

Real Effects of Financial Reporting Quality and Credibility: Evidence from the PCAOB Regulatory Regime

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Comments welcome

Abstract: I examine whether financial reporting quality and credibility affect a company's financing and investment decisions. I use PCAOB inspections of non-U.S. auditors as exogenous shocks to the reporting *quality* of non-U.S. companies audited by PCAOB inspected auditors. I then use the subsequent public revelation of the inspection as exogenous shocks to the reporting *credibility* of non-U.S. companies that employ PCAOB inspected auditors. Using a difference-in-differences design, I find that although PCAOB inspections improve accrual quality for non-U.S. companies audited by the inspected auditors, there is no evidence that these improvements in accrual quality lead to changes in investment, investment efficiency or debt financing. However, I find that when PCAOB inspection reports are subsequently made public, non-U.S. companies audited by PCAOB inspected auditors increase their long-term debt (investment) by 11.5% (10.9%) and become more responsive to their investment opportunities. These effects are stronger for financially constrained companies and companies with non-big four auditors. Overall, the evidence in this paper suggests that regulatory oversight of the auditor helps improve reporting credibility, which in turn facilitates corporate investment by increasing companies' external financing capacity.

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1. Introduction

In this paper, I examine (i) whether financial reporting quality affects a company's financing and investment decisions, and (ii) holding reporting quality constant, whether financial reporting *credibility* affects a company's financing and investment decisions. I define reporting quality as the extent to which financial statements reflect the underlying economic performance of a company, and reporting credibility as the faith investors have in the accuracy of the financial statements presented to them. From a theoretical perspective, one of the primary purposes of financial reporting is to facilitate capital allocation by increasing contracting efficiency and reducing information asymmetry among capital market participants (Watts and Zimmerman 1978; Kothari et al. 2010). Improvements in reporting quality serve to provide investors with more accurate information and thus can reduce information asymmetry and increase contracting efficiency. Thus, improvements in reporting quality can increase a company's access to external finance and ultimately lead to increases in investment and investment efficiency.

Aside from reporting quality, the extent to which investors rely on the information reported in financial statements depends on the credibility of those financial statements. Typically, companies establish the credibility of their financial statements by having an independent auditor verify the accuracy of those disclosures. However, the effect of auditing on financial statement credibility depends on the independence of the auditor and the rigor with which the audit is performed (Watts and Zimmerman 1983; DeFond and Zhang 2014). An increase in reporting credibility can increase the degree to which investors rely on financial statement information for both contracting and learning about companies' operations and performance, which can increase the company's access to external finance and investment/investment efficiency.

Empirically, it is very challenging to identify the economic effects of reporting quality and credibility because differences in reporting quality across companies (or over time) can be

due to differences in the underlying economic reality rather than its measurement (Leuz and Wysocki 2015). Although a number of recent papers document associations between reporting or disclosure quality and investment efficiency (see e.g., Biddle and Hilary 2006; McNichols and Stubben 2008; Biddle et al. 2009; Chen et al. 2011; Balakrishnan et al. 2014), the lack of an instrument or setting to isolate exogenous changes in reporting quality limits the extent to which the results of these studies can be interpreted as causal (Leuz and Wysocki 2015). Further, isolating the economic effect of reporting *credibility* is especially challenging because, in addition to typical endogeneity concerns, changes in reporting credibility are almost always accompanied by changes in reporting quality (or the amount of disclosure). Thus, the economic effects of reporting credibility are typically confounded by those of reporting quality/quantity.

To overcome the above empirical challenge, I use a natural experiment that first leads to improvements in reporting quality, which is followed by a subsequent increase in reporting credibility. In 2005, the Public Company Accounting Oversight Board (PCAOB) began inspecting non-U.S. auditors that audited one or more companies registered with the Securities Exchange Commission (SEC) (i.e., a U.S. public company or cross-listed foreign company). My empirical tests (and concurrent work by Fung et al. 2015) show that these PCAOB inspections of non-U.S. auditors increase the reporting quality of *all* clients audited by the non-U.S. auditor, even those companies not registered with the SEC and thus not subject to any SEC/PCAOB regulation. That is, PCAOB inspections of non-U.S. auditors essentially lead to reporting quality spill-over effects for non-U.S. companies audited by these inspected auditors. I use this observation as the main catalyst for my analyses and research design, which are as follows.

First, I construct a sample of non-U.S. companies that are audited by PCAOB-inspected auditors but are not directly subject to any SEC/PCAOB regulation. These companies serve as my treatment sample because their reporting quality improves following the PCAOB inspection of their auditor. Second, I construct a sample of matched control companies that are observably

similar to the treatment companies in terms of the determinants of investment and financing but are not affected by PCAOB inspections because their auditor does not audit any SEC registered company (see Figure 1 for an illustration of the manner in which I identify treatment and control companies). Finally, I exploit the fact that the PCAOB inspection reports of non-U.S. auditors are not publicly disclosed for several months after the completion of the inspection (the average delay is 863 days in my sample). Improvements in reporting quality for clients of PCAOB-inspected auditors occur soon after the completion of the PCAOB inspection. However, the public disclosure of the PCAOB inspection and the associated increases in reporting credibility that follow such a disclosure occur much later than the changes in reporting quality, thereby allowing me to separately analyze the economic effects of reporting quality and credibility.¹

The PCAOB international inspection setting offers a number of unique advantages that allow me to identify the economic effects of reporting quality and credibility using a difference-in-differences design (see Figure 2 for a graphical illustration of the research design). First, since my treatment sample is comprised exclusively of non-U.S. companies that are free of SEC regulation, any economic consequences of better reporting accruing to these companies are not confounded by the effects of other U.S. regulation. Second, the control sample is comprised of companies that operate in the same country as the treatment companies and thus are subject to the same economic and regulatory environment as the treatment companies.² Third, the PCAOB inspections are staggered over time and thus affect different companies at different points in time. As a result, the benchmark companies not only include companies whose auditors go untreated altogether but also companies whose auditors are not *yet* treated by the PCAOB

¹ Empirical tests confirm that companies audited by PCAOB-inspected auditors benefit from an improvement in reporting quality soon after the PCAOB inspection but there is no further effect on reporting quality upon public disclosure of the PCAOB inspection.

² A similar research design is not viable in a U.S. setting because all auditors of U.S. public companies are subject to PCAOB inspections, precluding me from constructing a sample of treatment and control companies from the same country. Further, the inspection program went into effect simultaneously with other provisions of SOX, making it difficult to identify the cause of any change in firm behavior (Coates and Srinivasan 2014; Leuz and Wysocki 2015).

inspection (or inspection report). Fourth, PCAOB inspections are likely to have a larger effect on reporting quality and credibility of non-U.S. companies (relative to U.S. companies) because the base-line disclosure and governance environment in other countries is typically poorer than that in the U.S. (Leuz and Verrecchia 2000). Finally, using PCAOB inspections as shocks to reporting quality/credibility side steps the need to explicitly measure these constructs, which are notoriously hard to do, increasing the power of my design (Leuz and Wysocki 2015).

Before proceeding, note that throughout this paper I refer to public accounting firms that *conduct audits* as either “auditors” or “audit firms,” and the companies that *receive audits* as “clients” or “companies” for expositional clarity.

My tests reveal that treatment companies observe an increase in their accruals quality (measured using the Jones (1991) and Dechow and Dichev (2002) models) following the PCAOB inspection of their auditor; however, there is no significant change in the treatment companies’ debt, investment, and investment efficiency following the PCAOB inspection of their auditor. These initial results do not support the hypothesis that reporting quality affects a company’s financing and investment behavior, which is in contrast to prior evidence documenting a positive association between reporting quality proxies and investment efficiency.

Next, I examine whether the *public revelation* that a company’s auditor was inspected by the PCAOB leads to an increase in financing and investment. Consistent with my prediction, I find that treatment companies significantly increase their long-term debt and investment and become more responsive to their growth opportunities following the public disclosure that their auditor was inspected by the PCAOB. In terms of economic magnitude, the coefficients imply that treatment companies increase debt by approximately 11.5% and investment by approximately 10.9% following the disclosure of their auditor’s PCAOB inspection report. I interpret these results as suggesting that the disclosure of PCAOB inspection reports increase the financial statement *credibility* of companies audited by PCAOB-inspected auditors. This increase

in reporting credibility allows companies to obtain more external financing, which leads to an increase in investment and the responsiveness of investment to investment opportunities.

The main assumption of my difference-in-differences design is that the investment and financing behavior of the treatment and control companies would have trended similarly had it not been for the PCAOB inspections/reports. I empirically show that this parallel trends assumption is satisfied in the pre-treatment years. To further validate my inferences, I also conduct two cross-sectional tests. First, I examine whether the economic effects of disclosing PCAOB inspection reports are stronger for financially constrained companies relative to that for unconstrained companies. To the extent PCAOB inspections increase reporting credibility and thus a company's access to external finance, the inspection report is likely to be more beneficial for financial constrained companies, which is exactly what I find. Second, I examine whether the PCAOB induced effects are stronger for companies audited by less reputed auditors (i.e., non-big four auditors). Given that the big four auditors are internationally known and reputed, the incremental credibility benefit to their clients from a PCAOB inspection is likely to be smaller compared to that for clients of non-big four auditors. Here again, my tests confirm the above prediction: PCAOB inspection reports have a stronger effect on the investment behavior of companies audited by a non-big four auditor.

The evidence in this paper is important for three reasons. First, my analyses document and quantify the importance of reporting credibility in the capital allocation process. By its very nature, reporting credibility (i.e., the faith investors have in the accuracy of financial statements) is unobservable, in large part because the audit process conducted to verify the accuracy of financial statements is unobservable. Given the unobservable nature of reporting credibility, empirically identifying the benefits of credibility is challenging and my paper lends support to the importance of this construct.

Second, the results in this paper shed light on the importance of public oversight of auditors in capital allocation process. One of the primary purposes of auditing is to assure investors that the financial statements of a company are accurate and prepared in accordance with a set of rules. However, since auditors are hired by companies (in most countries) and the auditing process is mostly unobservable, the extent to which investors rely on the audited reports often depends on ex post mechanisms such as the ability to sue auditors or the loss in auditor reputation in the event of an audit failure. In such a setting, it is plausible that a regulator could help increase the value of an audit. However, the effectiveness of regulation is not ex ante obvious because of concerns such as regulatory capture by special interest groups (e.g., the big four auditors). My results contribute to the literature on regulation by showing that having a public regulator oversee the auditing process can be beneficial in terms of increasing reporting credibility and ultimately facilitating company financing and investment.

Finally, the results in this paper call into question the interpretation of the growing body of evidence documenting an association between reporting quality and investment efficiency (e.g., Biddle and Hilary 2006; McNichols and Stubben 2008; Biddle et al. 2009; Chen et al. 2011; Balakrishnan et al. 2014). While it is certainly possible that my setting or analyses is not powerful enough to document this association; at its face value, the results in this paper suggest that improvements in reporting quality *on its own* might not be sufficient to reduce financing frictions and facilitate investment. Rather, the results suggest that along with improvements in reporting quality, companies need to convince investors of the credibility of those numbers before they derive any economic benefits.³

Before proceeding, it is important to note that my analyses are based on a sample of non-U.S. companies that operate in countries with weaker regulatory environments than the U.S.

³ A related body of research also finds that financial reporting affects investment and investment efficiency of peer companies (e.g., Durnev and Mangen 2009, Badertscher et al. 2013, Shroff et al. 2014). The evidence in this paper does not speak to this related area of research on disclosure and investment because they concern peer companies rather than the effect of reporting quality/quantity on disclosing company's behavior.

(e.g., India and Japan). Thus I suggest caution generalizing the results of this paper to companies operating in U.S. At a minimum, the economic magnitudes of the credibility effects documented in this paper are likely to be smaller for companies operating in more stringent regulatory environments such as the U.S.

The rest of the paper proceeds as follows. Sections 2 and 3 discuss my hypotheses, setting and data. Section 4 presents the research design and results, and Section 5 concludes.

2. Institutional Setting and Hypotheses

2.1. PCAOB's International Inspection Program and Related Research

The Public Company Accounting Oversight Board (PCAOB) was established in 2002 via Section 101 of the Sarbanes-Oxley Act (SOX). Section 104 of SOX requires the PCAOB to inspect the auditing procedures of all public accounting firms (i.e., auditors) that issue audit reports opining on the financial statement of SEC registered companies.^{4, 5} Companies that access U.S. capital markets, even if located abroad, are required to comply with all SEC requirements, including periodic filing of audited financial statements and SEC registration. As a result, non-U.S. auditors of SEC registered companies located abroad are subject to PCAOB inspections. Under SOX and the PCAOB's rules, non-U.S. audit firms are subject to PCAOB inspections "in the same manner and to the same extent" as U.S. based audit firms (SOX Section 106). PCAOB commenced its inspection of non-U.S. audit firms in 2005. Auditors that issue audit reports for more than 100 SEC registered companies (i.e., issuers) are subject to annual inspections; auditors that issue an audit report for at least one but no more than 100 issuers are subject to triennial inspections.

