5.405
Market-to-Book	1,338	2.862	4.167	1.374	1.890	3.046
Leverage	1,338	4.983	5.133	0.431	2.167	9.576
Persistence	1,338	0.648	0.605	0.156	0.491	1.083
Beta	1,338	0.316	0.587	0	0.328	0.643
Fieldwork Timing:						
Post	1,338	0.528	0.499	0	1	1
Timing: Treatment to First EA (in days)	706	543.3	343.8	245	505.5	677
Report Release Timing:						
Post	1,338	0.297	0.457	0	0	1
Timing: Treatment to First EA (in days)	397	387.1	288.2	130	335	581
Dropped Observation Timing:						
Post	1,013	0.392	0.488	0	0	1

Table 2 presents descriptive statistics for the variables used in the limited, full, and triennial inspection analyses. We provide detailed variable definitions in Appendix C. We truncate all continuous variables, except *UE*, at 1% and 99% by fiscal year. *UE* is truncated at 2.5% and 97.5% by fiscal year. Panel C presents descriptive statistics for firms with triennially-inspected auditors. The sample includes 1,338 firm-year observations. We give descriptive information on the timing assigned to the *Post* variable for fieldwork, report release, and dropped observation designs. For the dropped observation timing, we lose 325 (24.3% of the sample) earnings announcements that are between the beginning of fieldwork and the report release. The last row in this panel for fieldwork and report release timing provides the average number of days from the respective cutoff date (end of fieldwork or inspection report release) to the (treated) firm's first earnings announcement.

Table 3: Changes in Reporting Credibility around the Introduction of the PCAOB Inspection Regime

Panel A: Separate Analyses for Limited and Full Inspections and Each Cutoff Date and Combined Analyses

	(1)	(2)	(3)	(4)	(5)	(6)
	Limited Inspections		Full Inspections		Combined	
Dependent Variable: *CAR*	**Fieldwork**	**Reports**	**Fieldwork**	**Reports**	**Unmatched**	**CEM**
Panel A(1) Main design:						
UE×*Post*×*Treated*	0.336	0.566*	1.600***	1.149**	0.788***	0.719**
	(1.094)	(1.881)	(4.978)	(2.141)	(3.478)	(2.230)
Observations	9,308	9,799	11,833	9,826	40,766	39,843
Panel A(2) Dropped observations design:						
UE×*Post*×*Treated*	0.414	0.513*	1.620***	2.145***	0.874***	0.746**
	(1.310)	(1.691)	(4.965)	(4.940)	(3.543)	(2.155)
Observations	8,775	9,191	11,017	9,528	38,511	37,536
Firm Characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Effects	Auditor & Country & Year-Quarter	Auditor & Country & Year-Quarter	Auditor & Country & Year-Quarter	Auditor & Country & Year-Quarter	Auditor & Country & Year-Quarter	Auditor & Country & Year-Quarter
Treatment Indicators	Yes	Yes	Yes	Yes	Yes	Yes
UE×Firm Characteristics	Yes	Yes	Yes	Yes	Yes	Yes
UE×Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
UE×Treatment Indicators	Yes	Yes	Yes	Yes	Yes	Yes

Panel A presents separate analyses for each inspection event (limited and full) and each measurement cutoff date (end of fieldwork and report release). Panel A(1) reports results for our analysis using the "Main design" as described in Figure 1. Panel A(2) reports results for our analysis using the "Dropped observations" design as described in Figure 1. Following Eq. (1), we regress cumulative abnormal returns (*CAR*) on unexpected earnings (*UE*), indicators for PCAOB inspection (i.e., *Post* and *Treated*), control variables, fixed effects, the interactions of *UE* with control variables and fixed effects, and the interactions of the treatment indicators with *UE* (as noted in the table footer). For brevity, we do not report coefficients for the control variables, fixed effects, treatment indicator main effects, or the interactions among these variables. Controls include *Loss*, *Size*, *M2B*, *Leverage*, *Persistence*, and *Beta*. We provide detailed variable definitions in Appendix C. We include fixed effects for the auditor (defined at the global network level), the auditor's country of domicile, and of the respective fiscal year end, plus interactions of these fixed effects with *UE*. In all columns, we estimate a robust regression (based on Stata's "rreg" command). In Column (1), we examine the changes in ERCs following fieldwork completion for limited inspections. In Column (2), we examine the changes in ERCs following inspection report releases for limited Inspections. In Column (3), we examine the changes in ERCs following fieldwork completion for full inspections. In Column (4), we examine the changes in ERCs following inspection report releases for full inspections. In Column (5), we examine the combined analysis, using all cutoff dates from the prior four columns. In Column (6), we combine (multiply) the robust regression weights with weights from a coarsened exact matching procedure using 20 bins for control variables *Size* and *Beta*; unmatched bins result in 923 (975) fewer observations for Panel A(1) (Panel A(2)). We again

