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Does the Threat of a PCAOB Inspection Mitigate US Institutional Investors' Home Bias?*

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ABSTRACT

We exploit the staggered introduction of the PCAOB's international inspection program to examine the role that the stringency of public audit oversight plays in shaping US institutional investors' home bias. Analyzing a sample of foreign firms listed in the United States, we evaluate whether US institutional investors hold larger equity stakes in these firms—a longstanding issue that reflects investor portfolio decisions—if their auditors are exposed to the threat of a PCAOB inspection. In a differences-in-differences framework, we find that US-listed foreign firms enjoy an increase in US institutional investors' equity positions after their auditors become subject to PCAOB inspection access. Cross-sectional analysis implies that the benefit of the PCAOB inspection threat in mitigating US institutional investors' home bias is concentrated in foreign countries without a strict local audit oversight system; active US institutional investors that are known to value accounting transparency; and firms from countries that grant PCAOB access later (after the onset of its international inspection program in 2005). Our evidence suggests that foreign firms become better known in the capital markets under the PCAOB inspection program, which induces US institutional investors to acquire larger equity stakes in US-listed foreign firms given the lower information asymmetry that ensues under the PCAOB inspection threat.

Keywords: PCAOB inspection, audit quality, US institutional investors, home bias, inspection threat

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La menace d'une inspection de la PCAOB atténue-t-elle le biais national des investisseurs institutionnels des États-Unis?

RÉSUMÉ

Nous exploitons la mise en place progressive du programme d'inspection international du PCAOB pour examiner le rôle que joue l'exigence de surveillance publique des audits pour façonner le biais national des investisseurs institutionnels des États-Unis. Dans le cadre d'une analyse d'un échantillon d'entreprises étrangères cotées aux États-Unis, nous vérifions si les investisseurs institutionnels américains détiennent une participation plus importante au capital de ces entreprises – un enjeu de longue date qui reflète les décisions des investisseurs – si leurs auditeurs sont exposés à la menace d'une inspection du PCAOB. En recourant à une approche axée sur les doubles différences, nous montrons que les entreprises étrangères cotées aux États-Unis profitent d'une augmentation de la participation des investisseurs institutionnels américains lorsque leurs auditeurs deviennent susceptibles d'être soumis à une inspection du PCAOB. Une analyse transversale laisse entendre que l'avantage de la menace d'une inspection du PCAOB sur le plan de l'atténuation du biais national des investisseurs institutionnels américains se manifeste surtout dans les pays étrangers dépourvus d'un système de surveillance des audits rigoureux, chez les investisseurs institutionnels américains actifs reconnus pour accorder de l'importance à la transparence comptable et chez les entreprises situées dans des pays qui ont accordé ultérieurement l'accès au PCAOB (après le lancement de son programme d'inspection international en 2005). Nos résultats donnent à penser que les entreprises étrangères se font davantage connaître sur les marchés financiers par l'entremise du programme d'inspection du PCAOB, lequel incite les investisseurs institutionnels américains à acquérir une participation plus importante dans les entreprises étrangères cotées aux États-Unis, compte tenu de l'asymétrie de l'information plus faible associée à la menace d'une inspection du PCAOB.

Mots-clés : inspection du PCAOB, qualité de l'audit, investisseurs institutionnels des États-Unis, biais national, menace d'une inspection

1. Introduction

Foreign firms that trade their stocks in the US market struggle to attract US institutional investors, reflecting their strong preference for domestic equities that has been labeled as the "home bias puzzle" (French and Poterba 1991).[1] Firms are likely to benefit from reducing home bias and attracting greater foreign investment, which may potentially improve institutional investors' international diversification and risk sharing (Norden 2010), increase firm valuation (Chan et al. 2009), and lower firms' equity financing costs (Lau et al. 2010). Prior research implies that the home bias phenomenon continues to exist in countries around the world and in more recent periods (Karolyi and Stulz 2003; Chan et al. 2005). Moreover, extant evidence suggests that home bias stems from various factors, including international capital flow barriers, deviations from purchasing power parity, information asymmetry, and behavioral biases (Black 1974; Cooper and Kaplanis 1994; Jeske 2001; Karolyi and Stulz 2003; Graham et al. 2009; Lau et al. 2010).

Prior evidence implies that financial reporting transparency is partly responsible for institutional investors' investment proximity preferences (Grinblatt and Keloharju 2002; Bradshaw et al. 2004; Covrig et al. 2007; Leuz et al. 2009; DeFond et al. 2011; Ammer et al. 2012; Lundholm et al. 2014). For example, Bae et al. (2008) find that accounting harmonization

1. Home bias (or local bias) refers to investors' exhibiting a strong preference for domestic over foreign investments. Although US-listed foreign firms are traded in the US stock markets, US institutional investors generally underinvest in these geographically distant firms, compared with firms domiciled in the United States. We follow extant research by labeling this phenomenon as "home bias" (Lundholm et al. 2014; Naughton et al. 2018). A rise in institutional ownership reflects a fall in home bias according to extensive prior research (Kang and Stulz 1997; Bradshaw et al. 2004; Covrig et al. 2007; Graham et al. 2009).

between two countries reduces investors' information asymmetry that, in turn, facilitates cross-border investments. Lundholm et al. (2014) show that US-listed foreign firms that provide better disclosures attract more US institutional investors. However, extant research seldom examines the impact of the PCAOB's inspection threat on investor perceptions.[2] This is somewhat surprising given the importance of auditing to improving accounting transparency, which narrows the information asymmetry that financial statement users, including institutional investors, experience (Wang and Wilkins 2007; DeFond and Zhang 2014). We contribute to prior research by exploiting the staggered introduction of the PCAOB international inspection program to analyze the role that stringency of public audit oversight plays in US institutional investors' home bias. In advancing recent research on the PCAOB's international inspection program (e.g., Fung et al. 2017; Krishnan et al. 2017; Gipper et al. 2020; Shroff 2020), we document that besides the impact that actual inspections play in shaping US institutional investor perceptions, the PCAOB inspection threat also affects their home bias.

Title I of the Sarbanes-Oxley Act of 2002 (SOX) mandated the PCAOB to inspect all auditors that audit companies registered with the SEC, including foreign firms listed in the United States. In 2003 (2004), the PCAOB began its limited (full) inspections of US Big 4 (all) auditors. Afterward, the PCAOB gradually initiated inspections of non-US auditors with at least one client registered with the SEC, although the implementation was staggered because foreign governments granted the PCAOB permission to inspect auditors domiciled in their countries at different times. In fact, some countries continue to prohibit the PCAOB from inspecting their domestic auditors. Recent evidence implies that the PCAOB inspection process leads to auditors providing stricter external monitoring of their clients' financial reporting (e.g., Lamoreaux 2016; Aobdia and Shroff 2017; DeFond and Lennox 2017; Krishnan et al. 2017; Aobdia 2018). We extend extant research by examining whether US institutional investors perceive that auditor exposure to the threat of a PCAOB inspection is valuable according to their equity stakes in US-listed foreign firms.

The staggered implementation of the PCAOB's international inspection regime enables us to apply a research design that helps dispel concerns about contemporaneous regulatory changes and unrelated economic shocks. Extensive prior research implies that accounting transparency mitigates institutional investors' tendency to overweight domestic equities (Bradshaw et al. 2004; Covrig et al. 2007; DeFond et al. 2011; Florou and Pope 2012). Recent evidence suggests that PCAOB inspections and the threat of being inspected by the PCAOB motivate auditors to improve their audit quality, translating into more reliable financial reporting (Lamoreaux 2016; Fung et al. 2017; Krishnan et al. 2017; Aobdia 2018). It follows that subjecting auditors to the threat of a PCAOB inspection may help alleviate US institutional investors' home bias.[3] Given that foreign firms become better known in the capital markets under this stricter public audit oversight, we expect that US institutional investors will acquire larger equity stakes in those US-listed foreign firms to reflect the lower information asymmetry. Accordingly, we predict a positive relation between PCAOB inspection exposure and the equity positions held by US institutional investors in US-listed foreign firms.

Next, we deepen our analysis by evaluating whether any link between PCAOB inspection access and US institutional investors' home bias varies systematically with the foreign country's surrounding institutional infrastructure. We extend Lamoreaux (2016) by analyzing whether the presence of a sound local audit oversight system mitigates the negative relation between PCAOB inspection access allowance and US institutional investor home bias. Our research helps inform

2. However, in a major exception, Lamoreaux et al. (2020) report that a change in audit regulation reduces investors' perceived information risk evident in cheaper equity financing costs for foreign SEC registrants with auditors from countries that allow PCAOB inspections, compared to those that prohibit inspections.

3. In the next section, we outline several reasons why we may fail to find supportive evidence that the PCAOB inspection threat alleviates US institutional investors' home bias, bringing tension to the analysis.

the debate on the role that countries' institutional infrastructure plays in shaping the impact of the PCAOB inspection threat.

To provide evidence on our research questions, we assemble a sample of foreign firms audited by both US and non-US auditors from 1999 to 2015. Consistent with our first prediction, we find that the adjusted percentage share ownership and the number of US institutional investors rise after foreign firms' auditors become subject to PCAOB inspection.[4] The increase in US institutional holdings is also economically material: in the event that the auditor's home country begins to allow PCAOB inspections, our coefficient estimates translate into the adjusted share ownership and the number of US institutional investors increasing by, on average, 220 basis points and 4.52 institutional investors, respectively, which for perspective represents 9.17% and 8.60% of the mean. In the event that a firm's auditor becomes subject to PCAOB inspection, our evidence implies that it attracts, on average, US$ 149.95 million more US institutional investment and 4.52 more US institutional investors. This evidence lends support to the intuition that US institutional investors become more eager to hold equity stakes in foreign firms after the threat of a PCAOB inspection motivates these firms' auditors to supply stricter external monitoring. We undertake extensive analysis to evaluate the sensitivity of our core results. First, we conduct a time trend test and a matched sample analysis to help empirically validate the parallel trends assumption that underlies our differences-in-differences (DID) research design. Second, we verify that our evidence on the negative relation between PCAOB access and US institutional investors' home bias is robust to controlling for *actual* PCAOB inspections. Third, we show that our main evidence holds in 95 of 96 regressions when we successively remove firms from each individual country or when we estimate weighted least squares regressions where the least weight is assigned to countries responsible for a larger fraction of the sample (e.g., Fernandes and Gonenc 2016).[5] Fourth, we find nearly identical evidence when we restrict the sample by requiring that auditors/companies are present in both the pre- and post-inspection access allowance periods.[6]

In cross-sectional analysis, we show that the benefit of the PCAOB inspection threat in constraining US institutional investors' home bias is concentrated in foreign countries without a strict local auditor oversight system. We also document that the importance of the PCAOB inspection threat to mitigating home bias is concentrated in active US institutional investors relative to their passive counterparts.[7] In addition, we find that the impact of the PCAOB inspection threat on alleviating US institutional investor home bias only applies to firms from countries that grant PCAOB access later—that is, after the onset of the inspection program in 2005 (late adopters).

We undertake two additional analyses that further corroborate our main findings. First, we run a path analysis, which verifies that the impact of PCAOB inspection access on home bias works through improved audit/financial reporting quality. Second, in a cross-country design, we extend our tests to local companies audited by auditors that are inspected by the PCAOB or

4. The adjusted percentage share ownership of US institutional investors accounts for the changes in the size of US institutional investors' portfolio in the US market. Yu and Wahid (2014) stress that this measure provides two main advantages. First, it compares the percentage of US institutional investors' ownership with an optimal benchmark of ownership. Second, by considering the shifts in the weight of the US institutional investors' assets in the US market, this variable controls for changes in ownership that reflect the changes in the size of US institutional investors' portfolio in the US market. As such, this measure partially alleviates the concern that home bias decreases because the overall international portfolio value increases. Later, we undertake an extended analysis by incorporating domestic firms to further investigate the relative changes in US institutional ownership in US-listed foreign firms compared with domestic firms when their auditors are subject to PCAOB inspections. See supporting information in online Appendix A, "U.S.-listed domestic firms," as an addition to the online article.

5. The 96 regressions reflect that we examine firms from 48 countries using two independent variables. See supporting information in online Appendix B, "Excluding auditors from certain countries."

6. See online Appendix C, "Constant samples in pre- and post-inspection access allowance periods."

7. See online Appendix D, "Active versus passive U.S. institutional ownership."

subject to the PCAOB inspection threat. Complementing Fung et al.'s (2017) and Shroff's (2020) focus on actual inspections, we find strong evidence implying that the home bias that US institutional investors exhibit for non-US-listed clients falls when their auditors experience the PCAOB inspection threat (or an actual inspection, reinforcing Fung et al. (2017) and Shroff (2020).

