

# **Does the PCAOB's cross-border audit oversight affect the value of cross-listings? Evidence from a regulatory breakdown<sup>\*</sup>**

Tracy Gu

University of Hong Kong

[tracygu@hku.hk](mailto:tracygu@hku.hk)

Dan Simunic

University of British Columbia

[dansimunic@sauder.ubc.ca](mailto:dansimunic@sauder.ubc.ca)

Michael T. Stein

Old Dominion University

[mstein@odu.edu](mailto:mstein@odu.edu)

Feb 13, 2017

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<sup>\*</sup> An earlier version of this paper is drawn from the second chapter of Tracy Gu's Ph.D. dissertation at the University of British Columbia. We thank Andrew Karolyi for the initial encouragement to pursue this project. Kin Lo, Ralph Winter Robert Knechel, Joy Begley, Sandra Chamberlain, Jenny Zhang, Russell Lundholm, Jack He, Jeong-Bon Kim, Samantha Ross (PCAOB), Gorge Botic (PCAOB), and Maria Davis (PCAOB) for their insights and comments. We thank workshop participants at the University of British Columbia and the participants at the 2014 annual conference of Canadian Academic Accounting Association (2014) for their comments. All errors are our own.

# **Does the PCAOB's cross-border audit oversight affect the value of cross-listings? Evidence from an enforcement breakdown**

## **ABSTRACT**

We examine whether and to what extent the U.S. auditing regime creates value for cross-border listings. To shed light on this question, we primarily study the economic consequences of the May 18, 2010 announcement by PCAOB that its oversight of cross-border audits had been restricted. Analyzing the sample of foreign companies registered and reporting with the SEC, we document that: 1) the “inability” announcement had a spillover effect: the stock market reacted negatively not only for companies disclosed in the “inability” list, but also for other U.S. listed foreign companies; 2) market reactions varied with companies’ home country institutional strength and firm-level characteristics; 3) U.S.-listed foreign companies’ bid-ask spreads increased following the disclosure, and the changes in bid-ask spreads also vary with companies’ home country institutional features. Overall, the results indicate that, for non-EU companies, the value added of the PCAOB cross-border inspection is more pronounced for companies from countries with weaker institutional strength.

**Keywords:** cross-border; enforcement; audit oversight; cross-listing

**JEL codes:** F50; F65; K22; M41; M42

**Data availability:** Data are available from sources identified in the paper

# **Does the PCAOB's cross-border audit oversight affect the value of cross-listings? Evidence from an enforcement breakdown**

## ***1. Introduction***

It has been long recognized that independent auditing is a particularly important “bonding device” to reduce agency costs and the cost of capital (e.g., Jensen and Meckling [1976], Watts and Zimmerman [1983]). Extant archival evidence on the value creation of auditing is conducted in single-country settings (e.g., Chaney and Philipich [2002]; Krishnamurthy et al. [2006], Minnis [2011], Nelson et al. [2008]). Very little is empirically known about whether and how the value creation of high quality auditing varies with the institutional strength of the audit clients’ home country, despite the prevalence of cross-listing and the importance of the institutional environment (e.g. the toughness of legal regime) in which a firm operates in shaping the severity of the firm’s agency problem (Coffee [2002], Karolyi [2012]). To address this issue, we examine whether and to what extent U.S. cross-border audit oversight creates value for foreign companies registered and reporting with the U.S. Securities and Exchange Commission (hereafter, SEC). Using the Public Company Accounting Oversight Board (hereafter, PCAOB) announcements of its inability to examine certain foreign companies’ auditors as exogenous shocks to the perceived effectiveness of U.S. cross-border audit oversight, we find evidence suggesting that, except for companies from European Unions (EU), the stock market values U.S. audit oversight more where there are fewer alternative monitoring mechanisms. The evidence adds new insight into how auditing shapes global capital formation.

Unlike U.S.-operated companies, foreign companies listed on U.S. exchanges mostly hire local auditors rather than U.S. auditors. Auditing local companies listed on U.S. exchanges obligates the foreign audit firms to conform to U.S. auditing requirements: Section 104 of Sarbanes

Oxley Act of 2002 and PCAOB Rules require audit firms register with, and be regularly inspected by the PCAOB if the firm wants to audit public companies registered with and filing periodic financial statements to the SEC, no matter whether the audit firm is a U.S. one or a foreign one. It is unclear whether such requirements for audit firms add value to these U.S.-listed foreign companies. On the other hand, the PCAOB oversight serves as a useful device to improve audit quality, which can reduce agency costs. On the other hand, surveys of CEOs and corporate treasurers have cited for long that the additional disclosure requirements – particularly for non-U.S. listings in the U.S. – as the greatest hurdle to overseas listing (Karolyi, 1998). The extra audit oversight from the PCAOB creates a burden on foreign audit firms, thereby creating costs for their U.S.-traded clients. If the benefits outweigh the costs, then the additional oversight will increase firm value. For a given level of U.S. regulatory oversight, variation in home country institutional strength, such as the efficiency of the home country’s legal system and the quality of the home country auditing profession, will lead to variation in the net value-added. In this paper, we empirically test whether the oversight adds value to cross-border listings, and how the value added varies in the cross section.

The PCAOB announcement of its “inability” to enforce cross-border audit oversight provides a natural experimental setting to measure the value of U.S. audit oversight for foreign companies. On May 18, 2010, the PCAOB for the first time published the names of SEC-filing U.S.-listed foreign companies whose external auditors are from countries blocking the PCAOB access to local audit information. Prior to May 18, 2010, the PCAOB merely disclosed that some scheduled inspections were delayed and provided names of audit firms experiencing inspection delays, without providing the underlying reasons (i.e. denial by foreign counter-parties) for the delay. Specifically, on August 12, 2009, the PCAOB published a list of 18 foreign audit firms

whose inspections were still delayed at that time, without explicitly providing the reason for the delay (Announcement 1, hereafter). The 18 audit firms were from 9 jurisdictions, including China, Israel and certain European Union (EU) countries. On February 03, 2010, the PCAOB updated the delay-list to 70 audit firms from 25 jurisdictions, including China, Hong Kong, Turkey, Venezuela, Czech Republic, and 20 European jurisdictions (Announcement 2, hereafter, and we label the May 18, 2010 disclosure as announcement 3). The PCAOB mentioned that “Discussions are continuing with the relevant authorities in those jurisdictions in an effort to resolve their objections to PCAOB inspections.”<sup>2</sup>

Among the three announcements, Announcement 3 (May 18, 2010) is important for two reasons. First, it was the first time that the enforcement problem was directly acknowledged. Both Announcement 1 (August 12, 2009) and Announcement 2 (February 03, 2010) are titled as “Progress on PCAOB International Inspections”, and are bundled with other information, including “List of jurisdictions that the PCAOB has conducted inspection” and “List of jurisdictions that the PCAOB planned to conduct inspection”. Both lists cover some of the jurisdictions mentioned in the delay list (e.g. United Kingdom). As such, investors did not necessarily infer that inspection delay indicates denial of inspection by other countries or inspection inability of the PCAOB. In contrast, the title of the May 18, 2010 announcement is as salient as “PCAOB publishes list of issuer audit clients of non-U.S. registered firms in jurisdictions where the PCAOB is denied access to conduct inspections.” Therefore, the May 18, 2010 announcement is a clean one in terms of information content. Second, the May 18, 2010 announcement is the first time that the published information went to the audit client level. The

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<sup>2</sup> See Appendix B and C for the detailed timeline of the events, and see Section 3.2.1 for the background introduction for the events.

news release published the 419 companies whose audit firms were located in the 21 jurisdictions denying the PCAOB audit inspection. In contrast, the other two announcements only provided names of audit firms that experienced inspection delays.

Therefore, we primarily rely on the May 18, 2010 disclosure to infer investor perception on the effectiveness of PCAOB cross-border enforcement and investor valuation of cross-border audit oversight. To investigate the overall effect of the announcements, we examine stock market reactions to both international listings directly linked with the published list and other foreign companies registered and reporting audited financial statements with the SEC. If investors value PCAOB cross-border audit oversight positively, and lost confidence in the *overall* effectiveness of the oversight or in the prospects of *overall* cross-border cooperation on oversight, then the stock market reactions would not be confined to companies mentioned but would spread to other international listings. Loss of investor confidence would be triggered either by the PCAOB's inability to achieve cooperation with certain foreign regulators, or by the underscoring reality that cross-border enforcement is sensitive to foreign regulators' attitude. Therefore, the announcements provide an opportunity to test the value effect of U.S. cross-border auditor discipline over a wide range of countries. To have a comprehensive understanding of investor perception updating, we also exam stock market reactions to Announcement 1 and Announcement 2.