examine a combined analysis. All t-statistics, included in parentheses, are based on standard errors clustered at the firm level. *, **, and *** indicate significance (two-sided) at the 10%, 5%, and 1% levels, respectively. For all robust regressions, we calculate firm-level-clustered standard errors using a weighted least squares regression based on the weights (and coefficients) from the robust regression.

Table 3 (continued)

Panel B: Separate and Combined Analyses Allowing for Heterogeneous Effects for Loss Firms

	(1)	(2)	(3)	(4)	(5)	(6)
	Limited Inspections		Full Inspections		Combined	
Dependent Variable: *CAR*	**Fieldwork**	**Reports**	**Fieldwork**	**Reports**	**Unmatched**	**CEM**
Panel B(1) Main design:						
UE×*Post*×*Treated*	0.634*	0.619*	1.833***	1.080*	0.942***	0.804**
	(1.760)	(1.780)	(4.523)	(1.815)	(3.589)	(2.317)
UE×*Loss*×*Post*×*Treated*	-1.188*	-0.324	-0.988	2.087	-0.803	-0.393
	(-1.755)	(-0.438)	(-0.941)	(1.380)	(-1.520)	(-0.580)
Observations	9,308	9,799	11,833	9,826	40,766	39,843
Panel B(2) Dropped observations design:						
UE×*Post*×*Treated*	0.634*	0.589*	1.968***	2.609***	1.114***	1.036**
	(1.726)	(1.659)	(4.748)	(5.114)	(3.712)	(2.568)
UE×*Loss*×*Post*×*Treated*	-1.148	-0.253	-1.528	-1.627	-0.975*	-0.945
	(-1.553)	(-0.358)	(-1.247)	(-1.243)	(-1.700)	(-1.357)
Observations	8,775	9,191	11,017	9,528	38,511	37,536
Firm Characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Effects	Auditor & Country & Year-Quarter	Auditor & Country & Year-Quarter	Auditor & Country & Year-Quarter	Auditor & Country & Year-Quarter	Auditor & Country & Year-Quarter	Auditor & Country & Year-Quarter
Treatment Indicators	Yes	Yes	Yes	Yes	Yes	Yes
UE×Firm Characteristics	Yes	Yes	Yes	Yes	Yes	Yes
UE×Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
UE×Treatment Indicators	Yes	Yes	Yes	Yes	Yes	Yes
Loss & *UE*×*Loss* interacted with Treatment Indicators	Yes	Yes	Yes	Yes	Yes	Yes

Panel B presents separate analyses for each inspection event (limited and full) and each measurement cutoff date (end of fieldwork and report release) and allowing for heterogeneous treatment among profit and loss firms by interacting the treatment indicators with the *Loss* control variable. Panel B(1) reports results for our analysis using the "Main design" as described in Figure 1. Panel B(2) reports results for our analysis using the "Dropped observations" design as described in Figure 1. Following Eq. (1), we regress cumulative abnormal returns (*CAR*) on unexpected earnings (*UE*), indicators for PCAOB inspection (i.e., *Post* and *Treated*), control variables, fixed effects, the interactions of *UE* with control variables and fixed effects, and the interactions of the treatment indicators