We contribute to prior work in three ways. First, diverging from prior research that examines the impact of PCAOB inspections on actual audit quality, we analyze whether institutional investors value the PCAOB inspection threat evident in their equity stakes in US-listed foreign firms, which has important implications for the capital markets. In addition, prior cross-country research focuses on the role that PCAOB inspections play in shaping the actual performance of auditors of US-listed foreign clients (Lamoreaux 2016; Krishnan et al. 2017) and non-US-listed clients (Fung et al. 2017) as well as the market shares of non-US auditors (Aobdia and Shroff 2017). Our study explores investors' responses to the PCAOB inspection regime, which has received less attention relative to auditors' responses (Lamoreaux et al. 2020). Against the backdrop of extensive prior PCAOB research focusing on the implications of *actual* PCAOB inspections (e.g., Lennox and Pittman 2010; Carcello et al. 2011; Gramling et al. 2011; Aobdia and Shroff 2017; Fung et al. 2017; Krishnan et al. 2017; Aobdia 2018; Gipper et al. 2020; Shroff 2020), we evaluate whether the PCAOB inspection threat also matters.[8] Our major contribution stems from examining whether investors connect changes in regulatory oversight to changes in audit quality, which remains unexplored in prior work. More specifically, we explicitly link investor perceptions to audit quality through path analysis. We also add to Lamoreaux et al.'s (2020) equity pricing evidence. Extensive prior research implies that alleviating home bias could translate into firms benefiting from lower equity financing costs, a rise in their valuation, and institutional investors exhibiting more international diversification and risk sharing (Chan et al. 2009; Lau et al. 2010; Norden 2010). Our analysis provides one plausible explanation for Lamoreaux et al.'s (2020) evidence.

Second, from a policy standpoint, we extend prior research examining whether PCAOB inspections are valuable. Reinforcing criticism from some quarters that the PCAOB has failed to provide strict regulatory oversight (e.g., Palmrose 2006; DeFond 2010), Lennox and Pittman (2010) find that its inspections are irrelevant to audit firms' market shares, implying that US public company clients discount inspection outcomes. However, recent research suggests that auditors, clients, and investors benefit from PCAOB inspections. We contribute to the public policy discourse by analyzing whether US institutional investors' home bias is sensitive to whether foreign firm auditors are subject to PCAOB inspection. Our evidence reconciles with both the PCAOB's (2010) and the SEC's (2013) position that US investors are deprived of the potential benefits of inspections when foreign auditors are excluded from the PCAOB's international inspection program.[9] Given that many governments invoke national sovereignty concerns and conflicts with home country laws to justify barring the PCAOB from conducting inspections within their borders (PCAOB 2010), our analysis adds to recent research supporting that these inspections benefit firms in these countries (e.g., Lamoreaux 2016; Fung et al. 2017; Krishnan et al. 2017).

8. As far as we know, DeFond and Lennox (2011), Lamoreaux (2016), and Lamoreaux et al. (2020) are the only three exceptions that focus on economic outcomes stemming from the *threat* of a PCAOB inspection, rather than *actual* PCAOB inspection.

9. We report results implying that another potential upside accompanying this program is narrowing the information asymmetry that manifests in US institutional investors' home bias, which is important for foreign firms striving to penetrate the US capital markets. Set against foreign firms persistently struggling to attract US investors, our evidence suggests that US institutional investors' home bias subsides when auditors of US-listed foreign firms become subject to the PCAOB inspection threat. As some countries continue to resist the PCAOB's attempts to secure inspection access, providing evidence that foreign firms benefit from an accounting transparency perspective may help convince governments to grant access.

Third, we contribute to recent research by deepening the analysis on several fronts. We provide robust evidence that the impact of the PCAOB inspection threat in mitigating US institutional investors' home bias is stronger in countries without stringent local auditor oversight systems.[10] We also advance prior work by providing cross-sectional evidence on the role that the adoption stage plays.

2. Motivation

Home bias

Institutional investors tend to invest in firms domiciled in their home country (e.g., French and Poterba 1991; Chan et al. 2005). For example, French and Poterba (1991) document that US equity traders allocate nearly 94% of their investments to domestic stocks, which is much higher than the US share of the global equity markets. Chan et al. (2005) corroborate French and Poterba (1991) by showing that the home bias phenomenon persists in every country and in more recent periods. Despite the apparent diversification benefits stemming from participating in foreign equity markets, including cheaper equity pricing (e.g., Lau et al. 2010), more risk sharing (e.g., Norden 2010), and higher firm valuation (e.g., Chan et al. 2009), investors continue to invest disproportionately more in their own country stocks than optimal allocation would dictate. Prior work attributes the home bias puzzle to several factors, including barriers to cross-border capital flows (Black 1974), deviations from purchasing power parity (Cooper and Kaplanis 1994), information asymmetry (Jeske 2001), and behavioral biases (Graham et al. 2009).

Relevant to our purposes, a recent strand of the literature connects the home bias phenomenon to accounting transparency. The majority of studies document that financial reporting transparency mitigates institutional investors' tendency to overweight domestic equities. For instance, Grinblatt and Keloharju (2002) find that firms with annual reports in the same language as the investor's native tongue attract more institutional ownership. Bradshaw et al. (2004) report that foreign firms listed on US stock exchanges with accounting methods conforming to US GAAP attract more US institutional investor ownership. Covrig et al. (2007), DeFond et al. (2011), and Florou and Pope (2012) all document that IFRS adoption reduces home bias. Bae et al. (2008) show that accounting harmonization between two countries reduces information asymmetry, facilitating capital flow across borders. Ammer et al. (2012) find that firms cross-listed on a US stock exchange attract more US investments. Lundholm et al. (2014) report that US-listed foreign firms that provide clearer disclosures enjoy more US institutional investment. Finally, Yu and Wahid (2014) show that investors tend to underweight investees with greater accounting distance.

Institutional background on PCAOB inspection

PCAOB inspections include an evaluation of the audit work of selected audit engagements and the adequacy of the audit firm's quality control system (PCAOB 2004). After finishing its inspection, the PCAOB releases a formal report to communicate its findings from the inspection process. Material audit engagement deficiencies identified during the inspection are publicly disclosed in Part I of the report. Deficiencies stemming from the audit firm's quality control system are included in Part II of the inspection report. Part II findings are covered in the nonpublic portion of the inspection report that will never be made public unless the audit firm fails to make sufficient progress in remediating these issues to the Board's satisfaction within 12 months. Although its international inspection program began in 2005, the PCAOB continues to be denied access to inspect auditors in certain non-US jurisdictions (PCAOB 2010, 2015).

10. Reinforcing that this issue remains unresolved, Aobdia and Shroff (2017) find that the value of PCAOB oversight evident in the market share of non-US auditors is insensitive to the presence of either a local inspection program or a local audit regulator.

PCAOB inspections and audit quality

In contrast to early research (e.g., Lennox and Pittman 2010), recent evidence implies that PCAOB inspections help to improve the performance of US auditors—for example, Carcello et al. (2011), Gramling et al. (2011), DeFond and Lennox (2011, 2017), and Aobdia (2018). More relevant to our focus, emerging research examines the impact of PCAOB inspections on non-US auditors' audit quality. Lamoreaux (2016) shows that auditors are more likely to render going-concern opinions, report material internal control weaknesses, and constrain earnings management in response to the threat of a PCAOB inspection. Krishnan et al. (2017) report that clients of non-US auditors that are inspected by the PCAOB exhibit lower abnormal accruals and enjoy more value-relevant earnings. Fung et al. (2017) find that the PCAOB's international inspection program generates a positive externality by providing spillover audit quality benefits to non-US auditors' clients that are not listed in the United States. Aobdia and Shroff (2017) provide evidence implying that PCAOB inspections increase non-US auditors' assurance value evident in their market shares.

The PCAOB inspection threat and US institutional investors' home bias: Primary hypothesis

A major challenge confronting foreign firms in the US market is attracting US institutional investors, which are reluctant to invest in these firms (Lundholm et al. 2014). Recent research implies that accounting transparency mitigates institutional investors' home bias (Covrig et al. 2007; DeFond et al. 2011; Yu and Wahid 2014).

Set against prior research primarily examining outcomes stemming from PCAOB *actual* inspections (e.g., Fung et al. 2017; Krishnan et al. 2017; Gipper et al. 2020; Shroff 2020), we analyze the impact of the PCAOB inspection *threat*. In the only studies examining whether the PCAOB inspection threat affects foreign firms listed in the United States, Lamoreaux (2016) shows that actual audit quality improves with the PCAOB inspection threat, while Lamoreaux et al. (2020) find that foreign SEC registrants whose auditors come from countries that allow PCAOB inspections enjoy cheaper equity financing, compared to those that prohibit inspections. We extend this research by analyzing whether US institutional investors perceive that the PCAOB inspection threat engenders higher audit quality, which is ex ante unclear given that investors do not necessarily connect changes in regulatory oversight to changes in audit quality (Lamoreaux et al. 2020). Exposure to PCAOB inspections may discipline foreign firm auditors to better assess the veracity of their clients' financial reporting. Importantly, this is an opportune setting for analyzing the impact of the PCAOB international inspection program given prior research implying that investors in foreign firms highly value audit quality (e.g., Guedhami et al. 2009).[11] It follows that US institutional investors will become more eager to invest in foreign firms whose auditors are located in countries that permit PCAOB inspections, which improves accounting transparency. Financial reporting under the PCAOB inspection threat will better reflect underlying economic performance by motivating auditors to strictly constrain managers' discretion in their choice of accounting policies and estimates. Consequently, we expect that US institutional investors' home bias will subside when foreign firms' auditors become subject to PCAOB inspections, which narrows information asymmetry by eliciting higher quality audits.

11. For several reasons, auditors have strong incentives to improve audit quality after becoming subject to the PCAOB inspection threat. Lamoreaux (2016) explains that exposure to PCAOB inspections amounts to a precommitment to provide audit work papers to the regulator. Consistent with prior research on the importance of discipline stemming from auditor sanctions (e.g., Guedhami and Pittman 2006), the PCAOB retains the authority to punish individual auditors and audit firms for deficient work (e.g., Glover et al. 2009). Finally, individual audit partners and audit firms eager to protect their valuable reputations may strive to improve their performance after the PCAOB has been granted inspection access (e.g., Skinner and Srinivasan 2012; Houston and Stefaniak 2013; Aobdia and Shroff 2017).

However, injecting tension into our analysis, we may fail to find supportive evidence on this front for several reasons. First, prior research finds that institutional investors have more resources and are better informed, ensuring that they are in a better position to execute profitable trades by exploiting their private information (Bartov et al. 2000; Jiambalvo et al. 2002; Ke and Petroni 2004; Maffett 2012). It follows that institutional investors may rely more on private information, rather than audited financial reports. For example, Brown et al. (2015) suggest that professional investors hardly value the audit when evaluating earnings quality. As such, the improved audit quality that the PCAOB inspection threat may engender could be less relevant to institutional investors' decisions. Second, given that many foreign countries operate their own inspection programs or impose some other form of auditor oversight, US institutional investors may conclude that PCAOB inspections have almost no incremental impact on the assurance value of the audits of US-listed foreign firms. These investors may also be unfamiliar with the PCAOB's activities under its international inspection program, particularly when the foreign firm's auditor is geographically distant from the United States or there are language and cultural differences with the United States (e.g., Fung et al. 2017). Third, Van Nieuwerburgh and Veldkamp's (2009) model holds that information immobility persists even when investors have access to the information that locals know or when such information acquisition is not costly. Given that specializing in assets for which they have an initial informational advantage is a more profitable strategy for investors, they choose not to learn about assets for which they currently know relatively little. This behavior amplifies, rather than dissipates, initial differences in information endowments across investors (Andrade and Chhaochharia 2010). US institutional investors under this narrative will remain biased against investing in foreign firms, irrespective of whether the PCAOB inspection program translates into higher audit quality. Moreover, consistent with criticisms that the PCAOB, for example, stresses inspector independence at the expense of their expertise (e.g., Palmrose 2006; DeFond 2010)[12] and fails to provide a summary opinion on audit firms' quality control systems (e.g., Lennox and Pittman 2010), and that its inspection reports may largely reflect second-guessing of auditor professional judgment (e.g., Peecher and Solomon 2014), some prior research casts doubt on whether its inspection reports are informative (e.g., Lennox and Pittman 2010).

Given the competing forces in play, we state our first prediction in the null form as follows:

HYPOTHESIS 1. *The equity stakes held by US institutional investors in US-listed foreign firms are insensitive to their auditors becoming subject to PCAOB inspections.*

The PCAOB inspection threat and US institutional investors' home bias: Cross-sectional hypothesis on the role of local regulatory oversight

Many foreign countries have developed their own auditor oversight authorities and some have even established local inspection programs (Lamoreaux 2016; Aobdia and Shroff 2017). Strong local regulatory oversight may substitute for the PCAOB's international inspection program, reducing the impact of its inspections. In support of this argument, Lamoreaux (2016) finds that the positive link between PCAOB inspection access and actual audit quality is stronger in countries without a local audit oversight system in place. Furthermore, its Rule 4012 allows the PCAOB to coordinate, or even rely on, local regulatory oversight when conducting inspections on auditors in foreign countries on the grounds that local regulatory bodies may possess superior information and expertise in carrying out the inspections. To the extent that a strong local regulatory authority provides rigorous oversight, the PCAOB may rely more on local audit inspections that, in turn, may dampen the incremental value of PCAOB inspections.

12. To ensure their independence from the public accounting profession, the PCAOB prohibits its inspectors from continuing to practice as public accountants.