⁴ SEC registered companies are essentially (i) all public U.S. companies, (ii) foreign companies listed (or cross-listed) on the major U.S. stock exchanges and (iii) private companies that raise public debt.

⁵ The PCAOB might also inspect auditors that play a substantial role in preparing (but do not issue) audit reports of an SEC registered company or its foreign subsidiary (SOX Section 106(a), PCAOB Rule 2100 and 4000).

Before the start of an inspection, the PCAOB staff notifies the audit firm of when it plans to conduct the inspection. It also requests information such as the list of audits of SEC registered companies performed by the auditor, the personnel performing those audits, and the audit firm's quality control program. In most cases, the inspection fieldwork occurs at the audit firm. PCAOB inspections involve two parts: (i) an analysis of the audits performed by the audit firm and, (ii) an examination of the audit firm's quality control systems.

For the first part of the inspection, the PCAOB may review all the audit engagements (of SEC registered companies) of smaller audit firms that have only a few engagements. For larger audit firms, the PCAOB inspectors select audit engagements for inspection based on a risk-weighted system. An inspection typically does not cover the entire audit engagement (i.e., the PCAOB does not re-do the audit), but rather concentrates on areas that appear to the inspectors to present significant challenges (PCAOB Release No. 2013-001). For each audit selected, the inspection team meets with the audit engagement team and examines the audit work papers. The inspectors' goal is to analyze how the audit was performed and to answer key questions such as: (i) does the auditor follow the procedures required under the PCAOB's auditing standards, (ii) did the auditor identify any areas in which the financial statements did not conform to GAAP in a material respect and how the auditor handled potential adjustments to the financial statements in such cases, and (iii) are there any indications that the auditor is not independent. Overall, the purpose of such an examination of the audit work papers is to "identify and address weaknesses and deficiencies related to how a firm conducts audits" (PCAOB Annual Report 2012).

The second part of the inspection concerns the audit firm's quality control system. Examples of the types of issues that are addressed include: (i) review of management structure and processes, including the tone at the top (e.g., whether management instills in its employees a

culture of commitment to integrity, independence, and audit quality) (ii) review of partner management (e.g., processes for partner evaluation, compensation, admission to partnership, and disciplinary actions) (iii) review of the firm's processes for monitoring audit performance (e.g., how the audit firm identifies, evaluates, and responds to possible indicators of deficiencies in its performance of audits) and (iv) review of engagement acceptance and retention such as policies and procedures for identifying and assessing the risks involved in accepting or continuing audit engagements (see PCAOB Annual Report 2012).

Upon completion of each inspection, the PCAOB prepares a written report on the inspection and subsequently makes portions of the reports available to the public, subject to statutory restrictions on public disclosure. Specifically, the public portion of the inspection reports describes audit deficiencies found within the sample of audit engagements examined by PCAOB inspectors. These deficiencies typically concern instances where the auditor failed to gather sufficient audit evidence to support an audit opinion (see PCAOB Release No. 2012-003). However, the report does not divulge any deficiencies in the quality control systems of the inspected audit firm, so long as the audit firm satisfactorily addresses concerns raised by the PCAOB within one year of the issuance of the inspection report (SOX Section 104).

A number of recent studies examine the effects of PCAOB inspections on audit and reporting quality and the overall audit market. The research on this topic can be broadly classified into two groups, one that examines the effects of PCAOB's inspection program in the U.S., and another that examines the effects of PCAOB's international inspection program. Prior research finds mixed evidence on whether PCAOB inspections of *U.S. auditors* improve audit/reporting quality and whether PCAOB inspections are valued by investors. For example, on one hand, Gramling et al. (2011) find that PCAOB inspections lead to an increase in the number

of going concern opinions issued by inspected auditors; DeFond and Lennox (2011) find that PCAOB inspections incentivize lower quality auditors to exit the market, thereby improving average audit quality in the U.S.; and Abbott et al. (2013) find that auditors criticized by the PCAOB for having GAAP deficiencies in their audits are replaced by auditors without such a criticism. On the other hand, the results above apply only to smaller audit firms that are inspected triennially even though the vast majority of public companies in the U.S. are audited by one of the larger national auditing firms. Further, Lennox and Pittman (2010) provide evidence suggesting that PCAOB inspections are uninformative about audit quality. Most recently, Gipper et al. (2015) use a clever difference-in-differences design that exploits the staggered nature of PCAOB inspections within the U.S. to show that PCAOB inspections increase earnings credibility (measured using short-window earnings response coefficients) for both big-four and smaller U.S. auditors, thereby tilting the evidence towards concluding that PCAOB inspections have a positive effect of on financial reporting even in the U.S.

The evidence on whether PCAOB's inspection of *non-U.S. auditors* improves client audit/reporting quality is relatively more consistent. Carcello et al. (2011) document negative stock market reactions to a series of disclosures by the PCAOB relating to its difficulties in conducting inspections of auditors located in the European Union, Switzerland, China, and Hong Kong. Lamoreaux (2013) finds that non-U.S. auditors are more likely to issue going concern opinions and report internal control weaknesses following an increase in the threat of a PCAOB inspection. Krishnan et al. (2014) find that the clients of PCAOB inspected non-U.S. auditors have lower abnormal accruals and more value relevant earnings post-inspection.⁶

In contrast to prior research, my tests exclusively focus on non-U.S. companies that are not listed on a U.S. exchange and as such free of SEC regulation. The auditors of these non-U.S.

⁶ See Abernathy et al. (2013), DeFond and Zhang (2014) and Donovan et al. (2014) for reviews of the literature.

companies are inspected by the PCAOB because one (or more) of their clients is registered with the SEC. In other words, I examine whether PCAOB inspections of non-U.S. auditors affects the financing/investment decisions of their non-U.S. clients *not subject to SEC oversight* (see Figure 1). Thus, my tests require that PCAOB inspections lead to improvements in the overall auditing practices of non-U.S. auditors at the *audit firm-level* as opposed to the client-level. A concurrent working paper by Fung et al. (2015) finds that non-U.S. companies, even though not subject to SEC oversight, have lower discretionary accruals and a lower likelihood of reporting a small profit following the PCAOB inspection of their auditor. Their results support the notion that PCAOB inspections have spillover effects on the audit quality of *all* clients of inspected auditors.

2.2. Hypothesis Development

Information asymmetry between managers and investors, as well as among investors, is one of the most important frictions affecting capital markets around the world. Since managers are better informed than investors about the future prospects of their companies, the decision to issue equity (or pay a higher interest rate) introduces adverse selection concerns for investors (Stiglitz and Weiss 1981; Myers and Majluf 1984). Further, since managers and investors often have different objective functions, and managerial actions are at best imperfectly observed, investors also face moral hazard concerns (Jensen and Meckling 1976).

To reduce these information asymmetry frictions, companies disclose financial information on a periodic basis and have an independent outside party audit those disclosures. These periodic financial statements reduce information frictions by serving as a platform to write contracts on, and by providing investors with information about the operations of companies. Prior research finds that better quality financial statements increases contracting efficiency and reduces information asymmetry frictions (see Armstrong et al. (2010) for a literature review).

Building on the notion that financial reporting reduces financing frictions, prior research argues that higher quality reporting increases investment efficiency by (i) reducing the cost of capital and (ii) facilitating external investor monitoring. Consistent with these arguments, a growing body of research documents an association between reporting quality and investment efficiency (e.g., Biddle et al. 2009; Chen et al. 2011; Balakrishnan et al. 2014). These studies are an important first step to documenting the effect of reporting quality on investment. However, as Leuz and Wysocki (2015) discuss, prior studies examining the real effects of reporting quality use cross-sectional variation to estimate the links to investment, and therefore more research is needed to establish the relation between reporting quality and investment.

I argue that the PCAOB inspections of non-U.S. auditors serve as exogenous improvements to the financial reporting quality of all clients of the inspected auditors, including those not subject to SEC regulation. This argument is supported by the empirical evidence in Fung et al. (2015) and additional tests in this paper. Further, the idea that PCAOB inspections improve reporting quality of the clients of inspected auditors is in line with the PCAOB's main objective to improve audit quality, and by extension, financial reporting quality.⁷ In fact, the PCAOB believes that its inspections lead to an *immediate* improvement in audit/reporting quality. For example, Mark Olson, a former chairman of the PCAOB, testified to the U.S. House of Representatives Committee on Financial Services that, "When [PCAOB] inspectors find an

⁷ Keeping in line with the objective to improve audit/reporting quality, the PCAOB takes a supervisory approach to oversight and incentivizes auditors to improve their practices and procedures. For example, if the inspection team identifies a facet of an audit that it believes may not have been performed in accordance with PCAOB standards, it initiates a dialogue with the audit firm. If the inspectors' concerns cannot be resolved through discussion, the team will issue a "comment form" requesting the audit firm to respond in writing to those concerns. The comment form process provides an opportunity for the audit firm to present its views on aspects of the audit that the inspectors have questioned. Similarly, every PCAOB inspection report that includes a quality control criticism alerts the audit firm to the opportunity to prevent the criticism from becoming public. The inspection report specifically encourages the firm to initiate a dialogue with the PCAOB's inspection staff about how the audit firm intends to address the criticisms (PCAOB Release No. 104-2006-077). Thus audit firms inspected by the PCAOB are likely to improve audit quality and consequently, their client's financial reporting quality.

audit that is not satisfactory, they discuss with the [audit] firm precisely what the deficiency is. Often this dialogue leads to immediate corrective action” (Olson 2006).⁸ Consistent with these arguments, Hermanson et al. (2007), Church and Shefchik (2012), and the PCAOB (see Release No. 2013-001) document a decline in the number of audit deficiencies identified over time, suggesting that audit firms work towards addressing PCAOB’s concerns.

Inspected audit firms have strong incentives to address PCAOB’s concerns because failure to do so could lead to disciplinary actions that impose significant costs on the auditor (Boone et al. 2015). Even non-U.S. auditors face litigation risk under Rule 10b-5 of the Securities Exchange Act if they audit an SEC registered company and fail to comply with PCAOB (or SEC) rules. For example, PCAOB imposed a \$1.5 million fine on PwC India for its failure to comply with PCAOB rules in connection with the audit of Satyam Computer Services – an Indian company cross-listed in the U.S. In addition to imposing monetary penalties, the PCAOB can bar an auditor from accepting new SEC registered clients or even completely prohibit the auditor from auditing any SEC registered client. Given these incentives to address both engagement-level deficiencies and audit firm-level quality control deficiencies identified by the PCAOB, it is likely that PCAOB inspections lead to improvements in audit and reporting quality, especially for non-U.S. auditors. This discussion leads to my first hypothesis.

H₁: PCAOB auditor inspections improve financial reporting quality of the inspected auditors’ clients, which reduces financing frictions faced by clients and thus increases external financing, investment, and investment efficiency.

Financial statements are valuable as a contracting tool or as an information source only to the extent investors perceive the information reported in those statements as being credible. One

⁸ Similarly, in his April 2005 testimony to the U.S. House of Representatives Committee on Financial Services, William McDonough, former Chairman of the PCAOB indicated that auditor inspections are the PCAOB’s primary vehicle for improving audit practice. Specifically, he stated that, “I want to emphasize the unique importance of the PCAOB’s inspection function...Through inspections we can assess claims that auditors do not seem to be making good decisions, ascertain the cause, and then do something about it.”

of the primary mechanisms to add credibility to the disclosures of a company is to have an independent outside party audit or verify those disclosures. Theory suggests this assurance benefit of an audit reduces financing frictions, such as adverse selection and moral hazard between managers and capital providers, which improves resource allocation and contracting efficiency (Jensen and Meckling 1976; Watts and Zimmerman 1983). Consistent with theory, prior research finds that an audit (and even the choice to subject oneself to an audit) lowers the cost of external financing (e.g., Blackwell et al. 1998, Minnis 2011, Kausar et al. 2015).

The extent to which an audit increases financial statement credibility critically depends on the independence of the auditor and the rigor with which the audit is performed (Watts and Zimmerman 1983; DeFond and Zhang 2014). I argue that PCAOB inspections increase financial statement credibility of the inspected auditors' clients in both ways: increasing investor confidence in the auditor's independence and increasing confidence that the audit work is performed thoroughly. Specifically, the PCAOB's in-depth analysis of a select subset of audit engagements is geared towards identifying deficiencies in the way in which an audit is conducted and, providing the audit firms incentives to correct deficiencies identified during the inspection. PCAOB inspectors also look for any evidence that the audit firm was not independent as required under SEC and PCAOB rules. Further, the PCAOB inspection of the auditors' quality control systems reviews the audit firms' management structure, culture, partner evaluation, etc. with the goal of ensuring that the audit firm has a commitment to integrity and independence. In sum, PCAOB inspections are likely to increase investor confidence that auditors are diligent in their examination of their clients' disclosures and have systems in place to stay independent of the client, thereby increasing the credibility of the inspected auditors' clients' financial statements. The above discussion leads to my second hypothesis.