The sample includes all foreign companies audited by foreign auditors from April 1, 2007 to January 10, 2011 as identified in Audit Analytics. During this period, a total of 1,898 companies file audit opinions by foreign auditors; the number reduces to 712 after deleting companies that are headquartered in the United States, or do not have stock price information in DataStream, or

have a stock price less than one dollar, or do not have enough days with non-zero trading volume.<sup>3</sup> The 712 companies comprise those listed on the major U.S. exchanges (NASDAQ, New York Stock Exchange) in direct form and as American Depositary Receipts (ADRs), as well as those trading on over-the-counter (OTC) markets. The sample includes foreign companies having both home listing and U.S. listing, those that only have U.S. listings, those that have U.S. listings and other foreign listings but no home listing, and those that have home listing, U.S. listing and other foreign listings. The external audit firms of the 712 companies are domiciled in 43 countries.

Results for announcement 3 (May 18, 2010, the key announcement), the stock market reacted negatively in a statistically meaningful way for the three days surrounding May 18, 2010 not only for mentioned companies with auditors from China (and Hong Kong area to the extent that audit clients have operations in mainland China) but also for other international listings that are not mentioned. The results are robust to various benchmark models in estimating expected returns. The evidence indicates that the significant May 18, 2010 announcement has a spillover effect. However, market reactions for companies from Norway, Switzerland, and 17 European Union member countries were insignificant, although slightly negative. Cross-sectionally, for non-EU companies, Announcement 3 induced market reactions that varied predictably. We find that the negative market reaction is smaller for companies that are bigger, hiring big4 auditors, and are domiciled in countries with tougher judicial systems, a better quality audit profession, and better legal protection for investors. In addition, we find that the sample that experienced negative market reactions also has an increase in bid-ask spreads after the May 18, 2010 announcement. The

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<sup>3</sup> The reduction from 1898 to 712 is largely caused by deleting penny stocks. Without deleting penny stocks and companies headquartered in the U.S., the sample size is 1192. Those penny stocks are mainly listed on OTC markets. They frequently miss trading volume and are very illiquid. To make the expected return model reliable, we drop all the penny stocks. Nevertheless, the stock market reaction is much more significant in the presence of these penny stocks. We choose to present the conservative results by dropping the penny stocks.

increases in bid ask spread are more pronounced for companies that are smaller, hiring non-big4 auditors, and with weaker institutional strength. The results are robust to the inclusion or exclusion of Chinese companies in the sample for the cross-sectional analysis, and to various measures of institutional quality, including the control of corruption, audit profession quality, anti-self-dealing index, per capita GDP, legal origin, and home country disclosure requirements. Finally, results show that the negative stock market reaction occurred for companies without home listings, with dual listings, and with multiple listings. Taken together, the evidence suggests that the U.S. cross-border audit oversight creates value for a broad sample of international listings.

For Announcement 1 (August 12, 2009), companies from China experienced significant negative market reactions, and the negative market reactions exist not only for clients of auditors specifically referred to in the delay-list, but also other companies operating in China. We do not observe negative market reactions for clients of auditors from other countries, whether those auditors are on the delay list or not. For Announcement 2 (February 03, 2010), companies from China and Norway, Switzerland, and 17 European Union member countries experienced significant negative returns, whether their auditors are on the delay-list or not. This result suggests that investors had inferred that the delay was not a simple procedural delay but a jurisdiction authority problem. Otherwise, the market would only react to clients of mentioned auditors. None of auditors from the other countries are on the delay-list, and we do not observe significant negative returns for companies from other countries.

Overall, this study adds to the literature on the value of audits per se. Even though a substantial number of studies have investigated the value of auditor (Big 4 vs. non-Big 4 and specialized vs. non-specialized) choice, evidence on the value of audits per se is limited to a few studies examining whether voluntary auditing decreases cost of debt. For example, studying a large

sample of privately held Korean companies that are not required to obtain an external auditing, Kim et al. (2010) find that companies with voluntary external auditing pay a significantly lower interest rate on their debt than do private companies without an audit. In a similar vein, Minnis (2010) by exploiting a large proprietary database of privately held U.S. firms finds that audited private firms have a significantly lower cost of debt than those without external audits. Much less studied is the effect of regulatory discipline of auditors on firm value. Different from the voluntary choice of auditors, a mandatory requirement of regulatory audit oversight does not necessarily create value for audit clients. Both too much and too little oversight can be value destroying for audit clients. This paper shows that under the current regulatory regime, US cross-border audit oversight creates value for companies from a broad group of countries, and that the value varies with home countries' institutional strength.

Additionally, this paper addresses a long lasting question in the bonding literature. It is a well-documented phenomenon that foreign firms experience significant positive returns after listing in the U.S. (e.g., Foerster and Karolyi, 1999; Miller, 1999). The leading theory of international cross-listings, the “bonding theory” as advocated by Coffee (1999) and Stulz (1999), argues that the SEC’s stringent disclosure requirements and increased legal exposure associated with U.S. listing are sources of cross-listing benefits.<sup>4</sup> However, prior research has been unable to provide direct evidence on the valuation benefits of accounting/auditing requirements in international-listings, since it is particularly difficult to disentangle other confounding effects

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<sup>4</sup> The traditional bonding theory is applied to the setting of cross listing, i.e., a company lists its equity shares on one or more foreign stock exchange in addition to its domestic exchange. Currently in the US stock market, the *de facto* foreign companies includes three groups: 1) cross-listed companies, 2) the group of companies with US and other foreign listings, but no domestic listing; and 3) the group of companies only with US listing. Therefore, we do not constrain our sample to cross-listings. Nevertheless, when we constrain our sample to group “1”, the main stock market reaction results remain.

associated with cross-listing, such as the effects caused by changes in investor base and investment banking relations. As suggested by Leuz (2003), “In order to fully understand the cross-listing phenomenon, it is important to differentiate between the different explanations and to delve deeper [sic] into the sources of the cross-listing effects, such as improved risk sharing, increased disclosure, greater legal exposure and/or stronger SEC enforcement.” In this spirit, my study uses after-listing regulatory breakdown to show that enforcing US auditing and accounting requirements create value for cross-listings.

Furthermore, the evidence in this paper has important policy implications. First, the finding that investors value cross-border audit oversight encourages regulatory bodies to improve cooperation with foreign regulators. Second, the evidence that the PCAOB’s announcements had spill-over effects on foreign listings not mentioned by the published list informs regulators that it is important to take potential spill-over effects into account when predicting the economic consequences of future announcements. Third, the finding that the market reacted differently to the sequence of announcements suggests that the content of announcements by a regulatory body affect investor perceptions. Thus, regulators should carefully consider these aspects in future activities.

The only other paper that investigates a similar setting is the working paper by Carcello et al. (2011). For the key May 18, 2010 announcement, Carcello et al. (2011) study a truncated sample which only includes 188 companies mentioned in the published list but not mentioned in prior announcements and 122 ADRs from international listings that are not mentioned by the May 18, 2010 list.<sup>5</sup> With the truncated sample, Carcello et al. neither investigates spillover effects, nor

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<sup>5</sup> . As identified by Audit Analytics, without deleting penny stock the whole sample size is 1165 for the Announcement 3, among which 821 are international listings not mentioned in the list published by the PCAOB. After deleting penny

examines how the abnormal returns vary with home country institutional strength. In fact, recognizing their sampling and empirical strategy limitation, Carcello et al. (2011: 30) state “Our sample sizes are modest .... Future research that replicates and, hopefully, extends our findings would be helpful ....”

The rest of the paper is organized as follows. Section 2 describes the events, reviews the literature and develops the hypotheses. Section 3 discusses the sample and presents descriptive statistics. Section 4 lays out the empirical strategy. Section 5 presents and discusses the results for the market reaction analysis. Section 6 reports the results for cross-sectional analysis. Section 7 provides additional analysis. Section 8 concludes.

## **2. Background, prior literature and predictions**

### **2.1. Background of the PCAOB cross-border oversight**

In an effort to increase investor protection, the Sarbanes-Oxley Act of 2002 (SOX) created the Public Company Accounting Oversight Board (PCAOB). To carry out this charge, the Act gives the board significant powers, including registering and regularly inspecting public accounting firms that prepare or participate in the preparation of audit reports for companies that audit SEC-registered public companies without regard to whether the audit firm is located in the U.S. or in a foreign country. Section 104 of SOX requires and authorizes the PCAOB to inspect registered foreign audit firms, and PCAOB Rule 4003 specifies inspection at least once every three years.<sup>6</sup>

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stock, the sample of international listings not mentioned in Announcement 3 includes 821 stocks, among which, 164 are ADRs.