Accordingly, our second prediction is that the role that the PCAOB inspection threat plays in reducing US institutional investors' home bias will be stronger for foreign countries without a local audit oversight system:

HYPOTHESIS 2. *The impact of PCAOB inspection access on US institutional investors' home bias, if any, is stronger in foreign countries without a local audit oversight system.*

3. Sample and research design

Sample and data

Our sample focuses on all foreign firms listed in the United States, which are audited by either US or non-US auditors.[13] We specify foreign firms as firms whose headquarters are outside the United States (Compustat LOC variable is not "USA"). Our auditing data (e.g., audit engagements and auditor location) are extracted from the Audit Analytics database. Institutional holding data come from the FactSet/LionShares database.[14] We primarily collect financial data from the Compustat database. We rely on the CRSP database to obtain firm age and stock return information, and the I/B/E/S database for security analyst coverage information. We follow Lamoreaux (2016) and Aobdia and Shroff (2017) by beginning our sample period before the PCAOB inspection regime was introduced to reserve a non-allowance period for PCAOB inspection access as a control group for the allowance period. Our sample period starts in 1999 because the PCAOB began to inspect US Big 4 auditors in 2003.[15] Our analysis ends in 2015, the last year for which data were available when we began to assemble the sample. In Table 1, we summarize the sample construction process in panel A. We exclude financial firms because they operate in highly regulated industries with distinctive accounting rules.[16]

In Table 1, we report in panel B the sample distribution by year. Firm-years of 4,844 (3,740) are (are not) subject to PCAOB inspection access. Reflecting that the PCAOB initiated its inspections in 2003, the number of audit firms subject to PCAOB inspections is coded 0.00% from 1999 to 2002. As the PCAOB began its inspections of US Big 4 auditors (the remaining US auditors) in 2003 (2004) and non-US auditors whose home countries granted the PCAOB inspection permission in 2005, the proportion of sample observations exposed to PCAOB inspection steadily increases from 2003, although it falls in 2010. The fact that the PCAOB access fraction does not rise monotonically over time from years 2003 to 2015 is constructive for identification purposes.

Table 2 reports the sample distribution by country. In column (1), we tabulate the date for which the PCAOB was granted access to conduct inspections of PCAOB-registered audit firms in those countries. We report in columns (2) and (3) the IFIAR membership status and information on the local auditor inspection program in each country. Column (4) shows the number of auditors from each country. Column (5) reports the total number of firm-year observations from each country, while columns (6) and (7) present the number and percentage of firm-year observations subject to PCAOB inspection access, respectively. In our sample, 1,166 firm-year observations are audited by US

13. We follow Lamoreaux (2016) by including firms audited by either US or non-US auditors, although we outline later in the paper that our core evidence is materially insensitive to removing US auditor clients.
14. To the best of our knowledge, FactSet/LionShares is the most complete database on institutional holdings. The main data source for institutional holdings of US traded shares in FactSet/LionShares is SEC 13F filings. 13F filings contain only institutional ownership for entities required to file with the SEC, which are those that use any means of US interstate commerce as well as those that exercise investment discretion above US$ 100 million of Section 13F securities. In contrast, FactSet/LionShares supplements its data with non-13F institutions. Ferreira and Matos (2008) provide more detail on the FactSet/LionShares database.
15. We follow prior research in starting in 1999 given the importance of having a lengthy pre-PCAOB period (e.g., Lamoreaux 2016), although our core evidence holds when the sample period begins in 2000, 2001, 2002, or 2003 (e.g., Fung et al. 2017; Krishnan et al. 2017).
16. Untabulated results show that retaining these firms in the sample does not qualitatively affect the results.

TABLE 1
Sample selection and description

Panel A: Sample selection (1999–2015)

Foreign firm-years listed in the United States in Audit Analytics and Compustat database	25,373
Less:	
Missing Compustat or CRSP data for necessary regression variables	(16,467)
Financial firms (SIC code 6000–6999)	(322)
Final sample:	
Number of audit client firm-years	8,584

Panel B: Sample description by year

Year	(1) Full sample	(2) PCAOB access	(3) % of PCAOB access (column (2)/column (1))
1999	60	0	0.00
2000	178	0	0.00
2001	238	0	0.00
2002	499	0	0.00
2003	537	32	5.96
2004	556	56	10.07
2005	553	390	70.52
2006	546	392	71.79
2007	553	414	74.86
2008	552	409	74.09
2009	581	396	68.16
2010	617	392	63.53
2011	617	429	69.53
2012	619	456	73.67
2013	622	473	76.05
2014	628	487	77.55
2015	628	518	82.48
Total	8,584	4,844	56.43

Notes: Panel A of this table outlines the sample selection criteria. Panel B reports the number of full-sample observations, as well as the number and percentage of our sample observations that are exposed to PCAOB inspection by year.

auditors, of which 1,026 (87.99%) are subject to PCAOB inspection. For the non-US auditors, countries such as Canada, India, and South Africa permitted inspections from the outset of the PCAOB international inspection regime in 2005. In contrast, the PCAOB began to conduct inspections for other countries' auditors after cooperative agreements with their local regulators were reached. It is important to stress that although more than a decade has passed since the inception of the PCAOB international inspection program in 2005, the PCAOB is still prohibited from conducting inspections on audit firms located in several jurisdictions, including Austria, Belgium, and China.

Main regression model

To analyze whether the threat of a PCAOB inspection affects US institutional investors' home bias, we examine two measures of their equity stakes in US-listed foreign firms, consistent with prior home bias research (Chan et al. 2005; Yu and Wahid 2014). We evaluate whether auditor exposure to PCAOB inspections translates into foreign firms attracting more US institutional investment under Hypothesis 1. The staggered introduction of the PCAOB inspection regime in

TABLE 2
Sample description by country (1999–2015)

Auditor country	(1) Access begin	(2) IFIAR	(3) Local inspection	(4) # of auditors	(5) Full sample	(6) PCAOB access	(7) % of PCAOB access (column (6)/ column (5))
Argentina	January 1, 2005	N/A	N/A	4	126	107	84.92
Australia	January 1, 2005	January 1, 2006	January 1, 2005	12	96	64	66.67
Austria	N/A	January 1, 2006	January 1, 2010	2	11	0	0.00
Belgium	N/A	January 1, 2012	January 1, 2005	5	32	0	0.00
Bermuda	January 1, 2005	N/A	N/A	3	9	0	0.00
Brazil	January 1, 2005	January 1, 2006	January 1, 2011	7	152	132	86.84
Canada	January 1, 2005	January 1, 2006	January 1, 2003	30	1,699	1,251	73.63
Cayman Islands	January 1, 2005	January 1, 2014	January 1, 2014	3	8	0	0.00
Chile	January 1, 2005	N/A	N/A	5	131	91	69.47
China	N/A	N/A	N/A	28	1,047	0	0.00
Colombia	January 1, 2005	N/A	N/A	2	10	10	100.00
Denmark	July 18, 2014	January 1, 2006	January 1, 2004	3	26	2	7.69
Finland	February 4, 2013	January 1, 2007	January 1, 2009	1	27	4	14.81
France	February 4, 2013	January 1, 2006	January 1, 2005	7	212	35	16.51
Germany	April 13, 2012	January 1, 2006	January 1, 2007	7	137	23	16.79
Greece	August 19, 2015	January 1, 2010	January 1, 2009	5	216	21	9.72
Hong Kong[a]	January 1, 2005	N/A	N/A	17	287	189	65.85
Hungary	April 16, 2015	January 1, 2008	January 1, 2011	1	9	0	0.00
India	January 1, 2005	N/A	N/A	9	127	108	85.04
Indonesia	January 1, 2005	January 1, 2013	N/A	4	24	17	70.83
Ireland	January 1, 2005	January 1, 2006	January 1, 2006	4	105	75	71.43
Israel	January 1, 2005	N/A	N/A	10	856	635	74.18
Italy	N/A	January 1, 2006	January 1, 2007	4	81	0	0.00
Japan	January 1, 2007	January 1, 2006	January 1, 2004	6	235	133	56.60
Korea (South)	January 1, 2005	January 1, 2006	January 1, 2006	3	96	74	77.08
Luxembourg	September 21, 2015	January 1, 2008	January 1, 2009	2	31	3	9.68

(The table is continued on the next page.)

TABLE 2 (continued)

Auditor country	(1) Access begin	(2) IFIAR	(3) Local inspection	(4) # of auditors	(5) Full sample	(6) PCAOB access	(7) % of PCAOB access (column (6)/ column (5))
Mexico	January 1, 2005	N/A	N/A	9	210	156	74.29
The Netherlands	December 5, 2011	January 1, 2006	January 1, 2008	6	149	43	28.86
New Zealand	January 1, 2005	N/A	January 1, 2012	2	19	11	57.89
Norway[b]	January 1, 2008	January 1, 2006	January 1, 2005	5	69	30	43.48
Panama	January 1, 2005	N/A	N/A	1	11	11	100.00
Papua New Guinea	January 1, 2005	N/A	N/A	1	8	5	62.50
Peru	January 1, 2005	N/A	N/A	3	21	17	80.95
Philippines	January 1, 2005	N/A	N/A	1	19	14	73.68
Poland	N/A	January 1, 2011	January 1, 2010	2	13	0	0.00
Portugal	N/A	January 1, 2011	January 1, 2008	3	16	0	0.00
Russia	January 1, 2005	N/A	N/A	4	67	51	76.12
Singapore	April 21, 2008	January 1, 2006	January 1, 2005	4	51	24	47.06
South Africa	January 1, 2005	January 1, 2006	January 1, 2006	4	105	80	76.19
Spain	July 19, 2012	January 1, 2006	January 1, 2007	5	38	9	23.68
Sweden	March 31, 2014	January 1, 2006	January 1, 2008	4	48	4	8.33
Switzerland	January 1, 2012	January 1, 2007	January 1, 2007	5	81	16	19.75
Taiwan (China)	January 1, 2007	January 1, 2008	January 1, 2009	5	139	94	67.63
Thailand	December 31, 2010	January 1, 2010	January 1, 2010	1	6	5	83.33
Turkey	January 1, 2011	January 1, 2009	N/A	2	14	5	35.71
United Kingdom[c]	January 1, 2005	January 1, 2006	January 1, 2004	7	537	269	50.09
United States	January 1, 2003 or January 1, 2004	January 1, 2007	January 1, 2003 or January 1, 2004	87	1,166	1,026	87.99
Venezuela	N/A	N/A	N/A	3	7	0	0.00
Total				348	8,584	4,844	56.43

Notes: [a]For auditors in Hong Kong, the PCAOB is not allowed to inspect the audit of mainland China clients. Therefore, for Hong Kong-based auditors, *PCAOB access* is coded as zero when the client firm is headquartered in mainland China, and one otherwise. [b]PCAOB inspection was blocked in Norway from 2009 to 2011, when *PCAOB access* is coded as zero during that period in Norway. [c]The PCAOB was blocked from conducting inspections in the United Kingdom from 2009 to 2011, when *PCAOB access* is coded as zero during that period in the United Kingdom.

different countries at different times allows us to adopt a company and year fixed effects model. As detailed in Bertrand and Mullainathan (2003), Bertrand et al. (2004), and Roberts and Whited (2013), a company fixed effects model with time indicators in settings of staggered law implementation represents a traditional DID research design. We implement this empirical strategy with the following regression model:[17]

$$\begin{aligned}\%\boldsymbol{IH\_US\_adj}\ \textbf{or}\ \textbf{lnIH\_}\boldsymbol{US} = {} & \beta_0 + \boldsymbol{\beta_1 PCAOB\ access} + \beta_2 lnat + \beta_3 roa + \beta_4 levt + \beta_5 btm + \beta_6 ep \\ & + \beta_7 dp + \beta_8 growth + \beta_9 nanlst + \beta_{10} return + \beta_{11} lnage + \beta_{12} US\ sales \\ & + \beta_{13} ADR\ dummy + \beta_{14} Big4 + \beta_{15} accruals + \beta_{16} IFRS \\ & + \beta_{17} market\ size + \beta_{18} GDP\ growth \\ & + Auditor\ country\ \&\ Company\ \&\ Year\ effects. \end{aligned} \quad (1)$$

In this setup, we follow Chan et al. (2005) and Yu and Wahid (2014) in specifying adjusted percentage share ownership, *%IH_US_adj*, as the ratio of US institutional holdings to the market value of the firm, scaled by a theoretical benchmark that is estimated using the portfolio value of all US institutional investors in the US stock market relative to the market value of all US-listed firms. This benchmark assumes that US institutional investors invest equally in the US-listed firms irrespective of the country in which they are domiciled. If *%IH_US_adj* is less (more) than one for a firm, then the US institutional investors are perceived to underinvest (overinvest) in that firm. This variable reflects the changes in the size of US institutional investors' portfolios in the US market.[18] In an alternative measure of home bias (e.g., Bushee and Miller 2012), we specify *lnIH_US* as the log of one plus the number of US institutional investors. We follow prior work in setting *PCAOB access* to equal one when the firm's auditor is subject to PCAOB inspection access, and zero otherwise.[19] As stressed earlier, *PCAOB access* varies across countries and over time. If US institutional investors value the stricter auditor oversight stemming from PCAOB inspections, then this would translate into a positive coefficient on *PCAOB access* ($\beta_1 > 0$) in equation (1).