H₂: Disclosure that an auditor was inspected by the PCAOB increase financial statement credibility of the inspected auditors' clients, which reduces financing frictions faced by clients and thus increases external financing, investment, and investment efficiency.

Since financial statement credibility is unobservable, my analyses on the economic consequences of financial reporting credibility is based on the joint hypothesis that (i) the public disclosure of a PCAOB inspection report increases the reporting credibility and, (ii) reporting credibility increases firms' access to finance and thus their investment. Failure to document a change in investment and/or financing behavior following the disclosure of a PCAOB inspection could be either because the inspection does not change reporting credibility or because reporting credibility does not affect investment/financing.

2.3. Advantages of the PCAOB International Inspection Setting

The PCAOB international inspection setting is well suited to examine the real effects of reporting quality and credibility for six reasons. First, this setting allows me to construct a sample of treatment companies that observe an increase in reporting quality and credibility simply because their auditor is inspected by the PCAOB. These treatment companies themselves are free of SEC regulation, and thus any economic consequences of better reporting accruing to these companies are uncontaminated by the confounding effects of regulation in the U.S. In other words, this setting allows us to understand the precise cause for the increase in reporting quality and credibility of the treatment companies and examine its economic consequences. Coates and Srinivasan (2014) and Leuz and Wysocki (2015) discuss inferential difficulties faced by existing studies examining U.S. companies due to the confounding factors around the enactment of SOX.

Second, this setting allows me to construct a sample of matched control companies located in the same country, operating in the same industry and having similar size and growth as the treatment companies. These companies serve as useful benchmarks to control for changes in

economic conditions and home country regulation that affect treatment companies' financing and investment decisions for reasons unrelated to the improvements in reporting quality/credibility induced by PCAOB inspections (see Figures 1 and 2).

Third, the PCAOB began its international inspection program in 2005 but the inspections themselves are staggered over time. There are two reasons why the inspections are staggered: First, the PCAOB enters into agreements with foreign governments to conduct inspections of non-U.S. auditors (in some cases) and this agreement was reached at different points in time with different countries. Second, all non-U.S. auditors inspected by the PCAOB (except the Big Four Canadian auditors) are subject to triennial inspections because they audit 100 or fewer SEC registered companies. The latter point results in a staggering of inspection dates, and thus the treatment effect, within each country. The benefit of having treatment effects staggered over time is that my research design allows companies audited by PCAOB-inspected auditors in one year to serve as a control for companies audited by PCAOB-inspected auditors in other years, thereby further reducing economic differences between treatment and control companies.

Fourth, the PCAOB inspection setting provides a unique opportunity to separate out the economic effects of changes in financial report *quality* and *credibility* because the public revelation of the inspection is delayed for many months after the completion of the inspection. The mean (median) lag between the inspection report date and the inspection completion date for *all* international inspections reports released as of December 2014 is 538 (440) days. The lag between the inspection report and inspection completion dates is even greater for the initial inspection of an auditor (with a mean [median] lag of 637 [553] days). Part of the reason for this delay is because inspected audit firms are given an opportunity to review and comment on a draft of the report before the PCAOB issues it, thus increasing the lead time to issue a final report.

Further, the PCAOB, similar to most regulatory agencies, is resource-constrained and thus slow to issue the final inspection report. As discussed earlier, reporting quality is likely to improve soon after a company's auditor is inspected by the PCAOB. However, reporting credibility is likely to improve only when investors find out that the company's auditor was subject to a PCAOB inspection.⁹ The time lag between the PCAOB inspection and its public disclosure allows me to empirically separate the economic effects of reporting quality and credibility.

Fifth, a non-U.S. setting is arguably more powerful than a U.S. setting to test the real effects of reporting quality and credibility because the U.S. disclosure and governance environment is already rich (Leuz and Verrecchia 2000). Thus, U.S. companies are less likely to benefit from improvements in reporting quality/credibility relative to non-U.S. companies given the rich base-line disclosure environment in the U.S.¹⁰

Finally, PCAOB inspections and the inspection reports serve as exogenous improvements in the reporting quality and credibility of the inspected auditors' clients' financial statements, respectively. As a result, this setting circumvents the need to empirically proxy for reporting quality and credibility, which is notoriously hard to do.

3. Data Sources and Sample Selection

I obtain the complete list of non-U.S. auditors inspected by the PCAOB, as well as the date when the inspection reports are made public, from PCAOB's website as of November 10, 2014.¹¹ I then hand collect data on the inspection date from the individual inspection reports

⁹ My empirical tests (and those in Fung et al. 2015) confirm that reporting quality changes soon after a company's auditor is inspected by the PCAOB, but that there is no such change following the public filing of the inspection report.

¹⁰ Differences in the information/governance environment across countries is perhaps why prior research finds mixed evidence that PCAOB inspections improves audit quality for U.S. auditors while the evidence that PCAOB inspections improves audit quality for non-U.S. auditors is more consistent across a variety of studies with different methodologies and different proxies for audit/reporting quality.

¹¹ See: <http://pcaobus.org/International/Inspections/pages/internationalinspectionreports.aspx>

downloaded from PCAOB's website. All my analyses are conducted on non-U.S. companies operating in countries with at least one PCAOB inspected auditor. I obtain the financial statement information of non-U.S. companies from the Compustat Global Vantage database and hand collect the auditor identities from the S&P Capital IQ database for all company-year observations in the intersection of Compustat Global and Capital IQ.¹² Although Compustat Global has a variable identifying the auditor for its sample company-years, I hand collect auditor data from Capital IQ for three reasons: (i) over 60% of the company-year observations in Compustat Global have auditors classified in a generic category "Other;" (ii) Of the identified auditors, the vast majority of company-years are those using a big-four auditor; (iii) Prior research finds that the auditor variable in Compustat Global is often erroneous (Francis and Wang 2008), which I confirm ex post in my sample when I compare the auditor identities in Compustat Global with that in Capital IQ. As a final step to identify the auditor for each company-year in my sample, I manually clean the auditor identities for the observations in my sample as the auditor names are not uniformly coded in the Capital IQ database.

My sample period begins in 2003 (i.e., four years before the first PCAOB inspection in my sample) and ends in 2014 (the most recent year on Compustat Global). I require company-years to be in the intersection of the Compustat Global and Capital IQ databases and have non-missing values for total assets, capital expenditure, Tobin's Q, and cash flow. Next, I require each observation to have non-missing data for the variables I match on in the three years immediately preceding the year of the observation. These filters result in a sample of 89,225 company-year observations. I then construct two samples: one for the analyses of PCAOB inspections (henceforth, "inspection sample") and another for the analyses of public disclosure of the inspections (henceforth, "report sample"). The pre- and post-treatment periods differ due to

¹² Although the Datastream database has greater company coverage than Global Vantage, I use the latter because the primary source of auditor data is Capital IQ, and Datastream does not share a reliable company identifier with Capital IQ. GVKEY serves as a common company identifier for observation in Global Vantage and Capital IQ.

differences in PCAOB inspection and report dates, which is why I construct two sets of matched samples for the analyses of reporting quality effects and reporting credibility effects.

Requiring treatment companies to have a matched control companies reduces the inspection (report) sample size to 13,740 (13,334); of this, 11,979 (11,308) treatment company-years have matching control company-years in the inspection (report) sample. I retain only those observations within four years of the treatment effect to center the sample on the treatment date and mitigate the likelihood of confounding events in the pre- or post-treatment periods. Dropping SEC registered non-U.S. company-years and observations where the PCAOB publicly disclosed its quality control criticism (because the inspected auditor failed to satisfactorily address PCAOB’s concerns) results in a final sample of 20,401 (19,727) company-year observations in the inspection sample (report sample). Table 1 outlines the sample selection procedure in detail.

4. Research Design and Results

4.1. Research Design

I estimate the following difference-in-differences regression to test my predictions:

$$y_{i,t} = \alpha_i + \alpha_t \times \alpha_{ind} \times \alpha_c + \beta_1 POST_TREAT \times TREATMENT_CO_{i,t} + \beta_2 POST_TREAT_{i,t} + \gamma'X + \varepsilon_{i,t} \quad (1)$$

where i , t , ind , and c indexes companies, years, industries, and countries, respectively; $y_{i,t}$ is capital expenditure scaled by lag assets (*INVESTMENT*) or the natural log of long-term debt ($LN(DEBT)$), α_i , α_t , α_{ind} , and α_c are company, year, industry (3-digit NAICS), and country indicators, *TREATMENT_CO* is an indicator variable that equals one (zero) for treatment (control) companies, *POST_TREAT* is an indicator variable that equals one for the fiscal years ending after a PCAOB inspection date or PCAOB report date, and X is a vector of controls (discussed below). Since control companies do not have PCAOB inspections, *POST_TREAT* equals one for them when their matched treatment companies’ auditors are inspected by the

PCAOB or when their matched treatment companies' auditors' PCAOB inspection report becomes public. The main effect of *TREATMENT_CO* is absorbed by the company indicators, but *POST_TREAT* is identified despite having country-industry-year indicators because the post-treatment period varies at the company-level (depending on the company's auditor and the timing of its PCAOB inspection/report, which is staggered over time).

When the dependent variable is *INVESTMENT*, the vector of control variables includes: Tobin's Q (*TOBIN'S_Q*), cash flows from operations (*CFO*), company size (*LN(MVE)*), leverage (*LEVERAGE*), and cash (*CASH*). When the dependent variable is *DEBT*, the vector of control variables includes: Tobin's Q (*TOBIN'S_Q*), cash flows from operations (*CFO*), company size (*LN(MVE)*), cash (*CASH*), the ratio of tangible to total assets (*ASSET_TANGIBILITY*), growth (*SALES_GR*), and profitability (*ROA*). The list of control variables included in my regressions follows prior research (e.g., Kaplan and Zingales 1997; Whited 2006; Hadlock and Pierce 2010; Badertscher et al. 2013; Kausar et al. 2015).¹³ All continuous variables are winsorized at the 1st and 99th percentile of their empirical distribution. I cluster standard errors at the matched company-pair level to allow for within-company and within-pair correlation in the residuals.

4.2. Parallel Trends Assumption and Discussion of Research Design

The identifying assumption essential to the interpretation of my difference-in-differences coefficient is that the treatment and control companies have parallel trends in debt and investment. To satisfy this assumption, I match the treatment companies to control companies based their pre-treatment period growth opportunities and access to finance. Specifically, I match

¹³ A potential concern of controlling for leverage in the investment regression is that the PCAOB treatment effect could affect debt-levels (as I predict) and thus affect leverage too. As a result, controlling for leverage could (i) dampen the treatment effect in the investment regressions and/or (ii) introduce an endogeneity bias via the "back-door" channel discussed in Gow et al. (2015). I still choose to control for leverage following Asker et al. (2015) but in untabulated analyses verify that my inferences are robust to dropping leverage from the set of control variables.

on the following variables within each country, industry, and year in the three years before treatment: *TOBIN'S_Q* and *SALES_GR*, which proxy for growth opportunities; *LN(MVE)* and *CASH*, which proxy for financing needs. I use nearest neighbor matching within caliper (Rosenbaum and Rubin 1985). To test whether the matching procedure is effective, Table 2 compares the mean values of the matching variables for my treatment and control samples, each year in the pre-treatment period. Since the treatment period is company-specific, I do not have a fixed set of pre-treatment years. Thus I report the results of the matching procedure in each of the four pre-treatment years, which are labeled '*t-1*' to '*t-4*.'¹⁴ Panel A (B) reports the results of the matching procedure for the PCAOB inspection sample (report sample). The table indicates that my matching procedure results in no statistically significant difference between my treatment and control companies with respect to the matched variables, thereby showing that they are observably similar in terms of their pre-treatment growth opportunities and access to finance.

Next, I examine and find that the pre-treatment trends in both investment and debt are indistinguishable in both the inspection sample (Table 3, Panel A) and report sample (Table 3, Panel B). The question then is whether the post-treatment trends would have continued to be parallel had it not been for the PCAOB inspection of the treated companies' auditors. My empirical design takes several steps to mitigate the concern that the treatment companies' trend in investment or debt would have changed even in the absence of the inspections. First, I include country-industry-year fixed effects in all the regressions. This fixed effects structure controls for a *dynamic* time trend within each country-industry, and essentially differences away observable and unobservable trends in debt and investment at the country-industry level. Second, I include company-fixed effects in all the regressions, which differences away company-specific trends in

¹⁴ Recall that I retain only those observations within four years of the treatment effect to reduce the likelihood of confounding events in the pre- or post-treatment periods.

debt and investment. Finally, I control for standard company-level characteristics (such as size, growth, and profitability) that could cause trends to diverge post-treatment for reasons unrelated to the PCAOB inspection induced effects.