<sup>6</sup> Under the rule of SOX (Section 104) and the corresponding PCAOB rule (Rule 4003), the PCAOB is required to inspect registered audit firms at least once every year if the audit firm issued audit reports for more than 100 public companies that file periodic financial statements with the SEC in the previous calendar year. If the number is less than 100, then the inspection needs to be conducted at least once every three years, beginning with the calendar year the

A critical challenge to cross-border audit inspection is that access to foreign audit firms' documents located in their home jurisdictions requires permission from the home country regulators.<sup>7</sup> This jurisdiction authority challenge became increasingly significant for the PCAOB at the end of 2007 when the first inspection deadlines for several foreign audit firms approached.<sup>8</sup> The PCAOB faced the choice of whether and how to inform investors about such challenge. On December 4, 2008, the PCAOB adopted a rule amendment that allowed the PCAOB to postpone deadlines. On April 7, 2009, the PCAOB published a list of jurisdictions in which the PCAOB has conducted inspections, and a list of jurisdictions in which the PCAOB planned to conduct inspections. On June 25, 2009, the PCAOB adopted additional rule amendments that further postponed the deadlines. On August 12, 2009 (Announcement 1), the PCAOB provided a list of jurisdictions in which there are audit firms that the PCAOB has conducted inspections, and a list of 18 audit firms from 9 jurisdictions that had not been inspected by the PCAOB even though the original deadlines had passed. On February 3, 2010 (Announcement 2), the PCAOB provided an updated list of 70 audit firms from 25 jurisdictions experiencing inspection delays. For the first time, the PCAOB mentioned that China and some EU countries denied the PCAOB access to local audit documents.

Following the February 3, 2010 announcement came the unexpected news release on May 18, 2010, entitled "PCAOB publishes list of issuer audit clients of non-U.S. registered firms in

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audit firm is registered with the PCAOB and issues an audit opinion for SEC registered companies. Since no foreign auditor has more than 100 U.S. listed clients, the required inspection frequency for foreign companies is at least once every three years.

<sup>7</sup> Recognizing the political tension that handing over audit documents to U.S. regulators would be considered by foreign jurisdictions as a breach of their national sovereignty and conflict with local laws, the PCAOB had started to seek cooperation with foreign regulators since 2003 (March 31, 2003, PCAOB round table). However, investors were not informed about the progress of the continuing communication.

<sup>8</sup> With the requirement of registering with the PCAOB taking effect on July 19, 2004 for foreign audit firms, the deadlines for the first inspections arrived in 2007.

jurisdictions where the PCAOB is denied access to conduct inspections.” This list identified the 419 companies whose audit firms were located in the 21 jurisdictions denying the PCAOB access to local information. In contrast to the prior announcements guided and triggered by the PCAOB transparency rules (PCAOB Release No. 2008-007 and PCAOB Release No. 2009-003), this announcement was not required by any pre-set rules, and thus was quite unexpected. On January 10, 2011, the PCAOB announced that it entered into a cooperative agreement with the United Kingdom audit regulator. The achievement of this agreement was facilitated by the permission of the Dodd-Frank Act (July 21, 2010) for the PCAOB to share confidential information with its non-U.S. counterparts.

As the events evolved, companies in countries not granting the PCAOB access to audit work papers showed deep concerns. For example, Financial Executives International (FEI), the Business Roundtable, National Retail Federation, U.S. Chamber of Commerce, and the U.S.-China Business Council submitted a joint letter stating members were “deeply concerned” that “A failure to reach agreements on these issues may severely harm businesses and their investors in both the U.S. and China. ....Their capital markets and businesses—issuers and users of financial reports—must have a strong system of transparency and internal controls to raise the capital needed to grow and operate.”(Financial Executives International, May 22, 2013). The perceived importance of cross-border audit oversight and the variation in the progress of enforcement offer an opportunity for assessing the value implication of auditor discipline for cross-listings.

## **2.2. Prior literature**

It is generally accepted that external auditing helps to reduce agency costs for creditors, outside shareholders, and managers (Jensen and Meckling, 1978; Watts and Zimmerman, 1983).

Voluntary and costly independent auditing was pervasive even before the development of the modern corporation (Watts and Zimmerman, 1983). The pervasiveness of voluntary auditing indicates that it enhances firm value for those who choose to use it. Under the theoretical framework of agency costs and external monitoring, there is an extensive set of studies that examine the value of auditor (i.e. Big 4 vs. non-Big 4 and specialized vs. non-specialized) choice, and the following discussion touches on a small subset of these.

The theoretical work by Titman and Trueman (1986) and Datar, Feltham, and Hughes (1991) suggests that an entrepreneur with favourable information about his firm's value chooses a higher-quality auditor. The theory supports a positive association between audit quality and client value. Consistent with this theoretical prediction, using the setting of initial public offerings (IPOs), Beatty (1989), Balvers et al. (1988), Willenborg (1999), and Weber and Willenborg (2003) find that IPOs associated with larger auditors have less underpricing and more correlation between the audit opinion and post-IPO stock performance. Mansi et al. (2004) and Pittman and Fortin (2004) focus on the effect of auditors on cost of debt, and find that the cost of debt is lower for firms with larger auditors.

Because audits of listed companies (about which public information is available) are mandatory, the literature on the value of an audit *per se* is limited, and mainly examines how voluntary auditing affects the cost of debt. For example, Kim et al. (2010) by using data on Korean private firms document that private companies with voluntary external auditing pay a significantly lower interest rate on their debt than do private companies without an audit. Exploiting a large proprietary database of privately held U.S. firms, Minnis (2010) finds that audited private firms have a significantly lower cost of debt than those without external audits.

The limitation of empirical research on voluntary audit (or) choice is the pervasive problem of endogeneity, so studying the effect of regulatory forces on auditing may be more promising. My study examines the value of U.S. regulatory discipline in the cross-listing setting and an audit by a regulatory body is not a decision made by firms. Therefore, it is unclear whether such regulation increases or decreases firm value. The bonding theory in the international cross-listing literature suggests that the stringent U.S. accounting requirements and the greater litigation risk associated with U.S. listing creates value for firms who choose to cross-list (Coffee, 1999, 2002; Stulz, 1999). However, there is no direct empirical evidence demonstrating that U.S. accounting requirements are the sources of cross-listing valuation benefits. We use a breakdown in enforcing compliance of U.S. accounting requirements to examine whether U.S. cross-border oversight of auditors creates value for foreign firm listed in the U.S.

### **2.3. Hypothesis development**

The central intention of the PCAOB's cross-border inspection is to ensure that foreign auditors comply with U.S. Generally Accepted Auditing Standards (GAAS) to obtain sufficient assurance that the audited financial statements are in accordance with applicable accounting standards—that is, U.S. Generally Accepted Accounting Principles (U.S. GAAP) or International Financial Reporting Standards (IFRS). In cases where auditors are required to perform additional procedures under U.S. GAAS to support an audit opinion, the auditors may discover material misstatements that they would not otherwise detect based on their home country auditing standards.<sup>9</sup> Violations of the SEC or PCAOB rules found in the inspection could trigger further investigations. When investigations lead to alleged violations, the PCAOB can impose sanctions including suspension

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<sup>9</sup> See the PCAOB publication “Information for Audit Committees About the PCAOB Inspection Process” (Aug. 1, 2012)

or revocation of the accounting firm's registration, suspension or barring an individual from associating with a registered public accounting firm, and monetary penalties.

Given the PCAOB's ability to trigger restatements and to impose penalties, the benefit of *ex post* inspections is an increased *ex ante* likelihood that a material misstatement is discovered if a misstatement exists (Srinivasan et al., 2012) and better financial reporting quality (Lamoreaux, 2013). The cost of oversight is higher audit fees as compensation for additional time spent by auditors. As documented by prior studies, the cost of compliance with U.S. accounting requirements can be sizeable. For example, Seetharaman et al., (2002) and Choi et al. (2009) find that auditors charge higher fees for firms that cross-list in countries with stronger regimes than for non-cross-listed firms. Mittoo (1992) surveyed Canadian companies listing in the U.S. and U.K. and found more than 60% identified SEC reporting and compliance requirements as the greatest impediment to listing. On balance, we expect that the benefits of additional oversight by the PCAOB are value increasing on average. Applied to this setting, the stock market is predicted to react negatively for companies whose auditors appear in the PCAOB enforcement failure list. Since the announcements vary in timing and content, market reactions are also predicted to vary in levels and significance.