To help ensure that our results are not driven by other factors that may be related to US institutional investment, we follow prior home bias research by including a comprehensive set of control variables in the regressions. For starters, we control for firm size and age using the log of the firm's total assets (*lnat*) and the number of years that the firm has been listed on the CRSP database (*lnage*) (Aggarwal et al. 2005; Lundholm et al. 2014).[20] We include return on assets (*roa*), yearly market return (*return*), and sales growth (*growth*) to control for firm performance (Shefrin and Statman 1985; Rau 2015). We control for leverage and analyst coverage using *levt* and *nanlst*, respectively (Kang and Stulz 1997; Bradshaw et al. 2004). We also control for the presence of US sales (*US sales*) using Compustat Historical Segment data (Khanna et al. 2004). We include the book-to-market ratio (*btm*) in the models without forming a directional prediction. On one hand, firms with a lower book-to-market ratio are typically considered as higher growth firms; on the other hand, they are riskier firms. We also control for two valuation ratios based on

17. The validity of the DID research design rests on the critical assumption that the equity stakes held by US institutional investors at treatment and control firms follow parallel trends. Later in the paper, we extensively analyze whether the parallel trends assumption is defensible in this setting.

18. All of our inferences hold when we alternatively examine *%IH_US*, which is calculated as the percentage share ownership of US institutional investors (DeFond et al. 2011; Florou and Pope 2012).

19. *PCAOB access* is coded as one for firm-year observations with a fiscal year-end date after PCAOB inspection access was granted for their auditors. For example, Canada allowed the PCAOB inspection access on January 1, 2005. Accordingly, we define *PCAOB access* as one for Canadian auditors' clients with a fiscal year-end date after January 1, 2005.

20. Company age will be mechanically larger for companies that are subject to PCAOB inspection access. Our results are robust to no longer controlling for company age.

which institutions may make their trading decisions (Bushee 2001): the earnings-price ratio (*ep*),[21] and the dividend yield (*dp*). In comparison to firms which directly list their shares in the US market, foreign firms which list through ADR programs possess specific attributes and are exposed to weaker SEC regulatory oversight (e.g., they are exempt from Reg FD). Consistent with DeFond et al. (2011) and Chou et al. (2014), we include an indicator variable (*ADR dummy*) in the model. We control for the presence of a Big 4 auditor with *Big4* (e.g., Chou et al. 2014). The regressions include *accruals* to control for the differences in audit quality stemming from variation in auditor characteristics.[22] In addition, we include several country-level controls to account for both accounting standards and macroeconomic performance that could affect US institutional investor ownership: mandatory IFRS introduction (*IFRS*), total market capitalization to GDP ratio (*market size*), and GDP growth (*GDP growth*) (e.g., Chou et al. 2014; Yu and Wahid 2014).[23]

Year indicators are included to control for a potential time trend or any major economic events in a year. We follow Fung et al. (2017) by including company fixed effects to control for any unobservable firm characteristics that remain constant over time.[24] Given that foreign firms may switch from US to non-US auditors, we follow Lamoreaux (2016) and Gipper et al. (2020) by including auditor country fixed effects in additional model specifications. The standard errors are adjusted for time-series dependence by clustering at the firm level (Petersen 2009).

4. Descriptive statistics, main regression results, and sensitivity tests

Descriptive statistics

In Table 3, we report descriptive statistics for the regression variables. All continuous variables are winsorized at the 1st and 99th percentiles to address outliers and potential data coding errors. Panel A reports descriptive statistics for the full sample. The average *%IH_US_adj* is 0.240, suggesting that US institutional investors generally underinvest in foreign firms listed in the United States. Each firm has, on average, 52.607 US institutional investors. *PCAOB access* has a mean value of 0.564, indicating that a slight majority of the observations in our sample are subject to the PCAOB inspection regime. In panel B, we focus on countries that switch from denying to allowing PCAOB inspection access and compare firm characteristics before versus after access has been granted. Lending some preliminary support that home bias subsides when auditors are exposed to the PCAOB inspection threat, the adjusted percentage ownership and the number of US institutional investors are significantly larger in the post-access periods than the pre-access periods.

Main results

In this section, we analyze the impact of PCAOB inspection access on US institutional investors' home bias to examine Hypothesis 1. In Table 4, we report the results from estimating the model in equation (1). We find that PCAOB inspection access is significantly positively associated with the adjusted percentage share ownership and headcount of US institutional investors. The estimated coefficients on *PCAOB access* in columns (1) and (2) are 0.022 (t-stat. = 2.36) and 0.086 (t-stat. = 2.28), respectively, suggesting that the threat of a PCAOB inspection shapes US

21. Our results are nearly identical without controlling for the earnings-price ratio.
22. It is important to highlight that *accruals* is affected not only by auditor characteristics, but also by the PCAOB inspection threat. Although we control for audit quality in the main regressions, subsequent tests evaluate its role as a potential mediator.
23. Only 0.7% of our sample observations are included in the S&P 1500 index. This reflects that large firms comprise the S&P 1500, while the US-listed foreign firms in our sample are relatively small. Our results are almost identical if we control for the S&P 1500 index (*S&P1500*); similarly, excluding these observations has no material impact on the evidence on our predictions.
24. Given that our DID research design requires company fixed effects, we do not control for financial standard comparability, which is time-invariant—that is, it has already been subsumed by the company fixed effects in our models (Bae et al. 2008).

TABLE 3
Summary statistics

Panel A: Full sample ($N = 8{,}584$)

Variable	Mean	Median	SD	25%	75%
%IH_US_adj	0.240	0.061	0.336	0.000	0.378
lnIH_US	2.275	2.398	2.085	0.000	4.174
PCAOB access	0.564	1.000	0.496	0.000	1.000
lnat	7.010	6.911	2.374	5.165	8.798
roa	−0.014	0.034	0.208	−0.030	0.079
levt	0.216	0.187	0.196	0.027	0.344
btm	0.825	0.538	1.009	0.296	0.932
ep	−0.096	0.036	0.542	−0.040	0.073
dp	0.017	0.000	0.034	0.000	0.022
growth	0.192	0.084	0.544	−0.042	0.274
nanlst	4.307	2.000	5.560	0.000	6.000
return	0.058	0.082	0.182	−0.031	0.152
lnage	1.845	2.027	1.113	1.254	2.610
US sales	0.531	1.000	0.499	0.000	1.000
ADR dummy	0.452	0.000	0.498	0.000	1.000
Big4	0.863	1.000	0.343	1.000	1.000
accruals	0.025	0.011	0.148	0.061	−0.029
IFRS	0.388	0.000	0.487	0.000	1.000
market size	1.135	1.007	1.374	0.573	1.239
GDP growth	0.070	0.060	0.097	0.017	0.129

Panel B: Summary statistics for the countries that switch from denying access to allowing PCAOB access

	Post-access ($N = 4{,}844$)		Pre-access ($N = 1{,}603$)		
Variable	Mean	SD	Mean	SD	Difference in mean
%IH_US_adj	0.285	0.363	0.145	0.257	0.140***
lnIH_US	2.597	2.151	1.481	1.900	1.116***
lnat	7.037	2.366	7.515	2.453	−0.478***
roa	−0.014	0.210	0.002	0.169	−0.016***
levt	0.214	0.196	0.245	0.197	−0.031***
btm	0.817	1.029	0.713	0.810	0.104***
ep	−0.089	0.524	−0.047	0.435	−0.042***
dp	0.018	0.033	0.022	0.037	−0.004***
growth	0.159	0.513	0.189	0.496	−0.030**
nanlst	4.724	5.856	3.680	4.921	1.044***
return	0.066	0.171	0.138	0.171	−0.072***
lnage	2.009	1.109	1.934	0.944	0.075**
US sales	0.555	0.497	0.608	0.488	−0.053***
ADR dummy	0.339	0.473	0.577	0.494	−0.238***
Big4	0.843	0.364	0.954	0.210	−0.111***
accruals	0.029	0.143	0.009	0.135	0.020***
IFRS	0.537	0.499	0.354	0.478	0.183***
market size	1.347	1.698	0.999	0.832	0.348***
GDP growth	0.051	0.091	0.093	0.102	−0.042***

Notes: This table presents descriptive statistics for our sample firms. All the continuous variables are winsorized at 1% and 99%. Panel A shows the descriptive statistics for the full sample (8,584 firm-year observations), while panel B reports the descriptive statistics for the countries that switch from denying to allowing PCAOB access. Due to the fact that the PCAOB initiated its inspection program in 2003, we limit our sample to only years beginning in 2003 or afterward, where the time period is more comparable for both populations. In our sample, auditors in 41 countries experience changes in PCAOB access status and the total sample observations are 6,447, of which 4,844 are in the post-PCAOB access period and 1,603 are in the pre-access period. See the Appendix for detailed variable definitions.

TABLE 4
PCAOB inspection access and US institutional ownership in US-listed foreign firms (Hypothesis 1)

Dep. variable =	(1) *%IH_US_adj*	(2) *lnIH_US*
PCAOB access	0.022**	0.086**
	(2.36)	(2.28)
lnat	0.030***	0.293***
	(4.50)	(8.34)
roa	0.062***	0.259***
	(2.80)	(2.69)
levt	−0.064**	−0.401***
	(−2.36)	(−3.03)
btm	−0.021***	−0.108***
	(−6.44)	(−7.03)
ep	0.011	0.085***
	(1.50)	(2.96)
dp	−0.158**	0.143
	(−2.18)	(0.38)
growth	0.007*	0.073***
	(1.75)	(4.41)
nanlst	0.005***	0.032***
	(4.76)	(7.93)
return	−0.015	−0.101**
	(−1.41)	(−1.97)
lnage	0.007	−0.026
	(1.10)	(−0.92)
US sales	0.015	0.015
	(1.05)	(0.25)
ADR dummy	−0.090	−0.500
	(−0.56)	(−0.69)
Big4	−0.005	−0.013
	(−0.19)	(−0.17)
accruals	0.028**	0.178***
	(2.17)	(3.03)
IFRS	−0.007	0.022
	(−0.74)	(0.47)
market size	−0.008*	−0.001
	(−1.89)	(−0.04)
GDP growth	−0.003	0.172
	(−0.09)	(1.45)
Fixed effects		
Auditor country	Yes	Yes
Company	Yes	Yes
Year	Yes	Yes
Observations	8,584	8,584
Adjusted R^2	0.874	0.938

Notes: This table investigates whether US-listed foreign firms enjoy an increase in the share ownership and the number of US institutional investors after their auditors are subject to PCAOB inspection access. The standard errors are adjusted for time-series dependence by clustering on each company. See the Appendix for detailed variable definitions. *t*-statistics are reported in parentheses. *, **, *** indicate significance levels of 10%, 5%, and 1%, respectively.

institutional investors' audit quality perceptions evident in the lower home bias that they exhibit. Reflecting the first-order economic impact, the coefficient estimates imply that when a foreign auditor's home country begins to permit PCAOB inspections, the adjusted share ownership and the number of US institutional investors, on average, rises by 220 basis points and 4.52, respectively, which for perspective translates into 9.17% and 8.60% of the mean.[25] These economic effects are comparable to prior home bias research.[26,27] The results for the control variables are generally consistent with expectations grounded in prior research. Collectively, the results in Table 4 provide empirical support that US-listed foreign firms attract larger US institutional investor equity stakes when their auditors' home country belongs to the PCAOB international inspection program.

Parallel trends assumption

The parallel trends assumption is critical to drawing reliable inferences from a DID research design in that the treatment and control firms should follow parallel trends absent the PCAOB inspection access. Concerns that may violate the parallel trends assumption include that there may be an upward trend in US institutional ownership in US-listed foreign firms even before inspection access occurs. For example, a country may elect to become more friendly to US investors by initiating other changes to their institutional infrastructure preceding or concurrent to granting PCAOB inspection access. We rely on three techniques to confront this endogeneity concern: estimating a dynamic effects model, employing a matched sample approach, and conducting a falsification test.

First, if there is a prevailing predetermined trend in US institutional investors' share ownership in US-listed foreign firms for PCAOB access countries relative to the non-PCAOB access countries, then this trend would likely arise in the period before access is granted, suggesting that we may observe an increase in US institutions' investment in foreign firms in the pre-allowance period. Consistent with the premise in prior research (e.g., Amiram et al. 2017), if we do not observe a perceptible rise in the equity stakes held by US institutional investors in the pre-period, then the parallel trends assumption central to the valid interpretation of our DID research design will be more justifiable. We follow Bertrand and Mullainathan (2003) by examining the dynamic impact of the PCAOB inspection access allowance on US institutional investor ownership in foreign firms. Besides testing whether there is a predetermined trend, the dynamic model can also mitigate the endogeneity threat. Empirically, we decompose the *PCAOB access* dummy variable into four-year indicators: $Year_{t-1}$ equals one if the country in which the auditor is located will allow the PCAOB inspections one year later; $Year_t$ ($Year_{t+1}$) equals one if the country allowed the PCAOB inspections in that year (in the previous year); and $Year_{t+2n}$ equals one if the country allowed the PCAOB inspections at least two years ago.