with *UE* (as noted in the table footer). For brevity, we do not report coefficients for the control variables, fixed effects, treatment indicator main effects, or the interactions among these variables. Controls include *Loss*, *Size*, *M2B*, *Leverage*, *Persistence*, and *Beta*. We provide detailed variable definitions in Appendix C. We include fixed effects for the auditor (defined at the global network level), the auditor's country of domicile, and of the respective fiscal year end, plus interactions of these fixed effects with *UE*. In all columns, we estimate a robust regression (based on Stata's "rreg" command). In Column (1), we examine the changes in ERCs following fieldwork completion for limited inspections. In Column (2), we examine the changes in ERCs following inspection report releases for limited Inspections. In Column (3), we examine the changes in ERCs following fieldwork completion for full inspections. In Column (4), we examine the changes in ERCs following inspection report releases for full inspections. In Column (5), we examine the combined analysis, using all cutoff dates from the prior four columns. In Column (6), we combine (multiply) the robust regression weights with weights from a coarsened exact matching procedure using 20 bins for control variables *Size* and *Beta*; unmatched bins result in 923 (975) fewer observations for Panel B(1) (Panel B(2)). We again examine a combined analysis. All t-statistics, included in parentheses, are based on standard errors clustered at the firm level. *, **, and *** indicate significance (two-sided) at the 10%, 5%, and 1% levels, respectively. For all robust regressions, we calculate firm-level-clustered standard errors using a weighted least squares regression based on the weights (and coefficients) from the robust regression.

Table 4: Tests for Other Concurrent Changes in the Information Environment around the Introduction of the PCAOB

Dependent Variable:	**(1)** ***UE***	**(2)** ***Forecast***	**(3)** ***Timeliness***	**(4)** ***Relative Information***	**(5)** ***Scaled Raw Accruals***	**(6)** ***Earnings Guidance***	**(7)** ***Guidance Bundle***
Post×Treated	-0.001**	0.000	0.003	0.026***	0.003	-0.021	-0.010
	(-2.285)	(0.227)	(0.366)	(5.253)	(0.876)	(-1.234)	(-0.705)
Firm Characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Effects	Auditor & Country & Year-Quarter	Auditor & Country & Year-Quarter	Auditor & Country & Year-Quarter	Auditor & Country & Year-Quarter	Auditor & Country & Year-Quarter	Auditor & Country & Year-Quarter	Auditor & Country & Year-Quarter
Treatment Indicators	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Loss interacted with Treatment Indicators	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	40,766	40,353	40,329	40,298	38,480	40,766	40,766

Table 4 presents tests for other concurrent changes in the information environment around the introduction of the PCAOB inspection regime. We estimate the treatment effects separately for profit and loss firms, and report the effects for profit firms. In Column (1) [(2), (3), (4), (5), (6), (7)], we regress *UE* [*Forecast*, *Timeliness*, *Relative Information*, *Scaled Raw Accruals*, *Earnings Guidance*, *Guidance Bundle*] on indicators for PCAOB inspection (i.e., *Post* and *Treated*), controls, and fixed effects. In all columns, for brevity, we do not report coefficients for the control variables, fixed effects, and treatment indicator main effects. Controls include *Loss*, *Size*, *M2B*, *Leverage*, *Persistence*, and *Beta*. We provide detailed variable definitions in Appendix C. We include fixed effects for the auditor (at the global network level), the firm's country of domicile, and the year-quarter of the respective fiscal year-end. In all columns, we report OLS regressions. All t-statistics, included in parentheses, are based on standard errors clustered at the firm level. *, **, and *** indicate significance (two-sided) at the 10%, 5%, and 1% levels, respectively.

Table 5: Are the Results Driven by Changes in Reporting Incentives or Other Provisions of the Sarbanes-Oxley Act?

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Reporting Incentives		**Sarbanes-Oxley Act**				
Dependent Variable: *CAR*	**Non-AA clients**	**Only AA clients**	**Non-Accelerated**	**Only Accelerated**	**Excluding 404[b]**	**Only 404[b]**	**Controlling for SOX**
UE×Post×Treated	**1.030***** **(3.662)**	**0.492** **(1.415)**	**1.139**** **(2.570)**	**0.871***** **(3.102)**	**0.923***** **(3.153)**	**0.234+** **(0.632)**	**0.921***** **(3.306)**
UE×SOX404b							0.275 (1.375)
UE×SOX302a							-0.900*** (-3.276)
Firm Characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Effects	Auditor & Country & Year-Quarter	Auditor & Country & Year-Quarter	Auditor & Country & Year-Quarter	Auditor & Country & Year-Quarter	Auditor & Country & Year-Quarter	Auditor & Country & Year-Quarter	Auditor & Country & Year-Quarter
Treatment Indicators	Yes	Yes	Yes	Yes	Yes	Yes	Yes
UE×Firm Characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes
UE×Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
UE×Treatment Indicators	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Loss & *UE×Loss* interacted with Treatment Indicators	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	34,736	9,795	9,684	34,847	24,867	19,664	40,766