Among all the news releases described in section 3.2.1, the May 18, 2010 announcement is the most important one, since it for the first time discloses the enforcement problem in detail. Unlike the prior announcements, this one was not triggered by pre-set PCAOB rules. This news release has two effects other than informing investors that China and EU countries are denying the PCAOB inspection, which investors may have already inferred from earlier announcements on the inspection timing problem. First, it highlights the PCAOB's continuous failure to achieve cooperation with certain countries. Second, it stresses that foreign regulators have disincentives to

cooperate with the PCAOB. If these two effects cause investors to lose confidence in the overall effectiveness of the PCAOB's cross-border audit oversight, then the negative market reaction would spread to other foreign companies which were not mentioned in the PCAOB news release. Therefore, we predict that the May 18, 2010 announcement would dampen investor confidence in foreign companies listed in the U.S. and not identified in the announcement. Therefore, we state our first hypothesis as follows:

*H1a: Mentioned companies will experience negative market reactions following Announcement 3.*

*H1b: Non-mentioned international listings will experience negative market reactions following Announcement 3.*

After examining the stock market reactions, we investigate two cross-sectional predictions, which, if supported, would confirm the inferences from the initial stock market reaction tests. First, we test whether the market reactions vary with the strength of home country institutions and firm level corporate governance variables. The prior bonding literature suggests a greater revaluation at the time of cross-listing for those firms that come from countries with weaker regulations (Coffee, 1999; Stulz, 1999). We expect this effect to extend to auditor discipline —the weaker the legal environment in the home country, the greater the benefit from PCAOB oversight. Second, we expect that companies with better firm level corporate governance are less likely to be affected. Therefore, we also examine whether market reactions vary with firm size, the hiring of big4 auditors and ownership structure. The second hypothesis is as follows:

*H2a: Market reactions will be stronger in companies from countries with weaker legal environments.*

*H2b: Market reactions will be stronger in companies with weak firm level corporate governance.*

### **3. Sample construction and summary statistics**

Our sample comprises all foreign companies that were audited by non-U.S. auditors and filed audited periodic financial statements with the SEC from April 1, 2007 to January 1, 2011. We classify a company as foreign if it is headquartered in a non-U.S. country, regardless of the place of incorporation, using the variable `CIQ_LOC` from Capital IQ.<sup>10</sup> For companies whose country of headquarters are not the same as the country of the audit firm, we use country of audit firm to define the company's home country. For companies hiring Hong Kong audit firms, we define China as their home country since almost all of them operate in China, as suggested by the PCAOB.<sup>11</sup>

The sample construction starts with companies with foreign auditors in the Audit Opinion file of Audit Analytics having filing dates between April 1, 2007 and January 1, 2011. The Audit Opinion database in Audit Analytics covers all SEC registrants, tracks all auditor reports on financial statements disclosed since 2000, and provides auditors' location information. Thus, the database provides a comprehensive list of all foreign companies that are subject to SEC periodic

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<sup>10</sup> Such criteria may delete companies operated in foreign countries, but headquartered in the U.S. For example, the documented headquarter country of Solar EnerTech Corp. is Mountain View, California (United States). However, its actual operations are in Shanghai, China. Similarly, Synutra International, Inc. mainly operates in China, but is headquartered in Rockville, Maryland (United States). Both companies hire audit firms from China. We were able to replicate the main results of the paper only keeping the requirement that the company needs to be audited by foreign auditors without requiring companies to be headquartered in foreign countries.

<sup>11</sup> Companies hiring Hong Kong auditors but operating in mainland China were listed on Announcement 3 That is, Hong Kong auditors deny the inspection of the PCAOB for clients operating in mainland China.

financial statement reporting requirements. The initial screening returns 1,898 unique companies. After that, we obtain the Capital IQ identifiers for each company using Capital IQ Excel plug in.

Since it is unclear whether the sample for mentioned companies in the May 18, 2010 announcement fully overlaps with the companies in Audit Analytics whose auditors are from the 21 jurisdictions on the May 18, 2010 list, we utilize the website “Wayback Machine - Internet Archive” to obtain the original May 18, 2010 list which is not currently available at the PCAOB website.<sup>12</sup> After obtaining the May 18, 2010 list, we use the Capital IQ Identifier Converter to generate the identifiers from company names, and manually check the matching for each company name to correct mismatching.<sup>13</sup> Comparing companies on the May 18, 2010 list and companies in Audit Analytics filing audit reports from April 15, 2009 to April 15, 2010<sup>14</sup> and hiring auditors from the 21 mentioned jurisdictions, we found 35 companies appearing in Audit Analytics but not on the May 18, 2010 list. Further investigation suggests that among the 35 firms, 19 do not have U.S. listing information, and the remaining 16 have U.S. listing information and show up in a 2011 list that updates the May 18, 2010 announcement. The evidence suggests that the 16 companies were actually missed by the May 18, 2010 announcement. In my test of stock market reaction

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<sup>12</sup> Since the PCAOB updates the name list (under the same web page) annually or when a cooperative agreement is signed with the country blocking the PCAOB access to information, the original list is not currently available. The PCAOB website does not archive this file. “Wayback Machine - Internet Archive” regularly takes snapshot of the web pages to preserve information, thereby providing historical information of websites. The “Archive” website allows me to find a list as of June 4, 2010, which is a version with corrections of the original list. Google searching the name of this pdf file “issuer\_audit\_clients\_of\_certain\_non-US\_firms\_by\_jurisdiction”, we found that the original May 18, 2010 pdf file. Comparison between the two lists suggests that they were not substantially different. The June 4, 2010 list corrected typos and deleted duplicate companies only.

<sup>13</sup> Note that the CIQ\_IDs generated by the Capital IQ Identifier Converter often mismatches with company names, therefore manual checking is needed.

<sup>14</sup> The May 18, 2010 news release indicates that the list includes companies filing audited financial statement with SEC from Mid-April 2009 to Mid-April 2010. Therefore, we use this time period to search for comparable companies in Audit Analytics.

analysis, we find that the inclusion or exclusion of the 16 companies does not affect the results. The results presented exclude the 16 companies.

To match the sample with DataStream, we first use company names to manually search the unique security identifier (DSCODE) in DataStream. For securities that are traded on both major U.S. exchanges and OTC markets, we keep the one for the former. For those traded as both ADR and ordinary shares, we keep the ADR code. To address the concern that manual name search may miss stocks, for companies that we cannot find matches in DataStream, we search in Capital IQ (using the unique company level Capital IQ identifier) for ISINs, and then use the ISINs to search for matches in DataStream. As a result, we find 1523 matches in DataStream.

To construct subsamples for analysis of each event, we use a rolling window to screen the sample.<sup>15</sup> We require companies in the subsample to have filed audit opinions within 15 months before the news release date. In this way, we ensure that the company hires a foreign auditor and is subject to SEC period filing requirements before the PCAOB announcement date. For example, to be included in the sample for the August 12, 2009 news release, the company needs to have a filing date between May 12, 2008 and August 11, 2009 and had engaged a foreign auditor. Such screening is necessary since companies may change their audit firms from a non-U.S. audit firm to a U.S. one, or vice versa, during the two years in which the series of events happened. For example, Tat Technologies is a company based in Israel trading on NASDAQ. It had US auditors for fiscal years before 2008 (including fiscal year 2008). After that, it hired Israeli auditors. To be

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<sup>15</sup> Rolling is an important sampling strategy. The subsamples are not exactly the same across each announcement. A company subjecting to SEC periodic filing requirement in one year does not necessarily face the same requirements in the following year. For example, if a company meets the definition of “foreign private issuer” as defined by SEC, then it needs to provide audited financial statements to SEC not matter it is traded on the OTC market or major exchanges. Whether a company is classified as foreign private issuer depends on a lot of time varying factors such as the percentage of U.S. shareholders.

included in each subsample, we further require the stock price to be at least one dollar in the expected return model estimation period and abnormal return analysis period, and the company is not headquartered in the United States.<sup>16</sup> These requirements reduce the sample size to 712. To avoid extreme cases and potential data errors, we trim stock return data at the 1% and 99% levels.

Financial statement data are from Capital IQ. We choose Capital IQ as the source for two reasons. First, it covers more than 62,000 public companies and provides “auditable” data for financial statement items.<sup>17</sup> Second, it is not practical to pull items from different databases since global databases, such as Capital IQ, WorldScope and Compustat standardize financial statement items differently from each other and thus are not perfectly comparable.<sup>18</sup> Ownership concentration for each company is from Capital IQ.<sup>19</sup> Capital IQ provides detailed and timely public company ownership data, which includes the shares owned by institutions, insiders, individuals etc. Ownership concentration is defined as the percentage of shares held by block holders with more than 5% of the company’s shares. We use an excel template to retrieve detailed ownership data for every owner of a particular company as of March 31, 2010 and to calculate the concentration for every company.<sup>20</sup> Companies’ non-U.S. listing information is manually

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<sup>16</sup> Future studies that replicate this study can delete companies headquartered in the U.S. at earlier steps since it saves the effort needed to manually search for identifiers in different databases. We choose to do it in the final step because we want to see if we can replicate our results without the headquarter constraints.