In Table 5, we report in panel A the results from focusing on these inter-temporal dynamics. Consistent with expectations, the coefficients on $Year_{t-1}$ are statistically insignificant, suggesting

25. Given that the increase in the adjusted US institutional ownership is 220 basis points, the average benchmark that is used for estimating the adjusted US institutional ownership is 0.71 (refer to equation (1)), and the average market value of the firm is US$ 9,600 million for our sample firms, the 9.17% increase translates into an increase of US$ 149.95 million (= 220/10,000 × 0.71 × US$ 9,600 million) in US institutional investment in the company after PCAOB inspection is permitted.

26. For example, Lundholm et al. (2014) find that a decrease in the FOG score of 2 for both the MD&A and press release disclosure mediums is associated with a 100 basis points increase in US institutional ownership, which accounts for a 10% increase relative to the mean. DeFond et al. (2011) document that foreign mutual fund ownership in mandatory IFRS adoption countries climbs by 80 basis points, which represents a mean increase of 21% based on the pre-adoption ownership. The statistics are similar (e.g., around 7%) in other studies such as Bradshaw et al. (2004) and Florou and Pope (2012).

27. If we drop all control variables and only include auditor country, company, and year fixed effects, the estimated coefficients are 0.018 and 0.052 (*t*-stats. = 2.61 and 1.68) when the dependent variables are *%IH_US_adj* and *lnIH_US*, respectively. Although we follow Lamoreaux (2016) by analyzing firms audited by either US or non-US auditors, we consistently find evidence at the 1% significance level supporting that US institutional investors' home bias subsides after auditors of US-listed foreign firms become subject to PCAOB inspections when we re-estimate the Table 4 regressions after excluding US auditor clients.

TABLE 5
Sensitivity analyses: Evaluating the parallel trends assumption

Panel A: Dynamic effects of the PCAOB inspection access on US institutional ownership

Dep. variable =	(1) *%IH_US_adj*	(2) *lnIH_US*
$Year_{t-1}$	0.014	0.066
	(1.22)	(1.51)
$Year_t$	0.024**	0.087*
	(2.04)	(1.80)
$Year_{t+1}$	0.035***	0.128**
	(2.71)	(2.35)
$Year_{t+2n}$	0.052***	0.230***
	(3.90)	(3.89)
Control variables	Yes	Yes
Fixed effects		
Auditor country	Yes	Yes
Company	Yes	Yes
Year	Yes	Yes
Observations	8,584	8,584
Adjusted R^2	0.874	0.938
F-test of $Year_t - Year_{t-1}$	0.010	0.021
	($p = 0.36$)	($p = 0.60$)
F-test of $Year_{t+1} - Year_{t-1}$	0.021*	0.062
	($p = 0.08$)	($p = 0.16$)
F-test of $Year_{t+2n} - Year_{t-1}$	0.038***	0.165***
	($p = 0.01$)	($p = 0.00$)
F-test of $Year_{t+1} - Year_t$	0.011	0.041
	($p = 0.12$)	($p = 0.18$)
F-test of $Year_{t+2n} - Year_t$	0.028***	0.143***
	($p = 0.01$)	($p = 0.00$)

Panel B1: Summary statistics in the pre-period

	PCAOB access ($N = 515$)		Matched non-PCAOB access ($N = 468$)		Difference
Variable	Mean	SD	Mean	SD	in mean
%IH_US_adj	0.210	0.318	0.181	0.269	0.029
lnIH_US	1.865	1.994	1.896	1.886	−0.031
lnat	6.923	2.517	6.792	2.077	0.131
roa	−0.006	0.196	0.000	0.192	−0.005
levt	0.210	0.184	0.200	0.188	0.010
btm	0.757	0.769	0.718	0.764	0.040
ep	−0.054	0.392	−0.048	0.354	−0.006
dp	0.016	0.032	0.015	0.034	0.002
growth	0.164	0.459	0.322	0.620	−0.158***
nanlst	4.223	5.271	3.254	4.351	0.969***
return	0.112	0.174	0.110	0.171	0.002
lnage	1.816	0.968	1.147	1.181	0.669***
US sales	0.610	0.488	0.397	0.490	0.212***

(The table is continued on the next page.)

TABLE 5 (continued)

Panel B1: Summary statistics in the pre-period

Variable	PCAOB access ($N = 515$) Mean	PCAOB access ($N = 515$) SD	Matched non-PCAOB access ($N = 468$) Mean	Matched non-PCAOB access ($N = 468$) SD	Difference in mean
ADR dummy	0.456	0.499	0.767	0.423	−0.311***
Big4	0.883	0.321	0.923	0.267	−0.040**
accruals	0.012	0.153	0.023	0.237	−0.011
IFRS	0.280	0.449	0.064	0.245	0.216***
market size	1.157	1.060	0.679	0.479	0.478***
GDP growth	0.071	0.101	0.144	0.080	−0.073***

Panel B2: Matched sample DID regression

Dep. variable =	(1) *%IH_US_adj*	(2) *lnIH_US*
Treatment firm×POST	0.049***	0.098*
	(3.95)	(1.84)
Control variables	Yes	Yes
Fixed effects		
Auditor country	Yes	Yes
Company	Yes	Yes
Year	Yes	Yes
Observations	1,821	1,821
Adjusted R^2	0.910	0.960

Notes: In this table, we perform two tests to rule out the possibility that our findings are driven by a time trend in US institutional share ownership, but not because of the impact of PCAOB inspection access. Panel A examines the dynamic effects of PCAOB inspection access allowance on US institutional ownership. *p*-values for comparison of the coefficient difference between year dummies are based on two-tailed *F*-tests. Panel B reports the results of the matched sample analyses, where the sample firms are selected based on propensity score matching. Panel B1 reports the summary statistics for our regression variables for both PCAOB access firms and matched non-PCAOB access firms in the pre-access period. Panel B2 presents the regression result on the matched sample DID analysis. Standard errors are adjusted for time-series dependence by clustering on each company. See the Appendix for detailed variable definitions. *t*-statistics are reported in parentheses. *, **, *** indicate significance levels of 10%, 5%, and 1%, respectively.

that PCAOB inspection access is irrelevant to US institutional investors' home bias *before* this access has been granted. In contrast, we find that the decrease in home bias starts to emerge in $Year_t$ and continues afterward (evident in the coefficients on $Year_t$, $Year_{t+1}$, and $Year_{t+2n}$ entering positively). We deepen this analysis by comparing the coefficients on $Year_t$, $Year_{t+1}$, and $Year_{t+2n}$ with those on $Year_{t-1}$. These comparisons reveal that the coefficients on $Year_{t+1}$ and $Year_{t+2n}$ are generally significantly larger than those on $Year_{t-1}$, while there is no significant difference between $Year_t$ and $Year_{t-1}$. Our results suggest that there is an increase in US institutional ownership in years after the PCAOB inspection threat arose.[28]

28. In untabulated analysis, we find that the PCAOB inspection threat does not change institutional investors' audit quality perceptions in a single structural shift. Rather, it continues to alter investors' perceptions for several years afterward. See online Appendix E, "The effect of PCAOB access on U.S. institutional ownership in the post-access period."

Second, to help ensure that the parallel trends assumption is more defensible, we follow Armstrong et al. (2010), Martin and Roychowdhury (2015), Lamoreaux (2016), and Lamoreaux et al. (2020) by relying on a propensity score matching method to match firms whose auditors are exposed to the PCAOB inspection threat (treatment firms) with firms which possess similar characteristics, but are not exposed to this threat (control firms). The propensity score is derived from the following probit model estimated for the full sample:

$$\begin{aligned} PCAOB\ access\ initiation = {} & \beta_0 + \beta_1 lnat + \beta_2 growth + \beta_3 roa + \beta_4 levt + \beta_5 btm + \beta_6 ep + \beta_7 dp \\ & + \beta_8 lnage + \beta_9 return + \beta_{10} nanlst + \beta_{11} US\ sales + \beta_{12} ADR\ dummy \\ & + \beta_{13} Big4 + \beta_{14} accruals + \beta_{15} IFRS + \beta_{16} market\ size + \beta_{17} GDP\ growth \\ & + Industry\ \&\ Year\ effects, \end{aligned}$$

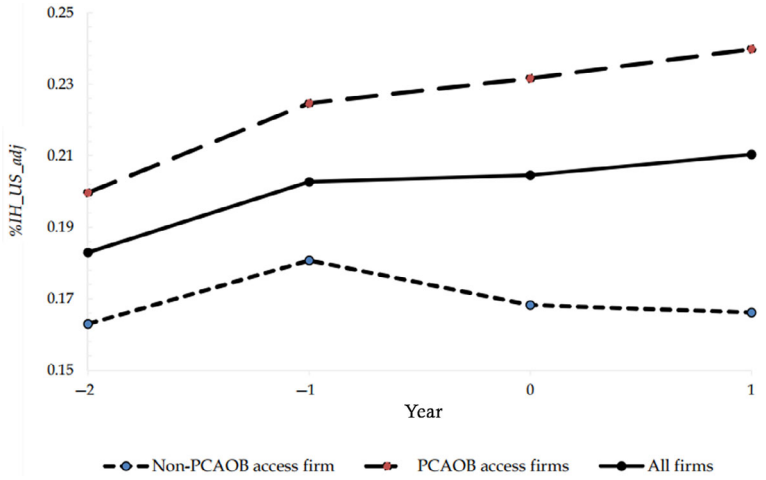
where *PCAOB access initiation* is a dummy variable that takes the value one if the firm's auditor starts to be exposed to PCAOB inspection access in the subsequent year, and zero otherwise, and *Post* is an indicator variable that equals one for the post-access period, and zero for the pre-access period. The matching is performed in the year prior to the first year that the firm's auditor starts to be exposed to PCAOB inspection access. We match each treatment firm with one control firm that has the closest propensity score in the same year within a distance of 0.1 from the treatment firm's score. Our matched sample DID analysis is restricted to two years prior to the year that the firm's auditor starts to be subject to PCAOB inspection access (pre-access period) to two years after (post-access period). Reassuringly, as shown in panel B1 of Table 5, both the adjusted share ownership and the number of US institutional investors are not significantly different between treatment and control firms in the pre-access period (untabulated *t*-stats. = 1.37 and −0.39, respectively). In addition, the treatment firms are similar to control firms along several other important characteristics in the pre-period (e.g., *lnat*, *roa*, *levt*, *btm*, *ep*, *dp*, *return*, *accruals*, etc.), although there are still significant differences in certain firm characteristics (e.g., *growth*, *nanlst*, *lnage*, etc.). Given that the parallel trends assumption is more viable when these firms more closely resemble each other (e.g., Roberts and Whited 2013; Angrist and Pischke 2015), results from our matched sample DID analysis should be interpreted as only suggestive. In Table 5, we report the results of this traditional DID analysis in panel B2. In both regressions, we find that US institutional investors' equity stakes significantly rise after the firm's auditor becomes exposed to PCAOB inspection.

To facilitate visualizing the shifts in firms' average investment weight belonging to US institutional investors (*%IH_US_adj*) in the pre- and post-PCAOB inspection access allowance periods, we plot a figure using our matched sample to examine whether their overall portfolio becomes more skewed toward firms with PCAOB access. Figure 1 shows that while the average investment weight of the US institutional investors' portfolio rises from the pre- to the post-PCAOB inspection allowance period for the PCAOB access firms (treatment firms), it falls for matched non-PCAOB access firms (control firms), supporting the intuition that US institutional investors rebalance their holdings from non-PCAOB access firms to PCAOB access firms. Along with the multivariate results in panel B2 of Table 5, we find that US institutional investors rebalance their portfolios toward PCAOB access firms and away from non-access firms.

Third, we conduct a falsification test by specifying a placebo PCAOB inspection access year. This involves constructing for each country that permits PCAOB inspections an indicator variable, *pseudo_access*, using the placebo PCAOB inspection access year that is three years prior to the actual allowance year.[29] The sample in the falsification test is restricted to the firm-years that precede the actual allowance of the PCAOB inspection. If the PCAOB inspection allowance and reduction in US institutional investor home bias are both driven by some country-level

29. All the inferences remain the same if we alternatively use one or two years prior to the actual allowance year as the placebo PCAOB inspection access year.

Figure 1 Average investment weight of US institutional investors' portfolio (*%IH_US_adj*)



Notes: This figure shows the change in the average US institutional investment (*%IH_US_adj*) in the pre- and post-PCAOB inspection access allowance periods. PCAOB access firms are firms whose auditors are exposed to the PCAOB inspection threat, while non-PCAOB access firms are firms which possess comparable characteristics but are not exposed to the PCAOB inspection threat. See the Appendix for a detailed definition of *%IH_US_adj*.

characteristics that exist even before the PCAOB inspection access is granted (the endogeneity issue stressed earlier), then we are very likely to observe significantly positive coefficients on *pseudo_access*. However, in untabulated tests, we find that the coefficients on *pseudo_access* are insignificant across all regression models, suggesting that there is no confounding trend in US institutional ownership prior to the PCAOB inspection access allowance.