Below are a few important observations about my research design. First, the treatment and control companies have different auditors by construction. Therefore, a potential concern is that a company's auditor choice creates a selection bias in my tests. It is important to note that my identifying assumption is not random assignment of auditor; it is that the treated and control companies' investment and debt would have trended similarly in the absence of the PCAOB inspection of the treated company's auditor. As discussed above, descriptive tests suggest that investment and debt empirically trended similarly for treatment and control companies in the pre-treatment years. Further, any effect of auditor selection is likely to be differenced away in my regressions so long as the selection effects are the same before- and after-PCAOB inspection and report dates. To further mitigate selection concerns, I also exploit the fact that the PCAOB was established in 2002 as part of SOX. Thus, companies whose auditor choice pre-dates the PCAOB are unlikely to be affected by selection effects. I verify that all my inferences are robust to examining just those companies whose auditor choice pre-dates the creation of the PCAOB.

Another important observation about my research design is that I use PCAOB inspections and the disclosure of PCAOB inspection reports as shocks to reporting quality and reporting credibility, respectively. As a result, I assume that PCAOB inspections and the disclosure of those inspections affect reporting quality and credibility even though such as assertion is not without controversy (Palmrose 2006; Glover et al. 2009; Lennox and Pittman 2010). While I conduct some empirical tests to validate these assumptions, it is important to note that if these assumptions are not true then my tests are biased towards the null hypothesis.

4.3. Descriptive Statistics

Table 4 presents a number of descriptive statistics for my sample. Panel A presents the distribution of the number of observations in each country as well as the number PCAOB auditor inspections and PCAOB inspection reports in each country. Panels B and C report the summary statistics for the variables of interest for the treatment sample and the matched control sample, respectively. Panel A shows that the majority of observations in my sample belong to Japanese companies. Thus, in untabulated analyses I verify that my inferences are robust to dropping Japanese companies from my analyses. The Panel A also shows that there are 111 PCAOB auditor inspections and 90 PCAOB inspection reports in my sample.

Panels B and C shows that treatment and control companies are similar along most dimensions. In Panel B (C) the average company spends 4.7% (4.6%) of total assets on investment and the average company has 1.1 billion (980 million) in debt in its local currency.¹⁵ Both the treatment and control companies are on average growing, profitable, and generate positive cash flows. Overall, the descriptive statistics suggest that my sample companies are not atypical in any observable way. Panel C also shows that the average lag between the PCAOB inspection date and the PCAOB report date is 863 days, thus allowing a sufficient gap to test the differential effects of PCAOB inspections and reports.

4.4. PCAOB Inspections and Financial Reporting Quality

I begin my analyses by examining whether PCAOB inspections and the subsequent disclosure of these inspections lead to changes in the inspected auditor's clients' reporting quality. Specifically, I examine whether there is a reduction in discretionary accruals and an increase in accrual quality following PCAOB inspections, and the absence of such an effect

¹⁵ I do not convert debt (and the other variables measured in levels) into a uniform currency because exchange rate fluctuation adds noise to my results.

following the disclosure of PCAOB inspection via the PCAOB inspection reports. I measure discretionary accruals using the modified Jones model (Jones 1991; Dechow et al. 1995; Ecker et al. 2013) and accruals quality following Dechow and Dichev (2002).

To stay consistent with the research design in the following sections of the paper, I use a matched sample difference-in-differences estimator. I match treatment and control companies within each country, industry and year on the following variables: size, growth, performance, the standard deviation of sales and the standard deviation of cash flows in the three years before treatment. I match on size, growth and performance following Kothari et al. (2005) and Albuquerque (2009) among others. I also match on the standard deviation of sales and cash flows following Hribar and Nichols (2007). Table 5 presents the results from my tests.

Panel A shows that there is a statistically significant reduction in the absolute value of discretionary accruals in the four years after a company's auditor is inspected by the PCAOB. However, I do not observe any further reduction in discretionary accruals following the public disclosure that a company's auditor was inspected by the PCAOB. Panel B repeats the above tests using accrual quality as the dependent variable. Here again, I find that a company's accrual quality improves after its auditor is inspected by the PCAOB. However, no such effect exists following the public disclosure of the inspection. These results are consistent with my expectations, comments by the PCAOB staff, and concurrent work by Fung et al. (2015).

4.5. Test of H1 and H2: Effects of Reporting Quality and Credibility on Debt

Next, I examine whether companies audited by PCAOB-inspected auditors increase their debt levels following the PCAOB inspection (hypothesis 1), and following the public disclosure of the PCAOB inspection (hypothesis 2). Table 6, Panel A presents the results. The first column tabulates results showing the effect of PCAOB inspections. In this regression, the *POST_TREAT*

variable equals one for fiscal years ending after the PCAOB inspection is complete. The second column tabulates results showing the effect of PCAOB reports; the *POST_TREAT* variable equals one for fiscal years ending after the PCAOB inspection report becomes public. The coefficient of interest in both regressions is $POST_TREAT \times TREATMENT_CO$.

In the first regression, I find that the coefficient for $POST_TREAT \times TREATMENT_CO$ is 0.049 and is statistically insignificant (t-statistic=1.06). This result suggests that PCAOB inspections do not lead to an increase in the debt levels of companies audited by PCAOB-inspected auditors. Combined with the results in Table 5 that shows that PCAOB inspections lead to reporting quality improvements, these results suggest that PCAOB inspection induced improvements in reporting quality do not lead to increases in debt.

The second regression in the table shows that the coefficient for $POST_TREAT \times TREATMENT_CO$ is 0.109 and is statistically significant at the 1% level (t-statistic=2.55). This coefficient suggests that companies audited by PCAOB-inspected auditors increase their debt levels once their auditors' PCAOB inspection reports are made public. I interpret this result as suggesting that increases in financial reporting credibility increase companies' access to capital and thus leads to an increase in debt. In terms of economic magnitude, the difference-in-difference coefficient suggests that treatment companies increase their debt levels by 11.5%.

To further corroborate the inference above, I examine the dynamic effects of both PCAOB inspections and its public disclosure on the debt levels of the treatment companies. Specifically, I replace the *POST_TREAT* indicator variable with the following four indicator variables: *POST_TREAT [-1]*, *POST_TREAT [0]*, *POST_TREAT [1]*, and *POST_TREAT [+2]*. *POST_TREAT [-1]* is an event time indicator that equals one for the fiscal year immediately preceding the PCAOB inspection date in the first regression and the PCAOB report date in the second regression. Similarly, *POST_TREAT [0]*, *POST_TREAT [1]*, and *POST_TREAT [+2]* are

indicator variables that equal one for fiscal years ending in the (i) year immediately after, (ii) one year after, and (iii) two or more years after the PCAOB inspection/PCAOB report date, respectively. These indicator variables enter my regressions as interactions with the *TREATMENT_CO* indicator as well as main effects. Their main effects are identified despite the inclusion of country \times industry \times year fixed effects because the post treatment period is company-specific. To the extent the PCAOB inspections and the disclosure of those inspections via PCAOB reports are relatively exogenous events and not part of any pre-existing trend, I should find that the treatment companies increase their debt only after the treatment takes place.

Table 6, Panel B presents the results. I find that the coefficient for *POST_TREAT [-1] \times TREATMENT_CO* is statistically insignificant in both regressions (inspections and reports), suggesting that there is no significant change in debt before treatment. Further, the coefficients for *POST_TREAT [0] \times TREATMENT_CO* and *POST_TREAT [1] \times TREATMENT_CO* are statistically insignificant in the regression examining the effect of PCAOB inspections. Although the coefficient for *POST_TREAT [+2] \times TREATMENT_CO* is statistically significant in this regression (coef.=0.122; t-stat.=1.67), this coefficient becomes insignificant once I remove company-years that cross into the period following the PCAOB report date (untabulated). Overall, this result shows that PCAOB inspections do not lead to an increase in the debt levels of companies audited by PCAOB-inspected auditors (consistent with the results in Panel A).

However, I find that the coefficients for *POST_TREAT [1] \times TREATMENT_CO*, and *POST_TREAT [+2] \times TREATMENT_CO* are statistically significant at the 1% level in the regression examining the effect of PCAOB inspection reports. These results support the hypothesis that the disclosure of PCAOB inspections increases the reporting credibility of the treated companies and consequently leads to an increase in their debt levels. The insignificant coefficient for *POST_TREAT [0] \times TREATMENT_CO* suggests that treatment companies do not

change debt levels in the year of treatment. This is perhaps because the PCAOB delays the disclosure of quality control criticisms for a year after the PCAOB report or alternatively because of adjustment cost induced delays (e.g., Leary and Roberts 2005). Overall, the dynamic specification helps mitigate endogeneity concerns related to the existence of a pre-existing trend in the debt levels of the treatment companies. The results in Table 6 suggest that PCAOB induced improvements in reporting quality does not affect the debt levels of treated companies but an increase in reporting credibility leads to increases in the debt levels of treated companies.

4.6. Test of H1 and H2: Effects of Reporting Quality and Credibility on Investment

Next, I examine whether companies audited by PCAOB-inspected auditors increase investment following the PCAOB inspection of their auditor, and the public disclosure of that inspection report. Table 7, Panel A (B) presents the results for the static (dynamic) specification. As in Table 6, the first column tabulates results on the effect of PCAOB inspections and second column tabulates results on the effect of PCAOB reports. The coefficient of interest in both regressions is $POST_TREAT \times TREATMENT_CO$, which captures the change in investment for the treated companies post treatment compared to that for the control companies.

Panel A shows that the coefficient for $POST_TREAT \times TREATMENT_CO$ is -0.000 with a t-statistic of -0.29 in the regression examining the effect PCAOB inspections on investment. This result suggests that companies audited by PCAOB-inspected auditors do not change their investment any differentially than control companies following the PCAOB inspection of their auditor. This result complements the evidence in Table 6, which shows that companies do not change their debt levels following PCAOB inspections of their auditor. Collectively, the results in tables 5 to 7 suggest that PCAOB inspections lead to improvements in report quality but do not lead to increases in company financing and investment.

The second regression in the table shows that the coefficient for $POST_TREAT \times TREATMENT_CO$ is 0.005 and is statistically significant at the 1% level (t-statistic=3.42). This coefficient suggests that companies audited by PCAOB-inspected auditors increase investment once their auditors' PCAOB inspection reports are made public. I interpret this result as suggesting that increases in financial reporting credibility increase companies' access to capital and thus leads to an increase in debt (as observed in Table 6) and an increase in investment (Table 7). In terms of economic magnitude, the difference-in-difference coefficient suggests that treatment companies increase their investment by 10.9%.

Table 7, Panel B presents the results from the dynamic regression specification where I replace the $POST_TREAT$ indicator variable with four indicator variables: $POST_TREAT [-1]$, $POST_TREAT [0]$, $POST_TREAT [1]$, and $POST_TREAT [+2]$. The table shows that the coefficient for $POST_TREAT [-1] \times TREATMENT_CO$ is statistically insignificant in both regressions (as expected), suggesting that there is no pre-treatment trend in investment. The table also confirms that PCAOB inspections do not have a positive effect on companies' investment behavior in any of the post-treatment years (consistent with the results in Table 7, Panel A and the previous tables). Surprisingly, I find that the coefficient for $POST_TREAT [1] \times TREATMENT_CO$ is negative and significant (t-stat.=-1.68), suggesting that companies audited by PCAOB-inspected auditors *reduce* investment in the year immediately following the inspection relative to control companies. This coefficient is inconsistent with my expectations.

Lastly, Table 7, Panel B shows that the coefficients for $POST_TREAT [1] \times TREATMENT_CO$, and $POST_TREAT [+2] \times TREATMENT_CO$ are positive and statistically significant at the 1% level in the regression examining the effect of PCAOB reports on investment. These results support the hypothesis that the disclosure of PCAOB inspections

increases the reporting credibility of the treated companies and as a result leads to an increase in investment. Consistent with that observed in Table 6 for debt, the coefficient for $POST_TREAT [0] \times TREATMENT_CO$ is insignificant, which suggests that treatment companies do not change investment levels in the year of treatment. As stated before, this is perhaps because the PCAOB delays the disclosure of any quality control criticisms for a year (or perhaps because of adjustment cost delays). Overall, the results thus far suggest that PCAOB induced improvements in reporting quality does not affect the debt and investment of treated companies but an increase in reporting credibility leads to increases in the debt and investment of treated companies.