<sup>17</sup> For every financial statement item, Capital IQ provides the details for the calculation of the item, and shows how the number is derived.

<sup>18</sup> Even though Compustat belongs to the company S&P Capital IQ, it standardizes data differently from the Capital IQ platform. To compare the databases, we retrieve data needed to calculate market to book ratio from all of the three databases for our sample. For our sample, the coverage of Compustat is two-thirds of the coverage of either Capital IQ or WorldScope. We compare the market to book ratio calculated using the three databases, and find that for observations with data available in all the three databases, the statistics are similar across the three. For those without data in Compustat, there are more extreme values as found in the other two databases. We trimmed these extreme observations.

<sup>19</sup> WorldScope also provides ownership concentration data. However, there are a lot of missing values and it does not provide the details of ownership information. Therefore, we choose to manually retrieve the detailed ownership data from Capital IQ.

<sup>20</sup> Note that Capital IQ excel plug in provides a data type called owners holding more than 5% of shares, which provides details holding information for these owners. However, one should not rely on this data type to calculate

identified from Capital IQ. We first use the excel plug-in to pull out all security-level identifiers for a firm, and then only keep those with the first trading date earlier than January 10, 2011 and the last trading date later than December 31, 2009. Such requirement provides companies' listing status for the May 18, 2010 and January 10, 2011 announcements. After that, using the security level identifiers, we manually search the Capital IQ website for exchange names these security level identifiers.<sup>21</sup> In the cross-sectional analysis, firms in the financial industry (SIC code ranging between 6000 and 6999) are dropped since the meaning of control variables (e.g., total asset and sales growth) for this industry is different from those for other industries. To reduce the effect of extreme cases or data errors, all continuous variables are winsorized at the 1% and 99% levels.<sup>22</sup>

Table 1 provides the summary statistics for the final 712 unique companies. These 712 companies were incorporated in 50 jurisdictions, and had audit firms from 43 countries. The sample covers 43 of the 48 industries as defined by Fama and French (1997). This observation suggests that the sample has a broad coverage of countries and industries. Examples for the details of the news releases are provided in Appendix B, C, and D.

## **4. Empirical design**

### **4.1 Expected return estimation model**

We aim to isolate the effect of the shocks on cross-listed firms after filtering out systematic factors.

However, there is no norm about how to tease out the systematic factors for cross-listed firms.

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ownership concentration, since the owners with more than 5% of shares under this data type are defined as those whose current holdings are more than 5%. Historically, their holdings may be less than 5%.

<sup>21</sup> For securities that have stopped trading, Capital IQ excel plug-in only provides their trading item Ids, which do not directly contain exchange information. Therefore, we search on the website for exchange information.

<sup>22</sup> The winsorization does not involve stock returns since they were trimmed at 1% and 99% levels already.

Karolyi (2012) suggested that event study results for cross-listed firms are particularly sensitive to the selection of expected return models. Thus, we adopt three expected return models to estimate abnormal returns, which includes the Fama and French (1993) three factor model, and two market models with different market indexes as benchmarks:

$$R_{i,t} = \alpha_i + \beta_i R_{m,t} + s_i SMB_t + h_i HML_t + \varepsilon_i \quad (1)$$

$$R_{i,t} = \alpha_i + \beta_i R_{m,t} + \varepsilon_i \quad (2)$$

$$R_{i,t} = \alpha_i + \beta_i R_{s\&p500,t} + \varepsilon_i \quad (3)$$

where, on day  $t$ ,  $R_{i,t}$  is the return to firm  $i$ ;  $R_{m,t}$  is the return on the CRSP value-weighted market index;  $SMB_t$  and  $HML_t$ , are the returns to the small-minus-big (SMB) and high-minus-low (HML) portfolios meant to capture size and book-to-market;<sup>23</sup> and  $R_{s\&p500,t}$  is the return to the Standard & Poor's 500 Index. Model (1) deals with the probability that the returns of the sample are systemically affected by size and book to market. In Model (3), the advantage of using the return on the S&P 500 Index as the benchmark is that it does not include foreign stocks, and thus it is not impacted by the event.<sup>24</sup> For each firm in the sample, we estimate the parameters in the models over a 240-day pre-event period (Day  $-270$  to Day  $-31$ ). Daily abnormal returns during the event

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<sup>23</sup> The daily factor returns for the SMB and HML portfolios are generously provided by Kenneth French on his website.

<sup>24</sup> Prior research also uses different types of world index, such as Morgan Stanley Capital International (MSCI) All-Capital World Index (Gagnon and Karolyi, 2012), as the benchmark. However, it is not appropriate to use world index as a benchmark in our setting, since the lack of information sharing between the PCAOB and foreign regulators may cause investors to lose confidence in foreign countries' audit quality if they previously perceive that information sharing between foreign regulators and the PCAOB improves audit quality of foreign countries. Nevertheless, in untabulated tables we also estimate the abnormal return using the Morgan Stanley Capital International (MSCI) All-Capital World Index excluding the U.S. index as the benchmark. Interestingly, while all the results remain, the days on which daily stock return is significant shift from day  $-1$  and day  $+1$  to day  $0$  and day  $+2$  when the MSCI ex. U.S. index is used for the May 18, 2010 event study analysis.

period are calculated by subtracting the expected return implied by the expected return models from the firm's realized return.

Because firms in my analysis have the same event periods in calendar time, some degree of cross-sectional correlation in abnormal returns across firms is expected, and conventional test-statistics will be biased. We therefore test for statistical significance using the test statistic proposed by Kolari and Pynnonen (2010), which is a modified version of the widely used t-statistic of Boehmer, Musumeci, and Poulsen (BMP, 1991). Kolari and Pynnonen show that contemporaneous correlation in abnormal returns will be accounted for by multiplying the BMP variance by a term that increases the variance when the correlation is positive. Such modification produces a closer-to-zero statistic since cross-sectional correlation is usually positive, which is also the case in my sample. This new statistic takes event-induced variance into account while adjusting for cross-sectional correlation, and thus is particularly applicable to my setting.

We examine market reactions for all foreign companies with equity traded in the US and registered and filing audited financial statements with the SEC. Specifically, we examine stock market reactions within various groups for each announcement: 1) all companies from China, 2) all companies from EU countries, 3) mentioned companies from China, 4) other international listings from China, 5) mentioned companies from EU countries, 6) other international listings from EU countries; and 7) other international listings from countries other than China and EU countries. After that, we compare the inferences between groups and across events.

#### **4.2. Institutional characteristics and abnormal stock returns**

After estimating the abnormal returns, we seek to understand how the net benefits of the cross-border audit oversight varies with country- and firm-level corporate governance variables. Firms

operating in countries with stringent rules or enforcement policies are predicted to have better corporate governance and audit quality in the absence of the US cross-border audit oversight. We use six proxies to measure the overall institutional strength of home country, strength of legal system, audit profession quality, and strength of securities laws. The proxy for the overall institutional strength is the natural logarithm of the home country's per capita GDP (LNGDP) as retrieved from the World Bank.<sup>25</sup> The overall strength of legal system has three proxies. The rule of laws index (RULE\_OF\_LAW) is the World Bank governance index (Kaufmann et al., 2010), which reflects perceptions of the extent to which agents have confidence in and abide by the rules of society. The judicial efficiency index (JUDICIAL) as provided by Laeven and Majnoni (2005) measures the efficiency of a country's legal system. The legal origin indicator (FRENCH\_OR) equals 1 if the country has a French legal origin, and 0 otherwise. The audit profession quality (AUDIT) index is constructed by Preiato et al. (2013), using factors including "whether auditors must be licensed," "whether the oversight body can apply sanctions," "whether audit (firm or partner) rotation is required," etc. The proxies for the strength of securities laws is disclosure in periodic filings index (DISCLOSURE) as constructed by Djankov et al. (2008). DISCLOSURE measures the extent to which disclosure requirements in annual reports and periodic filings facilitate the scrutiny of related-party transactions by outside shareholders.

Note that among all the proxies, the first five proxies are more relevant to the sample in this paper as compared to DISCLOSURE, since not all US-listed foreign companies have home listings. For example 51JOB, a provider of integrated human resource services in China, is listed as ADRs in NASDAQ and Frankfurt Stock Exchange, but is not publically traded in China.

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<sup>25</sup> GDP information for Taiwan (China) is retrieved from the International Monetary Fund website.