Collectively, the evidence in this section reinforces that our DID evidence likely reflects PCAOB inspection access events, rather than the impact of other forces (i.e., the parallel trends assumption is violated). However, it is important to exercise caution in interpreting our results as a country's decision to allow inspection access is not purely exogenous. In another approach for improving identification, we analyze in section 6 local companies not listed in the United States and audited by auditors that are inspected by the PCAOB or subject to the PCAOB inspection threat.

Controlling for actual inspection occurrence

To alleviate the concern that our results are spuriously driven by audit firms that are *actually* inspected by the PCAOB, we reestimate the regressions after controlling for whether the auditor is inspected and whether the inspection report is released—that is, we diverge from prior studies by analyzing the impact of the PCAOB inspection threat on top of the *actual* inspection effect. In addition, we control for the Part I audit deficiencies identified by the PCAOB inspectors in this model:

$$\begin{aligned} \%\textbf{\textit{IH\_US\_adj}}\ \textbf{or lnIH\_}\textbf{\textit{US}} = {} & \beta_0 + \boldsymbol{\beta_1}\textbf{\textit{PCAOB access}} + \beta_2 inspection + \beta_3 report + \beta_4 inspection \\ & \times \#deficiency + \beta_5 report \times \#deficiency + \beta_6 lnat + \beta_7 roa + \beta_8 levt \\ & + \beta_9 btm + \beta_{10} ep + \beta_{11} dp + \beta_{12} growth + \beta_{13} nanlst + \beta_{14} return \\ & + \beta_{15} lnage + \beta_{16} US\ sales + \beta_{17} ADR\ dummy + \beta_{18} Big4 + \beta_{19} accruals \\ & + \beta_{20} IFRS + \beta_{21} market\ size + \beta_{22} GDP\ growth \\ & + Auditor\ country\ \&\ Company\ \&\ Year\ effects. \end{aligned} \quad (2)$$

Different from equation (1), we code *PCAOB access* as one for all years after auditors start to be subject to inspections but before the first PCAOB inspection end date, and zero otherwise. We specify *inspection* as one for all the years following the first PCAOB inspection end date until the first inspection report date, and zero otherwise. Finally, we set *report* to one for all years after the initial PCAOB inspection report date until the subsequent inspection (if any), and zero otherwise. Importantly, we follow Fung et al. (2017) and Krishnan et al. (2017) by removing observations relating to a subsequent inspection for clients whose auditors were inspected by the PCAOB multiple times. Accordingly, the variable *report* captures the effects when the PCAOB inspection report is released—that is, all post-report years after the initial inspection report (observations related to the subsequent inspections are already dropped from our sample). As such, *#deficiency* is the proportion of deficient audit engagements in the initial inspections. By design, *PCAOB access* captures the effect of the PCAOB inspection threat, *inspection* captures the combined effect of the PCAOB inspection threat and the PCAOB inspection fieldwork, and *report* captures the combined effect of the PCAOB inspection threat, the PCAOB inspection fieldwork, and the PCAOB inspection report release.[30]

Table 6 reports the results. In columns (1) and (2), we control for the actual occurrence of the PCAOB *inspection* and *report*, while in columns (3) and (4) we also add controls for the deficiencies revealed by the PCAOB inspection process. We find that *PCAOB access*, *inspection*, and *report* enter positively in almost all cases, implying that they play a role in alleviating US institutional investors' home bias; *inspection*×*#deficiency* and *report*×*#deficiency* have less consistent impacts.[31] Altogether, we extend prior work by documenting an incremental impact of the PCAOB inspection threat beyond the role that actual inspections play in shaping US institutional investors' audit quality perceptions (e.g., Gipper et al. 2020; Shroff 2020).[32]

5. Cross-sectional analysis: Conditional on local audit oversight strength

Next, we examine Hypothesis 2 by analyzing whether the impact of PCAOB inspection access on US institutional ownership varies systematically with local audit oversight strength. Specifically, we construct two measures to gauge the stringency of local auditor oversight: (i) whether the regulator is a member of the International Forum of Independent Audit Regulators (*IFIAR*); and (ii) the presence of a local auditor inspection program (*local inspection*). After splitting the sample according to the value of each of the two indicator variables, we reestimate the model in equation (1) for each pair of subsample groups.

In Table 7, panel A, we find that the coefficient on *PCAOB access* for the subsample with weak local auditor oversight (*IFIAR* = 0) is positive and statistically significant (*t*-stats. = 2.18 and 2.34) in columns (1) and (3) where the dependent variables are *% IH_US_adj* and *lnIH_US*, respectively. In sharp contrast, the coefficients are statistically

30. We include *inspection* and *report* simultaneously in the model for two major reasons. First, as elaborated in Aobdia (2018), clients may become aware of whether their audit firm has been inspected through interactions with their audit firm and the PCAOB before the *actual* inspection report is released. For example, the institutional investors may obtain this information from the top management at the client firm. Second, Fung et al. (2017) show that audit quality increases right after the inspection fieldwork. Both factors make it difficult to establish when the institutional investors begin to value the *actual* PCAOB inspections. To fully control for the *actual* inspection effect, we follow prior literature by including *inspection* and *report* together in our analysis (Aobdia and Shroff 2017; Shroff 2020).

31. This evidence is consistent with prior research arguing that the number of deficiencies reported should not be used to measure overall audit firm quality (Lennox and Pittman 2010; PCAOB 2012; Christensen et al. 2016; Aobdia 2018).

32. In online Appendix F, we provide evidence implying that the significant coefficient on *inspection* in Table 6 may be just a lagged effect of inspection access. See online Appendix F, "Alternative definitions for *PCAOB access*, *inspection*, and *report*."

TABLE 6
Sensitivity analyses: controlling for the PCAOB inspection and report

Dep. variable =	(1) *%IH_US_adj*	(2) *lnIH_US*	(3) *%IH_US_adj*	(4) *lnIH_US*
PCAOB access	0.025**	0.132***	0.025**	0.137***
	(2.57)	(3.62)	(2.56)	(3.74)
inspection	0.019*	0.113***	0.018	0.152***
	(1.93)	(2.95)	(1.47)	(3.23)
report	0.054***	0.189***	0.059***	0.252***
	(4.07)	(3.37)	(3.40)	(2.91)
inspection×#deficiency			−0.005	−0.090**
			(−0.63)	(−2.15)
report×#deficiency			−0.014	−0.149*
			(−0.99)	(−1.65)
Control variables	Yes	Yes	Yes	Yes
Fixed effects				
Auditor country	Yes	Yes	Yes	Yes
Company	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes
Observations	6,681	6,681	6,558	6,558
Adjusted R^2	0.855	0.938	0.854	0.938

Notes: In this table, we test whether our main results are driven by audit firms that are inspected by the PCAOB. Specifically, *PCAOB access* in this table is coded as one for all years after auditors start to be subject to PCAOB inspection but before the first PCAOB inspection end date. Because the number of inspected engagements was not consistently disclosed in PCAOB inspection reports for the largest audit firms (Big 4 or Tier 2 audit firms) until 2010, the sample size in columns (3) and (4) is smaller than columns (1) and (2). Our results remain similar if we replace the missing value with the closest nonmissing engagement number. Standard errors are adjusted for time-series dependence by clustering on each company. See the Appendix for detailed variable definitions. *t*-statistics are reported in parentheses. *, **, *** indicate significance levels of 10%, 5%, and 1%, respectively.

indistinguishable from zero for the subsample with strong local auditor oversight in columns (2) and (4). The differences in coefficients between the subsamples with weak and strong local auditor oversight are statistically significant in one-tailed Wald tests (p-values = 0.09, and 0.02, respectively). We provide similar evidence in panel B using the other local audit oversight strength measure. Altogether, in three of four comparisons, the evidence in Table 7 supports the prediction in Hypothesis 2 in that the role the PCAOB inspection threat plays in mitigating US institutional investors' home bias is stronger in countries without strong local auditor oversight institutions.

6. Additional analyses

Path analysis

In this section, we follow Baron and Kenny (1986), DeFond et al. (2016), and Bauer et al. (2020) by applying the latent-variable structural equation modeling (SEM) method to explore whether the impact of the PCAOB inspection threat on reducing home bias operates through improved audit quality (the mediator). Specifically, we perform the latent-variable SEM path analysis using STATA command "SEM"; we rely on maximum likelihood estimation and report standardized coefficients (Presslee et al. 2013; Bhaskar 2020; Kunz and Staehle 2020). As suggested by Baron and Kenny (1986), we measure the mediator using multiple indicators to reduce the measurement

TABLE 7
PCAOB inspection access and US institutional ownership: cross-sectional tests (Hypothesis 2)

Panel A: IFIAR member

Dep. variable =	*%IH_US_adj*		*lnIH_US*	
	(1)	(2)	(3)	(4)
Sample	*IFIAR* = 0	*IFIAR* = 1	*IFIAR* = 0	*IFIAR* = 1
PCAOB access	0.029**	0.006	0.127**	0.007
	(2.18)	(0.48)	(2.34)	(0.18)
Difference in PCAOB access	0.023*		0.120**	
	($p = 0.09$)		($p = 0.02$)	
Control variables	Yes	Yes	Yes	Yes
Fixed effects				
Auditor country	Yes	Yes	Yes	Yes
Company	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes
Observations	5,054	3,530	5,054	3,530
Adjusted R^2	0.858	0.917	0.937	0.952

Panel B: Local inspection

Dep. variable =	*%IH_US_adj*		*lnIH_US*	
	(1)	(2)	(3)	(4)
Sample	*local inspection* = 0	*local inspection* = 1	*local inspection* = 0	*local inspection* = 1
PCAOB access	0.019	0.004	0.133**	0.004
	(1.36)	(0.27)	(2.12)	(0.09)
Difference in PCAOB access	0.015		0.129**	
	($p = 0.18$)		($p = 0.03$)	
Control variables	Yes	Yes	Yes	Yes
Fixed effects				
Auditor country	Yes	Yes	Yes	Yes
Company	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes
Observations	4,484	4,100	4,484	4,100
Adjusted R^2	0.854	0.905	0.938	0.944

Notes: This table investigates whether the benefit of PCAOB inspection threat in mitigating US institutional investors' home bias is stronger for auditors whose home country possesses a weaker audit oversight system. *p*-values for comparison of the coefficient difference between countries with weak and strong auditor oversight are based on one-tailed Wald tests. *IFIAR* and *local inspection* are defined in the Appendix. *t*-statistics are reported in parentheses. * and ** indicate significance levels of 10% and 5%, respectively.

error problem arising from the fact that audit quality is difficult to measure reliably. SEM includes a measurement model (factor analysis) and a structural model (path analysis) (O'Connor et al. 2006; Blanthorne and Kaplan 2008; Maas and Matejka 2009). The measurement model reflects the relationship between audit quality and its indicators. The structural model examines the mediation effect of audit quality on the relationship between the PCAOB inspection threat and US institutional ownership (equations (3) to (5) below). SEM simultaneously estimates the measurement and structural models, where the mediation role of audit quality is tested using the multiple audit quality indicators. In the measurement model, we use three indicators to

identify the audit quality construct: the likelihood of misstatement (*fscore*), abnormal accruals (*accruals*), and earnings smoothness (*earnings smoothness*).[33]

$$\begin{aligned} Audit\ quality = {} & \alpha_0 + \alpha_1 PCAOB\ access + Control\ variables \\ & + Auditor\ country\ \&\ Company\ \&\ Year\ effects, \end{aligned} \tag{3}$$

$$\begin{aligned} \%IH\_US\_adj \text{ or } lnIH\_US = {} & \beta_0 + \beta_1 PCAOB\ access + Control\ variables \\ & + Auditor\ country\ \&\ Company\ \&\ Year\ effects, \end{aligned} \tag{4}$$

$$\begin{aligned} \%IH\_US\_adj \text{ or } lnIH\_US = {} & \theta_0 + \theta_1 PCAOB\ access + \theta_2\, Audit\ quality + Control\ variables \\ & + Auditor\ country\ \&\ Company\ \&\ Year\ effects. \end{aligned} \tag{5}$$