4.7. Effects of Reporting Quality and Credibility on Investment Efficiency

Finally, I examine whether companies audited by PCAOB-inspected auditors become more responsive to their investment opportunities following the PCAOB inspection/inspection report. To examine this question, I augment equation 1 by including additional interaction terms with $TOBIN'S_Q$. My coefficient of interest is $POST_TREAT \times TREATMENT_CO \times TOBIN'S_Q$, which captures the change in the sensitivity of investment to growth opportunities following the PCAOB inspection/inspection report for treatment companies compared to that for control companies.

Table 8, Panel A (B) presents the results for the static (dynamic) specification. In the static specification in Panel A, I find that coefficient for $POST_TREAT \times TREATMENT_CO \times TOBIN'S_Q$ is insignificant when treatment comes from PCAOB inspections (t-stat.=0.70) and only marginally significant when the treatment comes from the disclosure of the PCAOB inspections (t-stat.=1.44; one-tailed p-value=0.075). These results initially suggest that PCAOB inspection induced changes in reporting quality does not affect a company's responsiveness to its investment opportunities and the reporting credibility effects are weak. However, the dynamic

specification in Panel B shows that the coefficients for $POST_TREAT [1] \times TREATMENT_CO \times TOBIN'S_Q$, and $POST_TREAT [+2] \times TREATMENT_CO \times TOBIN'S_Q$ are positive and significant at the 5% level in the regression examining the effect of PCAOB reports. These results are consistent with the hypothesis that the disclosure of PCAOB inspections increases the reporting credibility of the treated companies and thus leads to an increase in investment efficiency as observed by a greater responsiveness to investment opportunities. And consistent with earlier results, there is no evidence that PCAOB inspections have any effect on the sensitivity of investment to investment opportunities.

To summarize, the results paint a consistent picture: PCAOB inspections lead to an improvement in reporting quality but do not affect company financing, investment or investment efficiency. However, the disclosure of PCAOB inspection reports lead to an increase in debt, investment and investment efficiency. These economic effects manifest only a year after the disclosure of the inspection report, which coincides with the time when the PCAOB is likely to report any unresolved quality control criticisms at the audit firm. I interpret these results as suggesting that an increase in reporting credibility reduces financing frictions and thus affects company financing and investment behavior.

4.8. Heterogeneity in Treatment Effects

To further corroborate my inferences regarding the economic effects of reporting credibility, I conduct two cross-sectional tests. First, I examine whether the treatment effect of PCAOB inspection reports documented in the earlier sections is greater for financially constrained companies. If PCAOB inspection reports enhance reporting credibility and thereby increase access to external finance, then the economic effects of PCAOB inspection reports should be larger for financially constrained companies. To test this prediction, I augment

equation 1 by including additional interaction terms with my proxy for financing constraints. I proxy for financing constraints using an indicator variable that equals one for company-years that do not pay a dividend (*NO_DIVIDEND*). My coefficient of interest is $POST_TREAT \times TREATMENT_CO \times NO_DIVIDEND$, which captures the incremental change in debt/investment for non-dividend paying companies following the disclosure of PCAOB inspection reports, while the coefficient for $POST_TREAT \times TREATMENT_CO$ captures the effect for dividend paying companies.

These results are presented in Table 9. Consistent with my expectation, Table 9 shows that the coefficient for $POST_TREAT \times TREATMENT_CO \times NO_DIVIDEND$ is positive and statistically significant at the one-tailed 5% level when the dependent variable is long-term debt. However, I find that this coefficient is statistically insignificant when the dependent variable is investment. These results suggest that financially constrained companies increase their external financing by a significantly larger magnitude than unconstrained companies following PCAOB induced improvements in their reporting credibility. However, the changes in investment following PCAOB induced improvements in their reporting credibility are no different for financially constrained and unconstrained companies.

Second, I examine whether the effect of PCAOB induced improvements in reporting credibility is greater for companies audited by a non-big four auditor. The idea is that the big four auditors are relatively more reputed than the non-big four auditors, and thus the clients of the non-big four auditors are likely to derive greater benefits from PCAOB induced improvements in reporting credibility. That is, to the extent the big four auditors have a reputation for producing high quality audits, the incremental credibility benefit of a PCAOB inspection is likely to be smaller for the clients of the big-four auditors.

To test this prediction, I augment equation 1 by including additional interaction terms with an indicator variable that equals one for treatment companies audited by a non-big four auditor (*NO_BIG4_TREAT*). The coefficient of interest in this regression is $POST_TREAT \times TREATMENT_CO \times NO_BIG4_TREAT$, which captures the incremental change in debt/investment for clients of non-big four auditors following the disclosure of their PCAOB inspection reports. These results are presented in Table 10. The table shows that the coefficient for $POST_TREAT \times TREATMENT_CO \times NO_BIG4_TREAT$ is positive and insignificant (significant) when long-term debt (investment) is the dependent variable. These results suggest that companies audited by a non-big four auditor increase their investment by a significantly larger magnitude than those audited by a big-four auditor following PCAOB induced improvements in their reporting credibility. However, the changes in long-term debt following PCAOB induced improvements in their reporting credibility are similar for both, companies audited big-four and non-big four auditors. Note that almost 92% of the treatment companies are audited by a big-four auditor (see Table 4); the above results should be interpreted in-light of this observation.

5. Conclusion

In this paper, I use the PCAOB international inspection program as a setting to examine the effects of financial reporting quality and financial reporting credibility on a company's financing and investment decisions. Even though non-U.S. companies are not subject to any SEC/PCAOB regulation, their auditors can be subject to PCAOB inspections if the auditor has one or more clients that are cross-listed in the U.S. Thus, the PCAOB inspections of non-U.S. auditors can serve as exogenous shocks to the reporting quality and credibility of non-U.S. companies audited by inspected auditors but who are otherwise free of U.S. regulation.

My results based on a difference-in-differences matching estimator suggest that even though non-U.S. companies audited by PCAOB inspected auditor see an improvement in their accrual quality following the inspection of their auditor, they do not change their financing or investing behavior in any way following the inspection. However, when non-U.S. investors learn about the PCAOB inspection of a company's auditor via the disclosure of the inspection report, the non-U.S. companies audited by inspected auditors increase their long-term debt and investment, and become more responsive to their investment opportunities. These treatment effects are stronger for (i) financially constrained companies, and (ii) companies audited by a non-big four auditor.

Overall, my results suggest that improvements in reporting quality might not have a measurable effect on a company's financing and investment behavior which in contrast to prior research. However, improvements in reporting credibility have significant effects on both a company's ability raise external financing and increase investment. I interpret these results as suggesting that reporting credibility increase companies' access to external finance, which subsequently leads to an increase in investment and investment efficiency. Notwithstanding the evidence in this paper, I caveat that the PCAOB setting might not be sufficiently powerful to document the effect of reporting quality on investment efficiency. Further, it is also possible that prior research captures the joint effect of reporting quality and credibility, and it is reporting credibility that drives the association. In any case, I believe more research is needed before we can draw reliable conclusions about whether and how reporting quality affects investment and investment efficiency.

The evidence in this paper is important for at least two reasons. First, this paper documents and quantifies the importance of reporting credibility in the capital allocation process. Separating the economic effects of reporting credibility from reporting quality or quantity is very

challenging because reporting credibility is inherently unobservable. The PCAOB inspection setting provides a rare opportunity to distinguish between these constructs. Second, this paper sheds light on the importance of regulatory oversight of auditors. Most studies examining the effect of regulation face identification challenges because of the lack of an appropriate control sample (Coates and Srinivasan 2014; Leuz and Wysocki 2015). The PCAOB international inspection setting provides an opportunity to compare two companies that are located in the same country and are observably similar but are yet subject to different levels of regulatory oversight because of their auditors' *other* clients.

Before concluding, I stress that my inferences are based on a sample of non-U.S. companies that operate in countries with weaker regulatory and institutional environments than that in the U.S. Thus the results of this paper, especially the economic magnitude of the credibility effects, might not generalize to companies in the U.S.

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Appendix A
Variable Definitions

This table provides a detailed description of the procedure used to compute each variable used in our analyses. Our data are obtained either through Compustat Global, Capital IQ, or the PCAOB website. All continuous variables are winsorized at 1% and 99% of the distribution and all dollar amounts are in millions. The variables are listed according to alphabetical order.

Variable	Definition
<i>ACCRUAL_QUALITY</i>	<p>Accrual quality is computed using the following model:</p> $WC\ Accruals_{it} = \alpha_0 + \alpha_1 CFO_{it-1}/Assets_{it-1} + \alpha_2 CFO_{it}/Assets_{it-1} + \alpha_3 CFO_{it+1}/Assets_{it-1} + \varepsilon_{it}$ <p>Where $WC\ Accruals_{it}$ = company i's working capital accruals in year t, measured as the change in current assets (adjusted for the change in cash) minus the change in current liabilities (adjusted for current liabilities used for financing) minus depreciation expense. The absolute value of the residuals from estimating the above equation in the cross section of companies in size deciles within each country-year averaged over the preceding two years and multiplied by -1 provides the measure of accrual quality (i.e., $[\varepsilon_{it-1} + \varepsilon_{it-2}] / 2 \times -1$). This estimation approach follows Dechow and Dichev (2002). The use of size deciles to estimate the regression model follows Ecker et al. (2013).</p>
<i>ASSET_TANGIBILITY</i>	The ratio of total tangible assets measured as net property, plant and equipment (data PPENT) scaled by total assets (data AT) as of the fiscal year preceding the dependent variable measurement date.
<i>BIG4</i>	An indicator that equals one for companies using one of the big four audit firms as their auditor. The big four auditors include Deloitte, E&Y, KPMG, and PwC.
<i>BIG4_TREAT</i>	An indicator that equals one for treatment companies audited by a big-four auditor. Control companies are assigned the same value as their matched treatment companies.
<i>CASH</i>	Total cash balance (data CH) scaled by lag total assets (data AT) as of the fiscal year preceding the dependent variable measurement date.
<i>CFO</i>	Operating cash flows (data OANCF) scaled by lag total assets (data AT) as of the fiscal year preceding (concurrent to) the dependent variable measurement date in the debt (investment) regression.
<i>/DISCRETIONARY ACCRUALS/</i>	<p>Discretionary accruals is computed using the following model:</p> $Accruals_{it} = \alpha_0 + \alpha_1 (1/Assets_{it-1}) + \alpha_2 (\Delta Sales_{it} - \Delta AR_{it})/Assets_{it-1} + \alpha_3 (PPE_{it}/Assets_{it-1}) + \alpha_4 (ROA_{it}/Assets_{it-1}) + \varepsilon_{it}$ <p>Where $Accruals_{it}$ = company i's total accruals in year t, measured as income before extraordinary items minus cash flows from operations. The absolute value of the residuals from estimating the above equation in the cross section of companies in size deciles within each country-year provides the absolute value of discretionary accruals (i.e., ε_{it}). This estimation approach follows Jones (1991), Dechow et al. (1995), and Kothari et al. (2005). The use of size deciles to estimate the regression model follows Ecker et al. (2013).</p>
<i>DIVIDEND</i>	An indicator that equals one for company-years with positive dividend payments (data DVC > 0).
<i>INSPECTION_COUNT</i>	The number of PCAOB inspections that an auditor has been subjected to.
<i>INVESTMENT</i>	Capital expenditure (data CAPX) scaled by lag total assets (data AT).
<i>LEVERAGE</i>	The ratio of the sum of short- and long-term debt (data DLC + DLTT) to total assets (data AT) as of the fiscal year preceding the dependent variable measurement date.

<i>LN(ASSETS)</i>	The natural log of a company's total assets in the company's home currency (data AT).
<i>LN(DEBT)</i>	The natural log of a company's long-term debt in the company's home currency (data DLTT).
<i>LN(MVE)</i>	The natural log of a company's market value of equity in the company's home currency (data PRCC_F \times CSHO) as of the fiscal year preceding the dependent variable measurement date.
<i>NO_PG_REPORT</i>	The number of pages in the public portion of the PCAOB report as measured by the page number of the last page in the report. This variable is hand collected from the PCAOB reports.
<i>POST_TREAT</i>	Indicator variable that equals one for fiscal years following the PCAOB inspection date or the PCAOB report date. Control companies are assigned the same values for this variable as their matched treatment companies.
<i>REPORT_LAG</i>	The number of days between the PCAOB inspection end date and the date the PCAOB report is released on its website.
<i>ROA</i>	Return on assets is measured as income before extraordinary items (data IB) divided by lag total assets (data AT) as of the fiscal year preceding the dependent variable measurement date.
<i>SALES_GR</i>	Percentage change in sales (data SALE) as of the fiscal year preceding the dependent variable measurement date.
<i>STDEV_CFO</i>	Standard deviation of operating cash flows (data OANCF) in the three the fiscal years preceding the dependent variable measurement date scaled by lag total assets (data AT).
<i>STDEV_SALES</i>	Standard deviation of sales (data SALE) in the three the fiscal years preceding the dependent variable measurement date scaled by lag total assets (data AT).
<i>TOBIN'S_Q</i>	Market value of equity (data PRCC_F \times CSHO) plus the book value of short- and long-term debt (data DLC + DLTT) scaled by total assets (data AT) measured at the fiscal year preceding the dependent variable measurement date.
<i>TREATMENT_CO</i>	An indicator variable that equals one for companies audited by PCAOB-inspected auditors.