Therefore, the requirements of stock exchanges in China does not directly affect this company's financial reporting. Nevertheless, for the subgroup that have U.S. listings in addition to home-listings, home country disclosure requirements would affect the value-added of US reporting requirements. For the comprehensiveness of the empirical test, we include this disclosure variable. The above measures of institutional strength are predicted to be positively associated with the abnormal return, except FRENCH\_OR, the prediction for which is the reverse.

Firm level corporate governance proxies include firm size, ownership structure, and whether the firm hires a Big 4 auditor. Firm size is measured as the natural logarithm of total assets. Following prior studies, a five percent cut-off level is used to identify shareholders with concentrated holdings (e.g., Hertz and Smith, 1993). Ownership concentration (OWNERCON) is measured as the total percentage of shares owned by owners with more than five percent of total shares outstanding. To control for the non-linearity of ownership concentration on firm value (see Morck et al. (1988)), we also include squared concentration (OWNERCON2). BIG4 is an indicator variable equal to 1 if the company hires a Big 4 auditor, and 0 otherwise.

In addition to the above governance variables, further controls include sales growth (SALEGRW) and Tobin's q valuation ratio (MB) as controls for growth opportunity, long-term debt leverage ratio (LEVERAGE) as control for financial risk, and operating cash flow relative to total assets (CFO) as the control for operating performance. Capital expenditures relative to total assets, firm age (AGE) and percentage of foreign sales (FOREIGN\_SALE) measures operational risk. To investigate how the listing status of companies affects stock market reactions, we use two indicator variables to measure listings status. CROSS is an indicator variable equal to 1 if the company has domestic listing in addition to its U.S. listing, and 0 otherwise. SINGLE is 1 if the

company only has US listing, without either domestic listing or other foreign listings. Detailed variable definition and data source are available in Appendix A.

## **5. Market reactions around the key dates**

### **5.1. Summary statistics of overall market reactions**

To provide an overall view of the effects of the announcements, this section presents and discusses the summary statistics for mean three-day cumulative abnormal returns of all cross-listed companies hiring non-U.S. auditors. As shown in Table 2, only Announcement 3 (May 18, 2010) has a market wide impact. The average share price reaction for the cross-listed companies is -226 basis points for the three days surrounding May 18, 2010. The interquartile range of reactions across the firms is -488 to +35 basis points. The distribution is negatively skewed. The date with the second most negative average market reaction is Announcement 2, with an average reaction of -136 basis points. The interquartile range is -378 to +63 basis points. The distribution is less negatively skewed than for Announcement 3. For the two dates (December 4, 2008 and June 25, 2009) that the PCAOB announced postponing the deadline of cross-border inspection, the average reaction distributions are symmetric, and the stock market of foreign firms was not impacted in a statistically meaningful way. On January 10, 2011, when the PCAOB announced that it entered into cooperative agreements with UK audit regulator, the average market reaction is +93 basis points. The interquartile range of reactions is -99 to +248 basis points, thus is slightly positively skewed. Overall, the initial statistics indicate that only Announcement 3 (May 18, 2010) had statistically meaningful negative market reactions at the whole sample level. Section 3.5.2 and Section 3.5.3 provided detailed abnormal return analysis in the subsamples.

## 5.2 Test of investor response to Announcement 3

This section presents market reactions to Announcement 3. (May 18, 2010). Since the exact day on which market participants learned of the information is unclear, we calculate the 5 daily abnormal returns (from day -1 to day +3) surrounding the announcement date. Table 3 presents abnormal returns across the three expected return models. Unexpectedly, the average market reaction is not significant for mentioned companies, but significantly negative for the group of other international listings, as shown in Panel B and Panel C. Panel C shows that the average abnormal return for non-mentioned international listings using the S&P 500 index benchmark is -257 basis points for the three days surrounding the announcement date ( $t = -2.487$ ).<sup>26</sup> To investigate the reason for a lack of statistically significant reactions for mentioned companies, we split the mentioned sample into a China group and EU group. As indicated by Panels D and E, the lack of statistically significant market reaction is caused by the lack of reactions to the EU group. For the 134 cross-listed EU firms, the average market reaction is -84 basis points ( $z = -0.478$ ). In contrast, for the 122 companies from China, the mean three day cumulative abnormal return is -280 basis points ( $t = -1.944$ , percentage of negative returns = 75%).

Panel F and Panel G present market reactions for the non-mentioned (by the announcement) international listings from Canada and other countries, respectively. The results suggest that the 169 companies from Canada suffered a significantly negative average cumulative abnormal return of -311 basis points, with the z-statistic equal to -2.39 with 80.47% of sampled firms experiencing negative returns. The high degree of negative reaction is likely to be caused by the fact that a lot of small companies from Canada are listed in the U.S. exchanges, and small firms are more

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<sup>26</sup>Unless otherwise stated, all statements of statistical significance refer to the 5% level or better in two-tailed tests. All discussed results correspond to the expected return model using S&P 500 index as the benchmark.

sensitive to negative news.<sup>27</sup> Similarly, the 227 stocks from other countries went through a mean cumulative abnormal return (-1, +1) of -216 basis points (t-statistic = -2.173). The initial evidence suggests that the Announcement 3 has a spillover effect on international listings not referred to on the PCAOB list.

### **5.3 Stock market reactions to other announcements**

If investors learned from the prior announcements that EU countries and China have laws that conflict with sharing local audit information with the PCAOB, then the stock market response to the May 18, 2010 announcement for companies in China and EU countries would be mitigated. Therefore, we further examine market reactions to Announcement 1 (August 12, 2009) and Announcement 2 (February 3, 2010).<sup>28</sup>

Table 4 and Table 5 present market reactions to Announcement 1 and Announcement 2. An obvious similarity between Table 4 (Panel A) and Table 5 (Panel E) is that firms audited by non-mentioned auditors from countries other than China and EU countries did not experience significantly negative abnormal return, suggesting that investor confidence in the oversight of audit firms in these countries was not negatively impacted by these two announcements. In addition, as reported in Table 4 Panels A and B, while the average market reaction to firms audited by mentioned audit firms in Announcement 1 is not significant, investors reacted significantly and negatively to firms from China, regardless of whether their auditors were on the published list or

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<sup>27</sup> In the cross-sectional analysis, we analyze how size affects the cross-sectional variation in abnormal returns.

<sup>28</sup> In addition to the Announcement 1 and Announcement 2, we also examine market reactions to earlier key announcements as indicated in Table 2. However, none of sub-groups experienced significant market reactions, and the average abnormal returns were even not negative for the earlier announcements indicating inspection timing problem. The evidence suggests that the market did not learn from earlier announcements about the severity of the problem. Therefore, we only present the results for the Announcement 1 and Announcement 2 here. Results for early announcements are available on request. Summary statistics for market reactions to earlier announcements are provided in Table 2.

not. Clients of mentioned audit firms from China experienced an average cumulative abnormal return (from day +1 to day +3) of -506 basis points, with the z-statistic equal to -2.162. Similarly, clients of non-mentioned audit firms from China suffered a three-day average cumulative market reaction of -337 basis points (t-statistic=-1.736). In addition, market reactions to clients of mentioned China audit firms and clients of non-mentioned China audit firms experienced similar negative market reactions. The results suggest that at least some investors realized that the PCAOB encountered cross-border oversight problems with China, since if investors read it as a mere inspection timing problem then the stock reactions would be limited to companies associated with mentioned auditors. In contrast, the evidence in Panel B for EU auditors, that market reactions to mentioned group and the non-mentioned group are both statistically insignificant suggests that the jurisdiction authority issue in EU countries was not an important concern to investors.

In Table 5, Panel A and Panel B report market reactions to Announcement 2. A salient observation is that market reactions are negative and significant for firms from China and from EU countries, regardless of whether their audit firms were mentioned or not. The magnitude of reactions are large for both the China group and the EU group, irrespective of whether they were mentioned by the PCAOB announcement or not. The non-mentioned China group experienced an average reaction of -368 basis points (t-statistic=-3.112) accumulated from day +1 to day +3 and the non-mentioned EU group experienced an average reaction of -233 basis points (t-statistic=-2.028). Collectively, the evidence suggests that investors learned from Announcement 2 that the inspection authority of the PCAOB was challenged by the legal authority of China and EU countries. The lack of statistically meaningful reactions to EU countries on Announcement 2 is likely to be caused by investors learning about the problem before Announcement 2.

Table 6 shows market reactions to the January 10, 2011 announcement, which informed investors that the PCAOB and the UK accounting regulators entered into cooperative agreement in cross-border audit oversight. As shown, the market did not react in a statistically meaningful way to either firms from UK or firms from other countries. However, on average, the market experienced positive market reactions following the cooperative announcement between the PCAOB and UK audit regulators, with the average cumulative abnormal returns being 113 basis points for firms from UK and 77 basis points for those from other countries, accumulating from the day one to the two days following the announcement.