Table 5 presents sensitivity analyses examining the role of changes in reporting incentives and other provisions of SOX. We separately estimate the treatment effects for loss and profit firms, and report the effect for profit firms only. Following Eq. (1), we regress cumulative abnormal returns (*CAR*) on *UE*, indicators for PCAOB inspection (i.e., *Post* and *Treated*), control variables, fixed effects, the interactions of *UE* with control variables and fixed effects, and the interactions of the treatment indicators with *UE* (as noted in the table footer). In all columns, for brevity, we do not report coefficients for the control variables, fixed effects, treatment indicator main effects, or the interactions among these variables. Controls include *Loss*, *Size*, *M2B*, *Leverage*, *Persistence*, and *Beta*. We provide detailed variable definitions in Appendix C. We include fixed effects for the auditor (at the global network level), the firm's country of domicile, and the year-quarter of the respective fiscal year-end. In all columns, we estimate a robust regression (based on Stata's "rreg" command). In Columns (1) & (2), we partition the treatment sample based on whether the firm was audited by Arthur Andersen in 2000 or 2001, as indicated by the column headings. In Columns (3) & (4), we partition the treatment sample based on whether a firm-year observation is classified as an accelerated filer in Audit Analytics, as indicated by the column headings. In Columns (5) & (6), we partition the treatment sample based on whether a firm-year has an auditor internal control opinion (effective, adverse, or disclaimer) in Compustat, as indicated by the column headings. In Column (7), we include the indicator variables *SOX404b* and *SOX302a* and their interactions with *UE* as additional controls. All t-statistics, included in parentheses, are based on standard errors clustered at the firm level. *, **, and *** indicate

significance (two-sided) at the 10%, 5%, and 1% levels, respectively. + indicates significance (two-sided) at the 10% level for tests of coefficient magnitudes relative to the adjacent column on the left. For all robust regressions, we calculate firm-level-clustered standard errors using a weighted least squares regression based on the weights (and coefficients) from the robust regression.

Table 6: Changes in Reporting Credibility around the Introduction of PCAOB Triennial Inspections

Dependent Variable: *CAR*	**(1) Fieldwork**	**(2) Report Release**	**(3) Report Release-SOX**	**(4) Dropped Observation**
UE*×*Post	**0.789****	**1.063****	**0.915****	**1.022****
	(2.125)	**(2.387)**	**(2.231)**	**(2.247)**
UE×*SOX404b*			-0.566	
			(-1.595)	
UE×*SOX302a*			-0.120	
			(-0.604)	
Firm Characteristics	Yes	Yes	Yes	Yes
Fixed Effects	Auditor & Year-Quarter	Auditor & Year-Quarter	Auditor & Year-Quarter	Auditor & Year-Quarter
Treatment Indicator (*Post*)	Yes	Yes	Yes	Yes
UE×Firm Characteristics	Yes	Yes	Yes	Yes
UE×Fixed Effects	Yes	Yes	Yes	Yes
Loss & *UE*×*Loss* interacted with Treatment Indicator	Yes	Yes	Yes	Yes
Observations	1,338	1,338	1,338	1,013

In Table 6, we report an analysis of changes in reporting credibility around the introduction of triennial PCAOB inspections. Following Eq. (2), we regress cumulative abnormal returns (CAR) on UE, an indicator for PCAOB inspection (i.e., Post), control variables, fixed effects, the interactions of UE with the control variables, the fixed effects, and the treatment indicator (as shown in the table footer). Controls include *Loss*, *Size*, *M2B*, *Leverage*, *Persistence*, and *Beta*. Detailed variable definitions are in Appendix C. We include fixed effects for the auditor and the year-quarter of the respective fiscal year-end. We estimate robust regressions (based on Stata's "rreg" command). In all columns, we estimate the treatment effect for profit and loss firms separately by including additional interactions as noted in the table footer. We report the coefficient of interest for profit firms only. In Column (1), we examine changes in ERCs using the fieldwork cutoff date (i.e., Post equals 1 if the firm's fiscal year-end is at least 30 days after the date of fieldwork completion—see Appendix A, Panel E). In Column (2), we examine changes in ERCs using the report release as the cutoff date (i.e., Post equals 1 if the firm's earnings announcement is after the report-release date). In Columns (3) and (4), we perform additional robustness test. In Column (3), we re-estimate the report release timing model (Column (2)) adding the indicator variables SOX404b and SOX302a and their interactions with UE as additional controls. In Column (4), we exclude the interim period between the end of fieldwork and the release of the inspection report (i.e., Post indicates that the firm's earnings announcement is after the report-release date and that the pre-period is measured prior to the start of fieldwork). All t-statistics, included in parentheses, are based on standard errors clustered at the firm level. *, **, and *** indicate significance (two-sided) at the 10%, 5% and, 1% levels, respectively. We calculate firm-level-clustered standard errors using a weighted least squares regression based on the weights (and coefficients) from the robust regression.