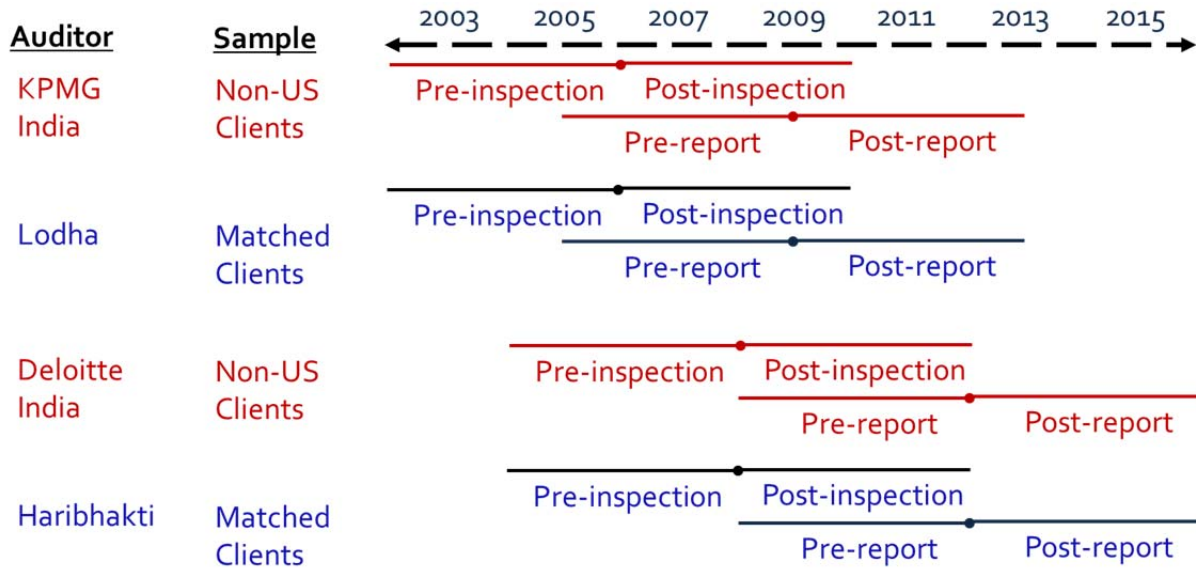
FIGURE 1*Diagrammatic representation of the identification of treatment and control companies*

<u>Clients</u>	<u>Auditors</u>		
	KPMG India	Deloitte India	Lodha & Co.
SEC registered companies	<ol style="list-style-type: none"> 1. Infosys 2. Wipro 	<ol style="list-style-type: none"> 1. Tata Motors 2. HDFC Bank 	
Treatment companies	<ol style="list-style-type: none"> 1. Reliance Mediaworks 2. Mythra Energy 3. Aztecsoft 	<ol style="list-style-type: none"> 1. GSFC 2. Ashok Leyland 3. Clariant Chemicals 	
Control companies			<ol style="list-style-type: none"> 1. Dunlop India 2. Eurotex Industries 3. Aditya Birla Nuvo 4. Andhra Cement 5. Shaw Wallace

Notes: This figure presents an example in which I list a sub-sample of five clients belonging to three different Indian audit firms. Of the three auditors, two of them (KPMG India and Deloitte India) have at least one client that is listed on a U.S. stock exchange. As a result, these auditors are subject to PCAOB inspections. My treatment sample is composed of the non-U.S. clients of these auditors. In other words, in the example above, Infosys, Wipro, Tata Motors and HDFC Bank do not enter my sample; rather it is the other clients of KPMG India and Deloitte India (i.e., Reliance Mediaworks, Mythra Energy, Aztecsoft, GSFC, Ashok Leyland, Clariant Chemicals) that compose my treatment sample. The clients of auditors such as Lodha & Co., which do not have any SEC registered client, compose my control sample.

FIGURE 2

Diagrammatic representation of the difference-in-differences design with staggered treatment effects



Notes: This figure presents an example of my difference-in-differences research design where the non-U.S. clients of KPMG India and Deloitte India (i.e., auditors with at least one SEC registered client) compose my treatment sample and the clients of Lodha & Co. and Haribhakti (i.e., auditors without any SEC registered client) compose my control sample. As the figure shows, my research design compares the change in debt/investment of the non-U.S. clients of KPMG India and Deloitte India following their PCAOB inspection/report to the change in debt/investment of the matched sample of the clients of Lodha & Co. and/or Haribhakti during the same periods. The inspection dates and the inspection report release dates are both staggered overtime even for the auditors within a country, and thus the treatment effects are not aligned in calendar time. Overall, the figure shows that my design compares the change in the financing and investment behavior of two observably similar companies located in the same country over the same period but whose auditors are subject to different levels of regulatory oversight.

TABLE 1
Sample Selection

No.	Sample Selection (2003 - 20014)	Number of Observations	
		Inspection Sample	Report Sample
(1)	Company-year observations in the intersection of Capital IQ & Compustat Global with fiscal years ending after 2002 and non-missing data on key variables	127,249	127,249
(2)	Company-year observations with non-missing data in 3 pre-treatment years (necessary for matching)	89,225	89,225
(3)	Company-year observations from (2) receiving treatment	59,889	59,889
(4)	Company-year observations from (2) available for control	29,336	29,336
(5)	Treatment company-years with matched control companies	13,740	13,334
(6)	Treatment company-years with matched control company-years	11,979	11,308
(7)	Company-year observations within the 4 year treatment window	10,655	10,270
(8)	Sum of treatment and control company-year observations	21,310	20,540
(9)	Company-year observations without PCAOB criticism made public	21,056	20,226
(10)	Company-year observations excluding SEC registered companies	20,401	19,727
	Final sample of company-years available for analyses	20,401	19,727

TABLE 2
Results of Matching Procedure

This table presents the descriptive statistics for our matching variables for our treatment and control samples before the treatment period. Panel A (B) presents the results of the matching procedure for the PCAOB inspection sample (report sample). In the tables below, *TOBIN'S_Q* is the market value of equity plus book value of debt scaled by total assets; *SALES_GR* is the percentage change in sales; *CASH* is cash scaled by lag total assets; *LN(MVE)* is the natural log of a company's market value of equity.

Panel A: Comparison of Treatment and Control Sample in Pre-PCAOB Inspection Periods

Matching Variables	Treatment Sample	Control Sample	Difference	t-Statistic	Period
<i>TOBIN'S_Q</i>	0.912	0.930	-0.018	-0.44	<i>t-1</i>
<i>SALES_GR</i>	0.063	0.047	0.016	0.81	<i>t-1</i>
<i>CASH</i>	0.179	0.174	0.005	0.59	<i>t-1</i>
<i>LN(MVE)</i>	8.507	8.331	0.176	1.14	<i>t-1</i>
<i>TOBIN'S_Q</i>	0.907	0.899	0.008	0.19	<i>t-2</i>
<i>SALES_GR</i>	0.123	0.115	0.008	0.32	<i>t-2</i>
<i>CASH</i>	0.170	0.167	0.002	0.29	<i>t-2</i>
<i>LN(MVE)</i>	8.496	8.352	0.144	0.95	<i>t-2</i>
<i>TOBIN'S_Q</i>	0.892	0.902	-0.010	-0.23	<i>t-3</i>
<i>SALES_GR</i>	0.080	0.103	-0.023	-1.21	<i>t-3</i>
<i>CASH</i>	0.152	0.161	-0.008	-0.96	<i>t-3</i>
<i>LN(MVE)</i>	8.854	8.682	0.172	1.07	<i>t-3</i>
<i>TOBIN'S_Q</i>	0.913	0.927	-0.014	-0.27	<i>t-4</i>
<i>SALES_GR</i>	0.099	0.091	0.008	0.46	<i>t-4</i>
<i>CASH</i>	0.142	0.141	0.001	0.12	<i>t-4</i>
<i>LN(MVE)</i>	9.146	8.964	0.182	1.00	<i>t-4</i>

Panel B: Comparison of Treatment and Control Sample in Pre-PCAOB Report Period

Matching Variables	Treatment Sample	Control Sample	Difference	t-Statistic	Period
<i>TOBIN'S_Q</i>	0.865	0.864	0.001	0.03	<i>t-1</i>
<i>SALES_GR</i>	0.029	0.034	-0.005	-0.28	<i>t-1</i>
<i>CASH</i>	0.179	0.175	0.003	0.43	<i>t-1</i>
<i>LN(MVE)</i>	8.432	8.226	0.206	1.06	<i>t-1</i>
<i>TOBIN'S_Q</i>	0.819	0.819	-0.001	-0.02	<i>t-2</i>
<i>SALES_GR</i>	0.060	0.046	0.014	0.79	<i>t-2</i>
<i>CASH</i>	0.163	0.169	-0.006	-0.78	<i>t-2</i>
<i>LN(MVE)</i>	8.419	8.209	0.210	1.06	<i>t-2</i>
<i>TOBIN'S_Q</i>	0.846	0.818	0.028	0.70	<i>t-3</i>
<i>SALES_GR</i>	0.063	0.083	-0.020	-1.29	<i>t-3</i>
<i>CASH</i>	0.146	0.156	-0.010	-1.29	<i>t-3</i>
<i>LN(MVE)</i>	9.053	8.845	0.208	1.07	<i>t-3</i>
<i>TOBIN'S_Q</i>	0.957	0.954	0.003	0.05	<i>t-4</i>
<i>SALES_GR</i>	0.123	0.132	-0.009	-0.39	<i>t-4</i>
<i>CASH</i>	0.144	0.153	-0.009	-0.89	<i>t-4</i>
<i>LN(MVE)</i>	8.974	8.677	0.297	1.62	<i>t-4</i>

TABLE 3*Parallel Trends Assumption: Pre-Treatment Trends in Debt and Investment*

This table presents the mean difference in *INVESTMENT* changes and *DEBT* changes between treatment and control companies in each of the pre-treatment years. Panel A (B) presents the pre-treatment trends in *INVESTMENT* and *DEBT* for the PCAOB inspection sample (report sample). *LN(DEBT)* is the natural log of a company's long-term debt; *INVESTMENT* is capital expenditure scaled by lag total assets.

Panel A: Pre-Treatment Trends for PCAOB Inspection Sample

Main Dependent Variables	Treatment Sample	Control Sample	Difference	<i>t</i> -Statistic	Period
$\Delta LN(DEBT)$	-0.0555	-0.0584	0.0029	0.06	<i>t</i> -1
$\Delta INVESTMENT$	0.0010	0.0020	-0.0009	-0.52	<i>t</i> -1
$\Delta LN(DEBT)$	0.0560	-0.0095	0.0655	1.54	<i>t</i> -2
$\Delta INVESTMENT$	-0.0007	0.0003	-0.0011	-0.56	<i>t</i> -2
$\Delta LN(DEBT)$	0.0353	0.0386	-0.0033	-0.06	<i>t</i> -3
$\Delta INVESTMENT$	0.0023	0.0061	-0.0038	-1.04	<i>t</i> -3

Panel B: Pre-Treatment Trends for PCAOB Report Sample

Main Dependent Variables	Treatment Sample	Control Sample	Difference	<i>t</i> -Statistic	Period
$\Delta LN(DEBT)$	-0.0415	-0.0299	-0.0116	-0.24	<i>t</i> -1
$\Delta INVESTMENT$	0.0037	0.0021	0.0016	0.87	<i>t</i> -1
$\Delta LN(DEBT)$	-0.0306	-0.0205	-0.0100	-0.25	<i>t</i> -2
$\Delta INVESTMENT$	-0.0043	-0.0025	-0.0018	-1.08	<i>t</i> -2
$\Delta LN(DEBT)$	0.0089	0.0302	-0.0213	-0.53	<i>t</i> -3
$\Delta INVESTMENT$	-0.0042	0.0003	-0.0045	-1.24	<i>t</i> -3

TABLE 4
Descriptive Statistics

This table presents a number of descriptive statistics for my sample companies. Panel A presents the distribution by country of the number of (i) observations, (ii) PCAOB inspections and (iii) PCAOB inspection reports in my sample. Panel B (C) presents the descriptive statistics for all the variables used in my analyses for the PCAOB inspection (report) sample. In the tables below, *ASSET_TANGIBILITY* is the ratio of total tangible assets measured as net property, plant and equipment scaled by total assets; *BIG4* is an indicator that equals one for companies using one of the big four audit firms as their auditor; *BIG4_TREAT* is an indicator that equals one for treatment companies using one of the big four audit firms as their auditor and where the control companies are assigned the same value as their matched treatment company. *CASH* is cash scaled by lag total assets; *CFO* is operating cash flows scaled by lag total assets; *INSPECTION_COUNT* is the number of PCAOB inspections that an auditor has been subjected to; *INVESTMENT* is capital expenditure scaled by lag total assets; *LEVERAGE* is the ratio of the sum of short- and long-term debt to total assets; *LN(ASSETS)* is the natural log of a company's total assets; *LN(DEBT)* is the natural log of a company's long-term debt; *LN(MVE)* is the natural log of a company's market value of equity; *REPORT_LAG* is the number of days between the PCAOB inspection end date and the date the PCAOB report is released on its website; *ROA* is income before extraordinary items divided by lag total assets; *SALES_GR* is the percentage change in sales; *TOBIN'S_Q* is the market value of equity plus book value of total debt scaled by total assets; Detailed variable definitions are available in Appendix A.