## **6. Cross-sectional analysis for abnormal returns**

Having examined average stock market reactions, we now perform cross-sectional analysis of the firms' abnormal returns for Announcement 3. We conduct cross-sectional analysis for this announcement rather than using the announcements prior to Announcement 3 (May 18, 2010), because Announcement 1 and 2 are not transparent and are bundled with confounding information.<sup>29</sup> Compared with the Announcements 1 and 2, Announcement 3 is more transparent. Since market reactions to Announcement 3 were concentrated in firms from non-EU countries, we only include firms from non-EU countries in the regression.

If the negative stock market reaction for the group of companies not on the PCAOB list is a reflection of the valuation of the PCAOB cross-border oversight, then the abnormal return should

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<sup>29</sup> On August 12, 2009, together with the name list of audit firms that the PCAOB delayed inspection is a list of jurisdictions the PCAOB has conducted inspections. The two lists have overlap in jurisdictions, such as Israel and Norway. Similarly, the bundled lists for the February 3, 2010 list of audit firms experiencing inspection delays are a list of jurisdictions in which the PCAOB has conducted inspections and a list of jurisdictions the PCAOB intend to conduct inspections in 2010. The three lists have overlap in jurisdictions, such as United Kingdom and Norway. Therefore, we do not make any inference from the cross-sectional analysis of the Announcement 1 and 2.

vary with country- and firm- level corporate governance factors. As shown in Table 7, the key proxies for institutional strength (e.g., RULE\_OF\_LAW and JUDICAL) exhibit considerable variation, and thus are ideal for cross-sectional analysis. RULE\_OF\_LAW varies from -0.22 at the 25th percentage to 1.81 at the 75 percentile. The mean for CROSS and SINGLE is 0.61 and 0.07 respectively, indicating that 61% companies in the sample are listed in domestic exchanges in addition to the US one, 7% are listed only in the US, the remaining 32% are listed in multiple foreign exchanges, without domestic listing.

Table 8 presents results of the cross-sectional analysis for Announcement 3. The reported estimates of coefficients are standardized, so, the intercepts are not reported. As reported in Panel A: Models (1) to (6), the standardized coefficients for all the country level institutional factors are significant, and FRENCH\_OR having the opposite sign as predicted. For example, the coefficient for RULE\_OF\_LAW is 0.1290 ( $t=4.40$ ). This result indicates that U.S. cross-border audit oversight is less valuable for companies from countries with stronger institutions (i.e. the firms had less negative returns). The evidence is consistent with the prediction that firms from countries with strong institutional environments are less likely to be affected, suggesting that investors view a strong home country institutional environment as a mechanism to enhance corporate governance. For the firm-level factors, the coefficients on LNASSET and BIG4 are both significantly positive across all the six models. The evidence suggests that companies with more external monitoring (for big firms) with better quality auditors (for big 4 clients) are less impacted by the negative news of US cross-border audit oversight. The coefficients on the ownership concentration (OWNERCON) are significantly positive after controlling for country-level variables, and the coefficients on squared ownership concentration (OWNERCON2) are negative.

Since China is special in that it blocked the PCAOB access to audit information, we estimate the regression both with the inclusion and exclusion of companies from China to see the effect of China in the cross-sectional analysis. When we include Companies from China in the sample, we include a dummy variable (CHINA) equal to 1 if the company is from China and 0 otherwise. Table 3.8 provides the version of results from the sample including Chinese companies. In unreported results, the main results are robust to the exclusion of China companies from the sample.<sup>30</sup>

Panel B reports the results of regressions that investigate how listing status affects the abnormal stock return. Models (1) to (3) only have companies listing status as an explanatory variable in the regression.<sup>31</sup> In Models (1) to (3), the coefficients on both CROSS and SINGLE are insignificant and the adjusted R-squared is negative, suggesting that listing structure alone does not affect the abnormal returns. After adding other controls in Model (4) to Model (6), results still show that listing status does not explain abnormal stock returns, and the coefficients on the proxies of home country legal strength and audit quality remains.

## **7. Additional analysis**

### **7.1. Analysis of change in perceived information asymmetry**

Evidence in section 3.6 suggests that the incidence of negative market reaction in companies not included on the PCAOB's May 18, 2010 announcement is caused by loss of investor confidence in the overall efficiency of the cross-border audit oversight. To further confirm this conjecture, we

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<sup>30</sup> The results are available on request.

<sup>31</sup> To gauge how listing status alone affects the abnormal stock return, we report the raw OLS regression results without standardization of the coefficient so that the intercept is observable.

examine the change in perceived information asymmetry as proxied by bid-ask spreads (e.g., Stoll, 1978; Venkatesh and Chiang, 1986; Glosten and Harris, 1988) The classical theoretical literature on information and trading suggests that adverse selection reduces liquidity via price protection mechanisms, such as bid-ask spreads, as uninformed investors become less willing to trade (see Kyle 1985; Glosten and Milgrom 1985; Diamond and Verrecchia 1991; Leuz and Wysocki 2008). Loss of confidence in information quality (as caused by the PCAOB enforcement problem) increases the perceived information asymmetry for uninformed investors, thereby increasing bid-ask spreads. Therefore, if there is spillover for the cross-border listings not on the PCAOB, then there would be an increase in bid-ask spreads following the announcement.

Table 10 provides the results for analysis of change in bid-ask spreads. Bid-ask spreads (SPREAD) is calculated as the difference between the closing ask and bid prices as scaled by the average of the two. For individual stocks, pre-event SPREAD is the daily mean spread in the three months between February 7, 2010 and May 7, 2010, and post-event spread is calculated over the three months from June 1, 2010 to September 1, 2010. Panel A provides the mean daily bid-ask spreads during the pre- and post-announcement period. As shown in Panel A, the sample experienced an increase in bid-ask spreads following Announcement 3.

Panel B provides results for the cross-sectional analysis. In the regression, the dependent variable is the SPREAD, key explanatory variables are the indicator variable POST, and the interactions between POST and measures of country level institutional strength. Other controls include interactions between POST and LNASSET, BIG4, ownership concentration (OWNERCON), and controls from the stock market, as well as firm fixed effect. The reported estimates of coefficients are standardized. The first salient observation is that the POST indicator variable has a significantly positive coefficient (e.g., estimator=0.4248,  $z=5.53$  in Model (1)),

suggesting an increase bid-ask spreads following the event. Consistent with the abnormal return analysis consistent with the abnormal return analysis, the coefficient for the interaction between POST and home country intuitional strength measure is significant at least at the 10% level (e.g., estimator of coefficient for RULE\_OF\_LAW -0.0462,  $z=-1.75$ ) in Model (1) – Model (5). The loadings on the other two key firm-level corporate governance variables are also consistent with the abnormal return analysis, with the estimator of coefficient for POST×LNASSET equal to -0.1561 ( $t=-2.98$ ) and estimator of POST×BIG4 equal to -0.1469( $t=-3.57$ ) in model (1) for example. Collectively, the evidence suggests that information asymmetry is more severely impacted for companies from countries with weak institutional strength, smaller size and non-big4 auditors.

## **7.2. Dollar amounts of abnormal stock returns**

To quantify the economic consequences of U.S. cross-border oversight enforcement challenges, we translate into dollar amounts the abnormal stock return caused by the announcements. We compute the abnormal dollar returns by multiplying the cumulative abnormal returns with the market value (in U.S. dollar amounts) of the firm as of the day before the return accumulation day. Market value data is from DataStream calculated as the share price multiplied by the number of ordinary shares in issue. Table 10 presents the market value loss and increase caused by the announcements. To more precisely reflect the effect of enforcement challenges, abnormal dollar return calculation is limited to the groups of firms impacted by the announcements.

The first observation from Table 10 is that companies from China and EU countries experienced a much larger loss than those from other countries, aggregating over all the countries. As shown in Panel A, the 122 firms from China experienced a loss of \$21 billion on August 12, 2009, with the average loss for every firm as large as \$170 million. Even more dramatically, on

February 3, 2010, the 262 firms from China and EU countries suffered a total loss of \$96 billion, with an average loss of \$364 million. On May 18, 2010, foreign firms from non-EU countries underwent a total loss of \$39 billion, just because of loss in investor confidence in enforcement of cross-border audit oversight. The large amount of dollar loss following the sequences of announcements suggests that the enforcement of cross-border audit oversight creates economically significant value to cross-listed firms.