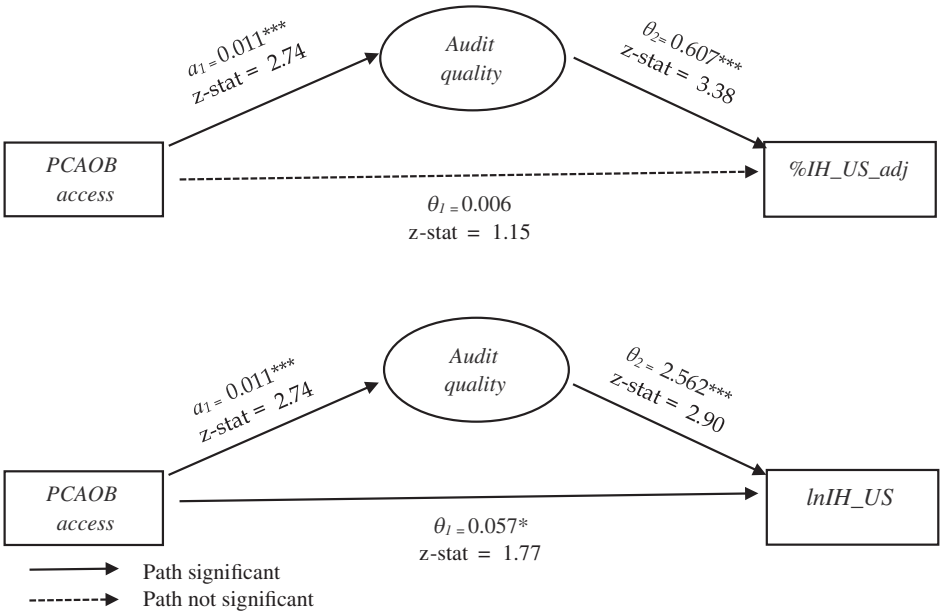
In the structural equation models (equations (3) to (5) above), we examine the mediation role of audit quality. As outlined in Baron and Kenny (1986), a mediation effect exists when the coefficient estimates α_1, β_1, and θ_2 are significant, while the coefficient estimate θ_1 is insignificant (full mediation) or the significance level is reduced (partial mediation) when *Audit quality* is simultaneously controlled for in equation (5). In addition, the indirect effect of *PCAOB access* on home bias through *Audit quality* is calculated as $\alpha_1 \times \theta_2$, and the direct effect of *PCAOB access* on home bias is θ_1. The total effect can be expressed as the sum of the direct and indirect effects: $\beta_1 = \alpha_1 \times \theta_2 + \theta_1$ (Preacher and Hayes 2008). Consistent with Lamoreaux (2016), Fung et al. (2017), and Krishnan et al. (2017), the control variables in equation (3) include firm size (*lnat*), return on assets (*roa*), firm leverage (*levt*), book-to-market ratio (*btm*), Altman Z_score (*z_score*), the presence of US sales (*US sales*), and the presence of a Big 4 auditor (*Big4*). We also include mandatory IFRS introduction (*IFRS*), total market capitalization to GDP ratio (*market size*), and one-year percentage GDP growth (*GDP growth*) in equation (3). The control variables in equations (4) and (5) are the same as those in equation (1), except that we no longer include *accruals* as a control variable. Stemming from missing values for some control variables in equation (3), the sample for the path analysis shrinks to 7,289 observations relative to that in Table 4.

The results provide a good fit for the data. For *%IH_US_adj* (*lnIH_US*), goodness-of-fit measures chi-square is 1155.963 (1152.564) with *p*-values less than 0.001 (0.001), comparative fit index (CFI) is equal to 0.858 (0.908), root mean square error of approximation (RMSEA) is equal to 0.058 (0.057), and standardized root mean square residual (SRMR) is equal to 0.024 (0.024).[34] The results for the mediation effect of audit quality are shown in Figure 2. Reconciling with prior research (Lamoreaux 2016; Krishnan et al. 2017), *PCAOB access* significantly increases *Audit quality*. We find that the improved *Audit quality* further increases US institutional ownership,

33. We follow extensive prior research by relying on earnings quality measures to reflect audit quality (Francis and Wang 2008; Francis et al. 2013; DeFond and Zhang 2014; Krishnan et al. 2017). Earnings quality measures frequently used in prior research include abnormal accruals, target beating, earnings persistence, earnings smoothness, timely loss recognition, and the likelihood of misstatement (Khan and Watts 2009; Dechow et al. 2010; DeFond and Zhang 2014). We only include the likelihood of misstatement, abnormal accruals, and earnings smoothness in the final measurement model in SEM because these three indicators have the highest factor loadings, while the factor loadings for the remaining indicators are very low (below 0.1). We only exclude the other measures because they fail to materially load on a single factor, rather than because of any broader concern about their validity as indicators of audit quality.

34. Chi-square should ideally be small and non-significant. However, due to the large sample size and the size of the correlations, a significant chi-square is not uncommon in prior work (Hooper et al. 2008; Kline 2011). In our analysis, the *p*-value for the chi-square statistic of 1155.963 (1152.564) is less than 0.001. A CFI value above 0.90 is considered a good fit (Hu and Bentler 1999), while CFI values between 0.80 and 0.90 are frequently observed in prior studies (O'Connor et al. 2006; Bauer et al. 2020). A RMSEA value around 0.05 or less indicates a very good fit, values of 0.05–0.08 indicate reasonable fit, and values over 0.10 suggests poor fit (Browne and Cudeck 1993). SRMR values below 0.10 are acceptable (Kline 2011).

Figure 2 SEM results



Notes: This figure shows the results for the path analysis by applying the latent-variable SEM method. Audit quality is proxied using the likelihood of misstatement, abnormal accruals, and earnings smoothness. Standardized coefficients are reported in the figure. See the Appendix for detailed variable definitions. * and *** indicate significance levels of 10% and 1%, respectively.

suggesting *Audit quality* serves as a significant mediator for the relationship between the PCAOB inspection threat and US institutional ownership. The direct path (θ_1) from *PCAOB access* to *%IH_US_adj* is not significant (0.006, *z*-stat = 1.15), while the direct path from *PCAOB access* to *lnIH_US* is marginally significant (0.057, *z*-stat = 1.77). The insignificant/borderline significant θ_1 further implies the existence of the mediation effect. The indirect effect of *PCAOB access* on *%IH_US_adj* through *Audit quality* is 0.007 and significant ($0.007 = 0.011 \times 0.607$, *z*-stat = 2.17), while the indirect effect of *PCAOB access* on *lnIH_US* through *Audit quality* is 0.028 and significant ($0.028 = 0.011 \times 2.562$, *z*-stat = 2.03). The total effect (β_1) from *PCAOB access* to *%IH_US_adj* and *lnIH_US* is 0.013 (0.013 = 0.007 + 0.006) and 0.085 (0.085 = 0.028 + 0.057), respectively. In comparing the magnitude of the effects, we find that the total indirect path captures 53.8% (53.8% = 0.007/0.013) of the total effect on *%IH_US_adj* and 32.9% (32.9% = 0.028/0.085) of the total effect on *lnIH_US*. It is plausible that the lack of a full mediation effect stems from audit quality measures based on the financial statements failing to capture all dimensions of audit quality relevant to our setting (e.g., improved footnote disclosures resulting from the inspections). This may lead to the underestimation of the indirect effect of audit quality.

The PCAOB inspection threat and US institutional ownership in non-US local firms

To further alleviate the concern that a country's decision to grant PCAOB inspection access is not purely exogenous, we broaden our analysis by examining whether our core evidence holds when we focus on local companies audited by auditors that are subject to the PCAOB inspection threat. This approach suffers less from the endogeneity issue given that we can control for any change in a country's institutional environment/policy across years through the addition of

TABLE 8
PCAOB inspection access and US institutional ownership in non-US local firms

Panel A: The main effect of PCAOB access

Dep. variable =	(1) *%IH_US_adj*	(2) *lnIH_US*
PCAOB access	0.005***	0.028**
	(2.78)	(2.34)
lnat	0.022***	0.333***
	(13.18)	(28.53)
roa	0.012	0.732***
	(1.13)	(11.01)
levt	−0.039***	−0.468***
	(−7.75)	(−14.13)
btm	−0.005***	−0.126***
	(−7.36)	(−24.33)
ep	−0.017***	−0.184***
	(−5.34)	(−8.53)
dp	0.007	0.156
	(0.32)	(1.09)
growth	−0.006***	−0.054***
	(−6.52)	(−8.85)
nanlst	0.003***	0.026***
	(10.20)	(16.44)
return	0.002***	−0.014***
	(3.76)	(−4.39)
lnage	−0.013***	0.106***
	(−2.63)	(3.48)
US sales	0.014***	0.033*
	(4.04)	(1.86)
ADR dummy	0.009	−0.086*
	(0.85)	(−1.87)
Big4	−0.002	0.035***
	(−0.84)	(2.78)
accruals	0.001	0.039***
	(0.30)	(3.34)
Fixed effects		
Auditor country×Year	Yes	Yes
Company	Yes	Yes
Observations	111,504	111,504
Adjusted R^2	0.769	0.931

Panel B: Controlling for the impact of PCAOB inspection and report (similar to Table 6)

Dep. variable =	(1) *%IH_US_adj*	(2) *lnIH_US*	(3) *%IH_US_adj*	(4) *lnIH_US*
PCAOB access	0.007***	0.022**	0.007***	0.021**
	(4.79)	(2.44)	(4.73)	(2.38)
inspection	0.011***	0.036***	0.013***	0.054***
	(9.04)	(4.76)	(8.81)	(6.01)

(The table is continued on the next page.)

TABLE 8 (continued)

Panel B: Controlling for the impact of PCAOB inspection and report (similar to Table 6)

Dep. variable =	(1) *%IH_US_adj*	(2) *lnIH_US*	(3) *%IH_US_adj*	(4) *lnIH_US*
report	0.009***	0.067***	0.010***	0.091***
	(7.29)	(8.40)	(6.25)	(9.60)
inspection×#deficiency			−0.002**	−0.019***
			(−2.29)	(−3.86)
report×#deficiency			0.000	−0.026***
			(0.34)	(−3.94)
Control variables	Yes	Yes	Yes	Yes
Fixed effects				
Auditor country×Year	Yes	Yes	Yes	Yes
Company	Yes	Yes	Yes	Yes
Observations	95,539	95,539	95,539	95,539
Adjusted R^2	0.770	0.932	0.770	0.932

Notes: This table investigates whether US institutional investors hold larger equity stakes in non-US local firms that are not listed in the United States after these firms' auditors are subject to PCAOB inspection access. Panel A presents the results similar to our main findings in Table 4, while panel B shows the results after controlling for the *actual* inspection effect similar to Table 6. *%IH_US_adj* is percentage ownership by firm's US institutional investors, scaled by a theoretical benchmark which is estimated using the portfolio value of all US institutional investors in the global market relative to the market value of all firms in the global market (Yu and Wahid 2014). *lnIH_US* is the natural log of one plus the number of the firm's US institutional investors. The country-level control variables (*IFRS*, *market size*, and *GDP growth*) used in Tables 4 and 6 are subsumed by the Auditor country×Year fixed effects in this table, thus we do not control for these variables in this table. See the Appendix for other variable definitions. *t*-statistics are reported in parentheses. PCAOB access will be subsumed by the Auditor country×Year fixed effects in Tables 4 and 6 if we include Auditor country×Year fixed effects in these tables. In contrast, we can control for the Auditor country×Year fixed effects in Table 8, because in the international setting, there are variations in the auditors' exposure to the PCAOB inspection access for a country in a particular year (some auditors in a country have SEC clients and are subject to PCAOB inspection access, while other auditors from the same country in the same year do not have SEC clients and are not subject to PCAOB inspection access). *, **, *** indicate significance levels of 10%, 5%, and 1%, respectively.

Country × Year fixed effects to these cross-country regressions.[35] This involves applying a research design similar to Fung et al. (2017) and Shroff (2020), who examine the impact of actual PCAOB inspections. We follow prior research by constructing our sample using Compustat Global and Compustat North America (the latter for Canadian companies). Like Aobdia and Shroff (2017), we collect the names of these firms' auditors from S&P Capital IQ and restrict our sample to firms from countries with at least one PCAOB inspected auditor.[36] Institutional holding data come from the FactSet/LionShares database. Mirroring our main analysis, the sample period ranges from 1999 to

35. Different from Tables 4 and 6, we can control for the Auditor country×Year fixed effects in the international setting, because there is variation in the auditors' exposure to the PCAOB inspection access for a country in a particular year. Some auditors in a country have SEC clients and are subject to PCAOB inspection access, while other auditors from the same country in the same year do not have SEC clients and are not subject to PCAOB inspection access. In contrast, if we include Auditor country×Year fixed effects in Tables 4 and 6, *PCAOB access* will be subsumed.

36. All inferences hold if we do not impose this restriction. Also, we manually checked and cleaned all the auditor names to ensure that we do not treat the same audit firm as different ones due to different names as listed in S&P Capital IQ.