Panel A: PCAOB Inspections and Reports by Country

Country	No. of PCAOB Inspections	No. of PCAOB Reports	No. of Observations in Inspection Sample	No. of Observations in Report Sample
Australia	17	15	1,156	1,275
Brazil	4	3	38	23
Canada	15	9	123	62
Germany	4	2	113	125
Greece	1	2	6	26
Hong Kong	2	1	20	12
India	12	11	1,375	1,301
Indonesia	3	4	40	92
Israel	1	0	6	0
Japan	12	11	13,530	12,505
Malaysia	3	3	286	327
Mexico	0	1	0	6
Peru	0	2	0	24
Singapore	6	5	201	201
South Korea	3	0	88	0
Spain	1	0	10	0
Switzerland	1	0	76	0
Taiwan	10	9	2,522	3,290
Thailand	2	2	45	38
Turkey	1	0	14	0
United Arab Emirates	0	1	0	14
United Kingdom	13	9	752	406
Total	111	90	20,401	19,727

TABLE 4 - continued

Panel B: PCAOB Inspection Sample

Variables	Mean	SD	P25	P50	P75	N
<i>LN(DEBT)</i>	7.029	3.100	5.509	7.448	9.028	16,053
<i>INVESTMENT</i>	0.047	0.066	0.011	0.027	0.056	20,401
<i>LN(MVE)</i>	8.651	2.700	7.573	8.969	10.382	20,401
<i>LN(ASSETS)</i>	9.461	2.912	8.454	10.133	11.306	20,401
<i>TOBIN'S_Q</i>	0.869	0.824	0.475	0.640	0.909	20,401
<i>SALES_GR</i>	0.075	0.493	-0.069	0.022	0.114	20,401
<i>ROA</i>	0.007	0.133	0.003	0.021	0.048	20,401
<i>CFO</i>	0.049	0.106	0.017	0.057	0.095	20,401
<i>LEVERAGE</i>	0.088	0.115	0.001	0.044	0.134	20,401
<i>CASH</i>	0.170	0.160	0.070	0.125	0.211	20,401
<i>ASSET_TANGIBILITY</i>	0.300	0.183	0.176	0.276	0.402	20,401
<i>DIVIDEND</i>	0.706	0.455	0.000	1.000	1.000	20,401
<i>BIG4</i>	0.465	0.499	0.000	0.000	1.000	20,401
<i>BIG4_TREAT</i>	0.918	0.275	1.000	1.000	1.000	20,401
<i>INSPECTION_COUNT</i>	1.813	0.611	1.000	2.000	2.000	20,401
<i>REPORT_LAG</i>	491.6	381.3	258.0	342.0	559.0	20,401

Panel C: PCAOB Report Sample

Variables	Mean	SD	P25	P50	P75	N
<i>LN(DEBT)</i>	6.888	2.899	5.355	7.262	8.730	15,140
<i>INVESTMENT</i>	0.046	0.064	0.011	0.026	0.054	19,727
<i>LN(MVE)</i>	8.499	2.566	7.469	8.786	10.090	19,727
<i>LN(ASSETS)</i>	9.336	2.766	8.231	9.930	11.086	19,727
<i>TOBIN'S_Q</i>	0.835	0.817	0.462	0.624	0.872	19,727
<i>SALES_GR</i>	0.064	0.466	-0.079	0.016	0.110	19,727
<i>ROA</i>	0.008	0.126	0.002	0.021	0.047	19,727
<i>CFO</i>	0.048	0.107	0.015	0.056	0.096	19,727
<i>LEVERAGE</i>	0.080	0.106	0.000	0.040	0.123	19,727
<i>CASH</i>	0.172	0.155	0.076	0.129	0.214	19,727
<i>ASSET_TANGIBILITY</i>	0.300	0.183	0.173	0.277	0.400	19,727
<i>DIVIDEND</i>	0.674	0.469	0.000	1.000	1.000	19,727
<i>BIG4</i>	0.458	0.498	0.000	0.000	1.000	19,727
<i>BIG4_TREAT</i>	0.904	0.295	1.000	1.000	1.000	19,727
<i>INSPECTION_COUNT</i>	1.297	0.548	1.000	1.000	2.000	19,727
<i>REPORT_LAG</i>	862.9	467.7	353.0	839.0	1189.0	19,727

TABLE 5*Effect of PCAOB Inspections and Inspection Reports on Financial Reporting Quality*

Panel A (B) in this table presents the results from regressing $|DISCRETIONARY ACCRUAL|$ (*ACCRUAL QUALITY*) on indicator variables for the post-treatment period, treatment company, interaction terms between these variables, and controls. The post-treatment period is defined as either (i) the fiscal years following a PCAOB inspection or (ii) the fiscal years following the public disclosure of the PCAOB inspection. See Appendix A for variable definitions. The *t*-statistics are clustered at the matched company-pair level to control for residual correlation in investment within treatment companies and their matched control companies. ***, **, and * denote statistical significance at a one-tailed level when a prediction is indicated and a two-tailed level otherwise.

Panel A: Effects on Discretionary Accruals

Dependent Variable:	<i>/DISCRETIONARY ACCRUALS/</i>				
		<i>PCAOB Inspection Date</i>		<i>PCAOB Report Date</i>	
Treatment Effect:		<i>Effects</i>		<i>Effects</i>	
	Pr. Sign	Coefficient	<i>t</i> -Statistic	Coefficient	<i>t</i> -Statistic
<i>POST_TREAT</i>		0.001	0.50	-0.004	-0.96
<i>POST_TREAT</i> × <i>TREATMENT_CO</i>	-, 0	-0.008**	-2.06	0.004	1.18
<i>LN(ASSETS)</i>		-0.073***	-4.22	-0.082***	-4.96
<i>TOBIN'S_Q</i>		0.004	0.66	-0.003	-0.66
<i>ASSET_GR</i>		-0.005	-0.59	-0.002	-0.26
<i>ROA</i>		0.013	0.41	0.022	0.82
<i>LEVERAGE</i>		0.050	1.59	-0.007	-0.20
<i>STDEV_CFO</i>		-0.074	-1.11	-0.124**	-2.06
<i>STDEV_SALES</i>		0.009	0.51	-0.008	-0.38
<i>Year</i> × <i>Industry</i> × <i>Country Indicators</i>		Included		Included	
<i>Company Indicators</i>		Included		Included	
Adjusted R-Squared		63.6%		52.7%	
No. of Observations		10,440		9,973	

TABLE 5 - continued

Panel B: Effects on Accrual Quality

Dependent Variable:	ACCRUAL QUALITY				
		<i>PCAOB Inspection Date</i>		<i>PCAOB Report Date</i>	
Treatment Effect:		<i>Effects</i>		<i>Effects</i>	
	Pr. Sign	Coefficient	<i>t</i> -Statistic	Coefficient	<i>t</i> -Statistic
<i>POST_TREAT</i>		0.000	0.00	0.000	0.08
<i>POST_TREAT</i> × <i>TREATMENT_CO</i>	+, 0	0.005**	2.07	0.001	0.27
<i>LN(ASSETS)</i>		0.031***	3.20	0.007	0.64
<i>TOBIN'S_Q</i>		-0.002	-0.85	-0.005	-1.41
<i>ASSET_GR</i>		-0.010***	-3.28	-0.001	-0.33
<i>ROA</i>		-0.002	-0.15	0.026	1.46
<i>LEVERAGE</i>		0.017	0.90	-0.008	-0.40
<i>STDEV_CFO</i>		-0.169***	-3.43	-0.214***	-4.88
<i>STDEV_SALES</i>		-0.062***	-3.83	-0.070***	-4.11
<i>Year</i> × <i>Industry</i> × <i>Country Indicators</i>		Included		Included	
<i>Company Indicators</i>		Included		Included	
Adjusted R-Squared		79.2%		72.5%	
No. of Observations		7,402		7,371	

TABLE 6
Effect of PCAOB Inspections and Inspection Reports on Debt

This table presents the results from regressing long-term debt ($LN(DEBT)$) on indicator variables for the post-treatment period, treatment company, interaction terms between these variables, and controls. The post-treatment period is defined as either (i) the fiscal years following a PCAOB inspection or (ii) the fiscal years following the public disclosure of the PCAOB inspection. Panel A presents the results from a static regression where is just one indicator variable for the post-treatment period and Panel B presents the results from a dynamic regression where is the post-treatment indicator is replaced with four event indicators, one of the year before treatment and the remaining three for the years following treatment. See Appendix A for variable definitions. The t -statistics are clustered at the matched company-pair level to control for residual correlation in investment within treatment companies and their matched control companies. ***, **, and * denote statistical significance at a one-tailed level when a prediction is indicated and a two-tailed level otherwise.

Panel A: Static Regression

Dependent Variable:	$LN(DEBT)$				
	Treatment Effect:	<i>PCAOB Inspection Date</i>		<i>PCAOB Report Date</i>	
		<i>Effects</i>		<i>Effects</i>	
	Pr. Sign	Coefficient	t -Statistic	Coefficient	t -Statistic
<i>POST_TREAT</i>		-0.042	-1.61	-0.068**	-2.24
<i>POST_TREAT</i> × <i>TREATMENT_CO</i>	+, +	0.049	1.06	0.109***	2.55
<i>TOBIN'S_Q</i>		-0.141**	-2.35	-0.155**	-2.27
<i>CASH</i>		0.132	0.53	-0.097	-0.41
<i>LN(MVE)</i>		0.106**	2.01	0.090*	1.84
<i>ASSET_TANGIBILITY</i>		1.932***	5.09	2.078***	5.84
<i>ROA</i>		0.261	0.79	0.489	1.50
<i>CFO</i>		-0.031	-0.18	-0.345**	-2.17
<i>SALES_GR</i>		0.021	0.77	0.048*	1.77
<i>Year</i> × <i>Industry</i> × <i>Country Indicators</i>		Included		Included	
<i>Company Indicators</i>		Included		Included	
Adjusted R-Squared		93.9%		93.5%	
No. of Observations		16,053		15,140	

TABLE 6 - continued

Panel B: Dynamic Regression

Dependent Variable:	<i>LN(DEBT)</i>				
	Treatment Effect:	<i>PCAOB Inspection Date</i>		<i>PCAOB Report Date</i>	
		Pr. Sign	Coefficient	<i>t</i> -Statistic	Coefficient
<i>POST_TREAT [-1]</i>		-0.029	-0.97	-0.036	-1.11
<i>POST_TREAT [0]</i>		-0.046	-1.40	-0.047	-1.21
<i>POST_TREAT [1]</i>		-0.037	-1.01	-0.066	-1.47
<i>POST_TREAT [+2]</i>		-0.049	-1.12	-0.061	-1.10
<i>POST_TREAT [-1] × TREATMENT_CO</i>	0, 0	0.022	0.45	0.039	0.84
<i>POST_TREAT [0] × TREATMENT_CO</i>	+, +	0.037	0.69	0.052	1.04
<i>POST_TREAT [1] × TREATMENT_CO</i>	+, +	0.021	0.32	0.132***	2.36
<i>POST_TREAT [+2] × TREATMENT_CO</i>	+, +	0.122*	1.67	0.200***	2.80
<i>TOBIN'S_Q</i>		-0.139**	-2.31	-0.156**	-2.28
<i>CASH</i>		0.134	0.54	-0.092	-0.39
<i>LN(MVE)</i>		0.105**	1.99	0.092*	1.88
<i>ASSET_TANGIBILITY</i>		1.948***	5.13	2.081***	5.85
<i>ROA</i>		0.254	0.77	0.476	1.46
<i>CFO</i>		-0.027	-0.16	-0.342**	-2.15
<i>SALES_GR</i>		0.022	0.81	0.048*	1.78
<i>Year × Industry × Country Indicators</i>			Included		Included
<i>Company Indicators</i>			Included		Included
Adjusted R-Squared			93.9%		93.5%
No. of Observations			16,053		15,140

TABLE 7
Effect of PCAOB Inspections and Inspection Reports on Investment

This table presents the results from regressing *INVESTMENT* on indicator variables for the post-treatment period, treatment company, interaction terms between these variables, and controls. The post-treatment period is defined as either (i) the fiscal years following a PCAOB inspection or (ii) the fiscal years following the public disclosure of the PCAOB inspection. Panel A presents the results from a static regression where is just one indicator variable for the post-treatment period and Panel B presents the results from a dynamic regression where is the post-treatment indicator is replaced with four event indicators, one of the year before treatment and the remaining three for the years following treatment. See Appendix A for variable definitions. The *t*-statistics are clustered at the matched company-pair level to control for residual correlation in investment within treatment companies and their matched control companies. ***, **, and * denote statistical significance at a one-tailed level when a prediction is indicated and a two-tailed level otherwise.