Table 7: Changes in Abnormal Trading Volume around 10-K filings after the Introduction of the PCAOB Inspection Regime

Dependent Variable: ***Abnormal 10-K Volume***	**(1)** **OLS**	**(2)** **OLS**	**(3)** **OLS**	**(4)** **OLS**	**(5)** **CEM: WLS**
Post×Treated	**0.088****	**0.097*****	**0.074****	**0.062***	**0.126*****
	(2.552)	**(2.748)**	**(1.972)**	**(1.655)**	**(2.863)**
Size	0.016**	-0.024	-0.018	-0.023	-0.027
	(2.476)	(-0.990)	(-0.724)	(-0.967)	(-1.127)
M2B	-0.009***	-0.002	-0.003	-0.002	-0.001
	(-3.457)	(-0.359)	(-0.561)	(-0.339)	(-0.209)
Leverage	0.009***	0.012**	0.013**	0.012**	0.012*
	(5.256)	(2.089)	(2.134)	(2.091)	(1.786)
Beta	0.076***	0.077***	0.073***	0.074***	0.066***
	(5.460)	(3.679)	(3.412)	(3.503)	(3.020)
Loss	-0.075***	-0.061**	-0.066**	-0.061**	-0.057**
	(-4.126)	(-2.219)	(-2.355)	(-2.219)	(-2.026)
Filing Delay after FYE	0.004***	0.003***	0.003***	0.003***	0.004***
	(7.920)	(5.065)	(3.918)	(5.068)	(5.250)
Filing Delay after EA	-0.006***	-0.005***	-0.006***	-0.005***	-0.005***
	(-15.081)	(-7.570)	(-8.506)	(-7.509)	(-7.410)
Analyst Following	-0.002*	0.000	0.001	-0.000	0.001
	(-1.862)	(0.020)	(0.257)	(-0.110)	(0.242)
Log 10-K File Size			0.003		
			(0.206)		
SOX404b				0.045	
				(1.491)	
SOX302a				0.115**	
				(2.221)	
Fixed Effects	Auditor & Country & Year-Quarter	Firm & Year-Quarter	Firm & Year-Quarter	Firm & Year-Quarter	Firm & Year-Quarter
Treatment Indicators	Yes	Yes	Yes	Yes	Yes
Observations	68,830	68,830	66,647	68,830	68,278

Table 7 presents results for an analysis of changes in abnormal trading volume around 10-K filings after the introduction of the PCAOB inspection regime. Following Eq. (3), we regress *Abnormal 10-K Volume* on indicators for PCAOB inspections (i.e., *Post* and *Treated*), control variables, and fixed effects (as indicated in the table footer). We provide detailed variable definitions in Appendix C. We include fixed effects for the auditor (at global network level), the firm's country of domicile, the year-quarter of the respective fiscal year-end, and the firm (as indicated in the table footer). In Column (1), we report the main design with Ordinary Least Squares (OLS). In Column (2), we repeat Column (1), but substitute firm-fixed effects for auditor and country fixed effects. In Column (3), we include continuous variable *Log 10-K File Size*. In Column (4), we include the indicator variables *SOX404b* and *SOX302a*. In Column (5), we report the main design with Weighted Least Squares (WLS) using weights from a coarsened exact matching (CEM) procedure using 20 bins for control variables *Size* and *Beta*; unmatched bins result in 552 fewer observations. All t-statistics, included in parentheses, are based on standard errors clustered at the firm level. *, **, and *** indicate significance (two-sided) at the 10%, 5%, and 1% levels, respectively. For all robust regressions, we calculate firm-level-clustered standard errors using a weighted least squares regression based on the weights (and coefficients) from the robust regression.