TABLE 9
Additional test: early versus late PCAOB access allowance adopting countries

Dep. variable =	*%IH_US_adj*		*lnIH_US*	
	(1)	(2)	(3)	(4)
Institution type	*late*	*early*	*late*	*early*
PCAOB access	0.048***	0.013	0.189***	0.078
	(3.53)	(1.02)	(3.59)	(1.37)
Difference in PCAOB access	0.035***		0.111**	
	($p = 0.01$)		($p = 0.05$)	
lnat	0.022*	0.027***	0.340***	0.273***
	(1.73)	(3.85)	(4.62)	(7.87)
roa	0.141**	0.067***	0.314	0.310***
	(1.99)	(2.88)	(1.09)	(3.03)
levt	0.003	−0.070**	−0.211	−0.442***
	(0.04)	(−2.32)	(−0.75)	(−3.13)
btm	−0.017***	−0.019***	−0.057**	−0.117***
	(−3.85)	(−5.55)	(−2.48)	(−6.85)
ep	0.004	0.014*	0.132**	0.087***
	(0.29)	(1.81)	(2.29)	(2.59)
dp	−0.194	−0.075	0.765	−0.169
	(−1.40)	(−1.16)	(1.32)	(−0.37)
growth	0.016*	0.007*	0.073**	0.078***
	(1.78)	(1.79)	(2.12)	(4.55)
nanlst	0.004***	0.006***	0.027***	0.034***
	(2.70)	(4.69)	(4.75)	(7.47)
return	−0.010	−0.014	−0.215**	−0.089
	(−0.47)	(−1.15)	(−2.04)	(−1.49)
lnage	−0.004	0.010	−0.025	−0.019
	(−0.35)	(1.44)	(−0.55)	(−0.60)
US sales	0.044	0.016	−0.057	0.049
	(1.20)	(1.11)	(−0.54)	(0.78)
ADR dummy	0.187	−0.218	0.668	−1.020
	(1.29)	(−1.18)	(0.91)	(−1.23)
Big4	0.035	−0.006	0.181	−0.057
	(1.51)	(−0.21)	(1.37)	(−0.66)
accruals	−0.047*	−0.031**	−0.224**	−0.183***
	(−1.71)	(−2.34)	(−2.22)	(−2.99)
IFRS	−0.024	−0.002	−0.039	0.048
	(−1.30)	(−0.17)	(−0.42)	(0.98)
market size	−0.007	−0.008*	0.122	−0.012
	(−0.27)	(−1.83)	(1.09)	(−0.57)
GDP growth	0.044	−0.012	−0.005	0.159
	(0.73)	(−0.35)	(−0.02)	(1.17)
Fixed effects				
Auditor country	Yes	Yes	Yes	Yes
Company	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes
Observations	2,695	7,096	2,695	7,096
Adjusted R^2	0.835	0.873	0.947	0.933

Notes: In this table, we examine the effect of PCAOB inspection threat in early versus late PCAOB access allowance adopting countries. *early PCAOB access* allowance countries include the United States and those countries that permitted inspections in 2005. *late PCAOB access* allowance countries are defined as countries that permitted PCAOB inspections after 2005. Columns (1) and (3) report the results for late PCAOB access allowance adopting countries, while columns (2) and (4) present the results for early PCAOB access allowance adopting countries. See the Appendix for detailed variable definitions. *t*-statistics are reported in parentheses. *, **, *** indicate significance levels of 10%, 5%, and 1%, respectively.

2015.[37] *PCAOB access* is defined the same as in equation (1), except that it also equals zero for all auditors which do not have any US-listed clients, and are thus not subject to any US regulatory oversight. All the other variable specifications are identical to those in Table 4.[38]

In Table 8, we report the results from analyzing the impact of the PCAOB inspection threat on US institutional investors' home bias toward local companies not listed in the US market. In panel A, we continue to find significant and positive coefficients on the *PCAOB access* variable across both model specifications (*t*-stats. = 2.78, and 2.34, respectively). In panel B, we further control for the role that actual PCAOB inspections play. The definitions of *PCAOB access*, *inspection*, and *report* are similar to those in Table 6. Complementing Fung et al.'s (2017) and Shroff's (2020) research on actual inspections, we find strong, robust evidence implying spillover audit quality benefits to non-US auditors' clients that are not listed in the United States—that is, the home bias that US institutional investors exhibit for non-US-listed clients subsides when their auditors are subject to the PCAOB inspection threat. Overall, the results in Table 8 corroborate our main evidence that US institutional investors perceive—evident in adjustments to their investment portfolios—that the PCAOB's international inspection program engenders higher audit quality.

Isolating late adopters

Table 2 shows that the majority of foreign countries allow PCAOB inspection access at the onset of the inspection program in year 2005, while some other countries grant PCAOB access later. It is possible that the late adopters are those countries which undertake a real change to allow access instead of simply following the crowd, thereby clearly communicating their commitment to improving auditor oversight. To isolate countries switching from restricting to allowing PCAOB inspections, we separately analyze early versus late adopters of the PCAOB inspection access allowance. Early adopters are US auditors and auditors from foreign countries that allow PCAOB access at the onset of the international inspection program (January 1, 2005); while late adopters are those which grant PCAOB access after 2005. In Table 9, we report that US institutional ownership in US-listed foreign firms significantly rises with the PCAOB inspection threat (*t*-stats. = 3.53 and 3.59, respectively) when we focus only on late adopters. In contrast, there is no perceptible change in US institutional ownership for early adopters (*t*-stats. = 1.02 and 1.37, respectively).[39] The difference in coefficients for late versus early adopters are both statistically significant (*p*-values = 0.01 and 0.05, respectively), reinforcing our main findings.

7. Conclusions

We rely on the staggered implementation of the PCAOB's international inspection program to analyze whether US institutional investors' home bias is sensitive to shifts in public audit oversight. For a sample of foreign firms listed in the United States, we examine whether US institutional investors hold larger equity stakes in these firms when their auditors become subject to PCAOB inspection. In a DID framework, we report robust evidence implying that US institutional investors perceive that exposing auditors to the threat of a PCAOB inspection motivates them to conduct higher quality audits. Specifically, we find that US institutional ownership rises from the pre- to the post-PCAOB inspection allowance period for the PCAOB access firms, while it falls for matched non-PCAOB access firms. In cross-sectional analysis, we find that the benefit

37. Our results are materially insensitive to using 2000, 2001, 2002, or 2003 as the starting year of our sample period.

38. We exclude three control variables (*IFRS*, *market size*, and *GDP growth*) from equation (1) given that they are perfectly correlated with Country×Year fixed effects.

39. In untabulated results, we find that *PCAOB access* enters positively when we no longer include firms with US-based auditors for early adopters. Our findings could reflect the fact that the strict regulatory and litigation institutions governing auditors in the United States (Seetharaman et al. 2002; El Ghoul et al. 2016; Cunningham et al. 2019) along with discipline from within (e.g., financial analysts) and outside (e.g., the media) the capital markets (Dyck et al. 2010; Gipper et al. 2021) narrows the scope for inspection access to matter to US institutional investors' home bias for clients of US auditors.

of PCAOB inspection access in constraining US institutional investors' home bias is concentrated in: foreign countries without a strict local auditor oversight system; active US institutional investors known to value accounting transparency; and firms from countries that grant PCAOB access later.

We broaden our understanding of the role that the PCAOB's international inspection program plays in the capital markets given that empirical research on its impact on US investor perceptions of the assurance value provided by foreign firm auditors remains scarce. From a policy perspective, our analysis lends support to the intuition that helping develop a sound auditing infrastructure by permitting PCAOB inspections enables foreign governments to improve corporate accounting transparency, particularly when these countries have a relatively lax audit oversight system. Our evidence implies that US institutional investors' home bias subsides after foreign firms' auditors become subject to the PCAOB inspection threat, which is important given that these firms continue to struggle to attract US investors and some governments continue to resist granting the PCAOB inspection access.

Appendix

Variable definitions

Variable	Definition
Dependent variable	
%IH_US_adj	The ratio of US institutional holdings in firm *i* to the market value of firm *i*, scaled by a theoretical benchmark which is estimated using the portfolio value of all US institutional investors in the US market relative to the market value of all US-listed firms (Yu and Wahid 2014). The theoretical benchmark assumes that US institutions invest equally in US-listed firms from every country (FactSet/LionShares and Compustat)
lnIH_US	The natural log of one plus the number of firm *i*'s US institutional investors in year *t* (FactSet/LionShares)
%IH_US_adj_active	The ratio of US active institutional investors' equity stakes in firm *i* to the market value of firm *i*, scaled by a theoretical benchmark which is estimated using the portfolio value of US active institutional investors in the US market relative to the market value of all US-listed firms (FactSet/LionShares)
%IH_US_adj_passive	The ratio of US passive institutional investors' equity stakes in firm *i* to the market value of firm *i*, scaled by a theoretical benchmark which is estimated using the portfolio value of US passive institutional investors in the US market relative to the market value of all US-listed firms (FactSet/LionShares)
lnIH_US_active	The natural log of one plus the number of firm *i*'s US active institutional investors in year *t* (FactSet/LionShares)
lnIH_US_passive	The natural log of one plus the number of firm *i*'s US passive institutional investors in year *t* (FactSet/LionShares)
Variables of interest	
PCAOB access	One if the country in which firm *i*'s audit firm *j* is located allows PCAOB inspections in year *t*, zero otherwise (PCAOB website)
$Year_{t-1}$	One if the country in which the auditor is located starts to allow the PCAOB inspections in the following year, zero otherwise
$Year_t$	One if the country in which the auditor is located allowed the PCAOB inspections in that year, zero otherwise
$Year_{t+1}$	One if the country in which the auditor is located allowed the PCAOB inspections in the previous year, zero otherwise

(The table is continued on the next page.)

(continued)

Variable	Definition
$Year_{t+2n}$	One if the country in which the auditor is located allowed the PCAOB inspections at least two years ago, zero otherwise
inspection	One for all the years following the first PCAOB inspection end date until the first PCAOB inspection report date, zero otherwise
report	One for all the years following the first PCAOB inspection report date until the subsequent inspection (if any), zero otherwise
#deficiency	The number of Part I deficiencies disclosed in the PCAOB report issued to audit firm *j* divided by the total number of engagements sampled by the inspectors in the first inspections
IFIAR	An indicator variable equals one for country-years where the local regulator is an IFIAR member, zero otherwise
local inspection	An indicator variable equals one for country-years where there is a local auditor inspection program, zero otherwise
early PCAOB access allowance countries	Countries permitted inspections from the onset of the PCAOB inspection regime, which is 2003 for US Big 4, 2004 for US non-Big 4, and 2005 for some foreign countries (e.g., Argentina, Australia, and Canada)
late PCAOB access allowance countries	Countries permitted PCAOB inspections after 2005 when cooperative agreements with their local regulators were reached (e.g., Denmark, Finland, and France)
Audit quality mediators	
accruals	The difference between total accruals and predicted accruals (Lamoreaux 2016). Specifically, predicted accruals is equal to $[(sales_t \times current\ accruals_{t-1}/sales_{t-1}) - (gross\ PPE_t \times depreciation_{t-1}/gross\ PPE_{t-1})]/total\ assets_t$ and total accruals is equal to $(earnings\ before\ extraordinary\ items - operating\ cash\ flows)/total\ assets_t$. We have multiplied *accruals* by −1 so that a higher value signifies higher audit quality
fscore	The fraud risk score calculated based on Dechow et al.'s (2011) model. See Dechow et al. (2011), panel A of Table 7. We have multiplied *fscore* by −1 so that a higher value signifies higher audit quality
Earnings smoothness	The ratio of the firm's standard deviation of net income before extraordinary items over rolling 10-year windows to the firm's standard deviation of cash flows from operations over the same period. Both net incomes before extraordinary items and cash flows from operations are scaled by the firm's total assets
Control variables	
lnat	The natural log of firm *i*'s total assets in year *t* (Compustat)
roa	The ratio of return on assets for firm *i* in year *t* (Compustat)
levt	The ratio of total liabilities to total assets for firm *i* in year *t* (Compustat)
btm	The ratio of the book-to-market value of equity for firm *i* in year *t* (Compustat)
ep	The ratio of earnings-to-price for firm *i* in year *t* (Compustat)
dp	Dividend yield scaled by year-end share price for firm *i* in year *t* (Compustat)
growth	One-year percentage growth of sales from year $t - 1$ to year *t* for firm *i* (Compustat)
nanlst	The number of analysts following firm *i* in year *t* during the last month of the fiscal year (I/B/E/S). The missing coverage in I/B/E/S is coded as zero analyst coverage

(The table is continued on the next page.)

(continued)

Variable	Definition
return	Yearly return for firm *i* in year *t* (CRSP for US sample/Compustat Security Daily for international sample)
lnage	The natural log of the number of years that firm *i* listed on the CRSP database for US sample/Compustat database for the international sample
US sales	One if firm *i* discloses US segment sales in year *t*, and zero if the firm does not disclose either segment sales or US segment sales (Compustat Historical Segment for US sample/Worldscope Segment for international sample). If firm *i* does not disclose segment data, we assume the firm has no US sales
ADR dummy	One if firm *i* is traded as American depository receipts (ADRs) in the US stock markets, zero otherwise (Compustat)
Big4	One if the auditor is a Big 4 auditor, and zero otherwise
IFRS	One if firm *i*'s home country mandatorily adopts IFRS in year *t*, zero otherwise.
market size	A country's total market capitalization (in US$) in a year as a percentage of the GDP. Obtained from the World Bank website (http://data.worldbank.org/indicator). When the information is missing on the World Bank website, we manually get the data from Trading Economics and CEIC website
GDP growth	The year over year change in GDP scaled by the previous year's GDP. Obtained from the World Bank website (http://data.worldbank.org/indicator). When the information is missing on the World Bank website, we manually get the data from Trading Economics and CEIC website

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SUPPORTING INFORMATION

Additional supporting information may be found in the online version of this article:

Appendix A. U.S. listed domestic firms

Appendix B. Excluding auditors from certain countries

Appendix C. Constant samples in pre- and post-inspection access allowance periods

Appendix D. Active versus passive U.S. institutional ownership

Appendix E. The effect of PCAOB access on U.S. institutional ownership in the post-access period

Appendix F. Alternative definitions for *PCAOB access*, *inspection*, and *report*