Panel A: Static Regression

Dependent Variable:	INVESTMENT				
		<i>PCAOB Inspection Date</i>		<i>PCAOB Report Date</i>	
Treatment Effect:		<i>Effects</i>		<i>Effects</i>	
	Pr. Sign	Coefficient	<i>t</i> -Statistic	Coefficient	<i>t</i> -Statistic
<i>POST_TREAT</i>		0.000	0.23	-0.002*	-1.83
<i>POST_TREAT</i> × <i>TREATMENT_CO</i>	+, +	-0.000	-0.29	0.005***	3.42
<i>TOBIN'S_Q</i>		0.017***	6.83	0.012***	4.79
<i>CFO</i>		0.010	0.98	0.017**	1.99
<i>CASH</i>		0.052***	5.79	0.040***	4.67
<i>LN(MVE)</i>		-0.000	-0.02	0.004*	1.65
<i>LEVERAGE</i>		-0.054***	-3.52	-0.085***	-7.90
<i>Year</i> × <i>Industry</i> × <i>Country Indicators</i>		Included		Included	
<i>Company Indicators</i>		Included		Included	
Adjusted R-Squared		71.4%		71.1%	
No. of Observations		20,401		19,727	

TABLE 7 - continued

Panel B: Dynamic Regression

Dependent Variable:	INVESTMENT				
	PCAOB Inspection Date			PCAOB Report Date	
Treatment Effect:		Effects		Effects	
	Pr. Sign	Coefficient	<i>t</i> -Statistic	Coefficient	<i>t</i> -Statistic
<i>POST_TREAT [-1]</i>		-0.001	-0.89	0.002	1.55
<i>POST_TREAT [0]</i>		0.001	0.50	0.001	0.81
<i>POST_TREAT [1]</i>		-0.000	-0.03	-0.001	-0.39
<i>POST_TREAT [+2]</i>		-0.000	-0.31	-0.000	-0.30
<i>POST_TREAT [-1] × TREATMENT_CO</i>	0, 0	0.001	0.48	0.000	0.10
<i>POST_TREAT [0] × TREATMENT_CO</i>	+, +	-0.003*	-1.68	0.002	1.07
<i>POST_TREAT [1] × TREATMENT_CO</i>	+, +	0.002	0.94	0.007***	3.55
<i>POST_TREAT [+2] × TREATMENT_CO</i>	+, +	0.003	1.14	0.008***	4.11
<i>TOBIN'S_Q</i>		0.017***	6.83	0.012***	4.81
<i>CFO</i>		0.010	1.01	0.018**	2.02
<i>CASH</i>		0.052***	5.80	0.040***	4.68
<i>LN(MVE)</i>		-0.000	-0.06	0.004	1.63
<i>LEVERAGE</i>		-0.054***	-3.51	-0.085***	-7.93
<i>Year × Industry × Country Indicators</i>		Included		Included	
<i>Company Indicators</i>		Included		Included	
Adjusted R-Squared		71.4%		71.2%	
No. of Observations		20,401		19,727	

TABLE 8*Effect of PCAOB Inspections and Inspection Reports on Investment Sensitivity*

This table presents the results from regressing *INVESTMENT* on indicator variables for the post-treatment period, treatment company, *TOBIN'S_Q* interaction terms between these three variables, and controls. The post-treatment period is defined as either (i) the fiscal years following a PCAOB inspection or (ii) the fiscal years following the public disclosure of the PCAOB inspection. Panel A presents the results from a static regression where is just one indicator variable for the post-treatment period and Panel B presents the results from a dynamic regression where is the post-treatment indicator is replaced with four event indicators, one of the year before treatment and the remaining three for the years following treatment. See Appendix A for variable definitions. The *t*-statistics are clustered at the matched company-pair level to control for residual correlation in investment within treatment companies and their matched control companies. ***, **, and * denote statistical significance at a one-tailed level when a prediction is indicated and a two-tailed level otherwise.

Panel A: Static Regression

Dependent Variable:	INVESTMENT					
	Treatment Effect:	Pr. Sign	PCAOB Inspection		PCAOB Report	
Coefficient			<i>t</i> -Statistic	Coefficient	<i>t</i> -Statistic	
<i>POST_TREAT</i>		0.000	0.28	-0.002*	-1.83	
<i>POST_TREAT</i> × <i>TREATMENT_CO</i>	+, +	-0.000	-0.17	0.005***	3.09	
<i>POST_TREAT</i> × <i>TOBIN'S_Q</i>		0.002	0.71	-0.003	-1.30	
<i>TREATMENT_FIRM</i> × <i>TOBIN'S_Q</i>		-0.002	-0.67	-0.009**	-2.57	
<i>POST_TREAT</i> × <i>TREATMENT_CO</i> × <i>TOBIN'S_Q</i>	+, +	0.003	0.70	0.005*	1.44	
<i>TOBIN'S_Q</i>		0.017***	5.13	0.017***	5.37	
<i>CFO</i>		0.010	1.02	0.018**	2.06	
<i>CASH</i>		0.052***	5.79	0.040***	4.63	
<i>LN(MVE)</i>		-0.001	-0.25	0.004*	1.68	
<i>LEVERAGE</i>		-0.055***	-3.62	-0.085***	-7.91	
<i>Year</i> × <i>Industry</i> × <i>Country Indicators</i>			Included		Included	
<i>Company Indicators</i>			Included		Included	
Adjusted R-Squared			71.4%		71.2%	
No. of Observations			20,401		19,727	

TABLE 8 - continued

Panel B: Dynamic Regression

Dependent Variable:	INVESTMENT				
	Treatment Effect:	Pr. Sign	PCAOB Inspection Date Effects		PCAOB Report Date Effects
Coefficient			t-Statistic	Coefficient	t-Statistic
<i>POST_TREAT</i> [-1]		-0.001	-0.86	0.002	1.51
<i>POST_TREAT</i> [0]		0.001	0.57	0.001	0.84
<i>POST_TREAT</i> [1]		-0.000	-0.05	-0.001	-0.73
<i>POST_TREAT</i> [+2]		0.000	0.16	-0.001	-0.66
<i>POST_TREAT</i> [-1] × <i>TREATMENT_CO</i>	0, 0	0.001	0.45	0.000	0.21
<i>POST_TREAT</i> [0] × <i>TREATMENT_CO</i>	+, +	-0.003	-1.54	0.002	1.04
<i>POST_TREAT</i> [1] × <i>TREATMENT_CO</i>	+, +	0.003	1.11	0.008***	3.55
<i>POST_TREAT</i> [+2] × <i>TREATMENT_CO</i>	+, +	0.003	1.02	0.009***	4.12
<i>TREATMENT_CO</i> × <i>TOBIN'S_Q</i>		-0.002	-0.40	-0.008**	-2.38
<i>POST_TREAT</i> [-1] × <i>TOBIN'S_Q</i>		0.004	1.16	0.007**	2.07
<i>POST_TREAT</i> [0] × <i>TOBIN'S_Q</i>		0.004	1.13	0.004	1.39
<i>POST_TREAT</i> [1] × <i>TOBIN'S_Q</i>		0.001	0.30	-0.003	-1.05
<i>POST_TREAT</i> [+2] × <i>TOBIN'S_Q</i>		0.007	1.11	-0.002	-0.56
<i>POST_TREAT</i> [-1] × <i>TREATMENT_CO</i> × <i>TOBIN'S_Q</i>	0, 0	-0.002	-0.52	-0.003	-0.76
<i>POST_TREAT</i> [0] × <i>TREATMENT_CO</i> × <i>TOBIN'S_Q</i>	+, +	-0.000	-0.02	-0.001	-0.35
<i>POST_TREAT</i> [1] × <i>TREATMENT_CO</i> × <i>TOBIN'S_Q</i>	+, +	0.007	1.20	0.012***	2.62
<i>POST_TREAT</i> [+2] × <i>TREATMENT_CO</i> × <i>TOBIN'S_Q</i>	+, +	0.003	0.49	0.009**	2.20
<i>TOBIN'S_Q</i>		0.016***	4.50	0.014***	4.45
<i>CFO</i>		0.010	1.04	0.019**	2.21
<i>CASH</i>		0.052***	5.86	0.040***	4.60
<i>LN(MVE)</i>		-0.001	-0.48	0.003	1.56
<i>LEVERAGE</i>		-0.055***	-3.60	-0.085***	-7.99
<i>Year</i> × <i>Industry</i> × <i>Country Indicators</i>		Included		Included	
<i>Company Indicators</i>		Included		Included	
Adjusted R-Squared		71.5%		71.4%	
No. of Observations		20,401		19,727	

TABLE 9*Cross-Sectional Test: Effect of PCAOB Inspection on Financially Constrained versus Unconstrained Companies*

Table presents the results from regressing company long-term debt ($LN(DEBT)$) and investment ($INVESTMENT$) on indicator variables for the post-treatment period, treatment company, financially constrained companies, interaction terms between these variables, and controls. $NO_DIVIDEND$ is an indicator variable that equals one if the company-year does not have a dividend payment and is a proxy for the presence of financing constraints. See Appendix A for variable definitions. The t -statistics are clustered at the matched company-pair level to control for residual correlation in investment within treatment companies and their matched control companies. ***, **, and * denote statistical significance at a one-tailed level when a prediction is indicated and a two-tailed level otherwise.

Dependent Variable:	<i>LN(DEBT)</i>			<i>INVESTMENT</i>	
	Pr. Sign	Coef.	t -Stat.	Coef.	t -Stat.
<i>POST_TREAT</i>		-0.003	-0.09	-0.001	-0.48
<i>POST_TREAT</i> × <i>TREATMENT_CO</i>	+, +	0.066*	1.36	0.005***	3.88
<i>NO_DIVIDEND</i>		0.232***	3.19	-0.008***	-2.69
<i>NO_DIVIDEND</i> × <i>TREATMENT_CO</i>		-0.104	-1.01	0.009**	2.35
<i>POST_TREAT</i> × <i>NO_DIVIDEND</i>		-0.233***	-3.68	-0.005*	-1.73
<i>POST_TREAT</i> × <i>TREATMENT_CO</i> × <i>NO_DIVIDEND</i>	+, +	0.163**	1.73	-0.001	-0.20
<i>Control variables</i>		Included		Included	
<i>Year</i> × <i>Industry</i> × <i>Country Indicators</i>		Included		Included	
<i>Company Indicators</i>		Included		Included	
Adjusted R-Squared		93.5%		71.2%	
No. of Observations		15,140		19,727	

TABLE 10*Cross-Sectional Test: Big 4 versus non-Big 4 Auditors*

Table presents the results from regressing company long-term debt ($LN(DEBT)$) and investment ($INVESTMENT$) on indicator variables for the post-treatment period, treatment company, big four auditors, interaction terms between these variables, and controls. NO_BIG4_TREAT is an indicator variable that equals one if the treatment company does not employ a big four auditor. Control companies are assigned the same value for this variable as their matched treatment company. See Appendix A for variable definitions. The t -statistics are clustered at the matched company-pair level to control for residual correlation in investment within treatment companies and their matched control companies. ***, **, and * denote statistical significance at a one-tailed level when a prediction is indicated and a two-tailed level otherwise.

Dependent Variable:	$LN(DEBT)$			$INVESTMENT$	
	Pr. Sign	Coef.	t -Stat.	Coef.	t -Stat.
$POST_TREAT$		-0.071**	-2.30	-0.002	-1.65
$POST_TREAT \times TREATMENT_CO$	+, +	0.103**	2.39	0.004***	2.61
NO_BIG4_TREAT		-0.052	-0.66	-0.000	-0.09
$POST_TREAT \times NO_BIG4_TREAT$		0.072	0.53	-0.004	-0.63
$POST_TREAT \times TREATMENT_CO \times NO_BIG4_TREAT$	+, +	0.111	0.48	0.016**	1.94
<i>Control variables</i>		Included		Included	
<i>Year \times Industry \times Country Indicators</i>		Included		Included	
<i>Company Indicators</i>		Included		Included	
Adjusted R-Squared		93.5%		71.2%	
No. of Observations		15,140		19,727	