As a comparison, the abnormal dollar returns of cross-listed firms are also calculated for the January 10, 2011 announcement. As the first cooperative agreement following the Dodd-Frank Act, this announcement is expected to boost investor confidence, and therefore increasing the value of cross-listed firms. All cross-listed firms satisfying the sampling method are included in the calculation. As reported in Panel A, cross-listed firms went through a total value increase of \$92.85148 billion in the three days following the announcement, with an average value increase of \$139,836,562 for individual firms. Such evidence is consistent with the results from announcements of regulatory breakdown, suggesting that the value of the PCAOB cross-border audit oversight is economically large.

To further specify the valuation implication of the PCAOB cross-border audit oversight on cross-listed firms, Panel B – Panel E provide the names of the top 5 highly impacted firms. The impact is substantial for these individual firms. For example, as documented by Panel B (Announcement 1), China Mobile Ltd experienced a loss as large as \$9.5 billion. Comparison between Panel C (Announcement 2) and Panel E (January 10, 2011 regulatory recovery) reveals that firms most highly impacted by the announcement of regulatory breakdown have overlaps with firms most highly impacted by the announcement of regulatory recovery. For example, BP plc, a company headquartered in the United Kingdom, underwent a value loss of \$4,510,540,033

following the Announcement 2 and had a value increase of \$4,307,539,684 in the three days following the January 10, 2011 announcement. Such symmetric evidence strengthens the inferences from each announcement.

## **8. Conclusion**

Regulators, confined to information within their own borders, can only see a portion, and often a small portion of the risks of an enterprise operating in foreign jurisdictions. Without home country regulators offering local information, U.S. accounting regulators can have difficulties detecting the misconduct of foreign companies. Thus, cross-border cooperation in oversight is particularly important. We show that market participants value the enforcement of U.S. cross-border audit oversight in an economically substantive manner. Additionally, we find evidence that the value of enforcement is lower for firms with fewer agency problems. Collectively, the evidence suggests that the enforcement of U.S. cross-border audit oversight is viewed as a useful governance device. Such evidence contributes to the cross-listing literature by offering direct evidence that U.S. accounting requirements create value for cross-listed companies. In addition, the variations in stock market reaction to different announcements informs regulators that the way information is disclosed indeed affects market reactions.

The capital market consequence of the PCAOB's cross-border audit oversight is particularly relevant to the PCAOB's continuing effort to achieve cooperative agreements with more countries. Following the PCAOB, global regulators have increasingly achieved bilateral agreements or Memorandums of Understanding between audit oversight bodies (e.g., between

Canada and Australia; Canada and Germany).<sup>32</sup> As the pioneer in cross-border cooperation in audit oversight, the experience of the PCAOB is also valuable to foreign regulators.

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<sup>32</sup> The main part of these cooperative agreements is exchange of information and documents between the two regulators, such as audit working papers and inspection and investigation reports. Memorandum of Understanding is not the same as cooperative agreement, but it can be thought as a helpful step to achieve agreement.

Table 1: Summary statistics on U.S. cross border listings

| Panel A: By auditor country |     |       | Panel B: By country of incorporation |     |       | Panel C: By industry         |     |       |
|-----------------------------|-----|-------|--------------------------------------|-----|-------|------------------------------|-----|-------|
| Country                     | N   | %     | Country                              | N   | %     | FF 48 Industry               | N   | %     |
| Argentina                   | 17  | 2.39  | Antigua & Barbuda                    | 1   | 0.14  | Agriculture                  | 3   | 0.42  |
| Australia                   | 7   | 0.98  | Argentina                            | 13  | 1.83  | Aircraft                     | 2   | 0.28  |
| Belgium                     | 2   | 0.28  | Australia                            | 6   | 0.84  | Apparel                      | 4   | 0.56  |
| Bermuda                     | 12  | 1.69  | Bahamas                              | 1   | 0.14  | Automobiles and Trucks       | 10  | 1.40  |
| Brazil                      | 30  | 4.21  | Belgium                              | 1   | 0.14  | Banking                      | 40  | 5.62  |
| Canada                      | 199 | 27.95 | Bermuda                              | 29  | 4.07  | Beer & Liquor                | 3   | 0.42  |
| Chile                       | 13  | 1.83  | Brazil                               | 28  | 3.93  | Business Services            | 82  | 11.52 |
| China                       | 58  | 8.15  | British Virgin                       | 15  | 2.11  | Business Supplies            | 5   | 0.70  |
| Colombia                    | 2   | 0.28  | Canada                               | 155 | 21.77 | Candy & Soda                 | 4   | 0.56  |
| Denmark                     | 2   | 0.28  | Cayman Islands                       | 68  | 9.55  | Chemicals                    | 13  | 1.83  |
| Finland                     | 1   | 0.14  | Channel Islands                      | 5   | 0.70  | Coal                         | 3   | 0.42  |
| France                      | 11  | 1.54  | Chile                                | 13  | 1.83  | Communication                | 68  | 9.55  |
| Germany                     | 10  | 1.40  | China                                | 15  | 2.11  | Computers                    | 10  | 1.40  |
| Greece                      | 22  | 3.09  | Colombia                             | 2   | 0.28  | Construction                 | 7   | 0.98  |
| Hong Kong                   | 74  | 10.39 | Denmark                              | 3   | 0.42  | Construction Materials       | 4   | 0.56  |
| Hungary                     | 2   | 0.28  | Finland                              | 1   | 0.14  | Consumer Goods               | 8   | 1.12  |
| India                       | 14  | 1.97  | France                               | 10  | 1.40  | Drugs                        | 36  | 5.06  |
| Indonesia                   | 2   | 0.28  | Germany                              | 9   | 1.26  | Electrical Equipment         | 12  | 1.69  |
| Ireland                     | 10  | 1.40  | Greece                               | 2   | 0.28  | Electronic Equipment         | 53  | 7.44  |
| Israel                      | 61  | 8.57  | Hong Kong                            | 5   | 0.70  | Entertainment                | 1   | 0.14  |
| Italy                       | 4   | 0.56  | Hungary                              | 1   | 0.14  | Fabricated Products          | 1   | 0.14  |
| Japan                       | 24  | 3.37  | India                                | 12  | 1.69  | Food Products                | 11  | 1.54  |
| Luxembourg                  | 10  | 1.40  | Indonesia                            | 2   | 0.28  | Healthcare                   | 2   | 0.28  |
| Mexico                      | 2   | 0.28  | Ireland                              | 9   | 1.26  | Insurance                    | 28  | 3.93  |
| Netherlands                 | 19  | 2.67  | Israel                               | 54  | 7.58  | Machinery                    | 9   | 1.26  |
| New Zealand                 | 11  | 1.54  | Italy                                | 4   | 0.56  | Measuring and Control Equip. | 3   | 0.42  |
| Nicaragua                   | 1   | 0.14  | Japan                                | 24  | 3.37  | Medical Equipment            | 10  | 1.40  |
| Norway                      | 1   | 0.14  | Liberia                              | 1   | 0.14  | Mining                       | 39  | 5.48  |
| Panama                      | 5   | 0.70  | Luxembourg                           | 6   | 0.84  | Oil                          | 49  | 6.88  |
| Papua New                   | 2   | 0.28  | Marshall Islands                     | 24  | 3.37  | Other                        | 2   | 0.28  |
| Peru                        | 1   | 0.14  | Mexico                               | 19  | 2.67  | Personal Services            | 6   | 0.84  |
| Philippines                 | 2   | 0.28  | Netherlands                          | 13  | 1.83  | Precious Metals              | 37  | 5.20  |
| Portugal                    | 1   | 0.14  | New Zealand                          | 1   | 0.14  | Printing and Publishing      | 6   | 0.84  |
| Russia                      | 1   | 0.14  | Norway                               | 1   | 0.14  | Real Estate                  | 12  | 1.69  |
| Singapore                   | 5   | 0.70  | Panama                               | 2   | 0.28  | Recreation                   | 2   | 0.28  |
| South Africa                | 4   | 0.56  | Papua New Guinea                     | 1   | 0.14  | Retail                       | 9   | 1.26  |
| South Korea                 | 7   | 0.98  | Peru                                 | 1   | 0.14  | Rubber and Plastic Products  | 2   | 0.28  |
| Spain                       | 6   | 0.84  | Philippines                          | 1   | 0.14  | Steel Works Etc              | 13  | 1.83  |
| Sweden                      | 2   | 0.28  | Portugal                             | 1   | 0.14  | Trading                      | 12  | 1.69  |
| Switzerland                 | 6   | 0.84  | Russia                               | 4   | 0.56  | Transportation               | 48  | 6.74  |
| Taiwan                      | 9   | 1.26  | Singapore                            | 2   | 0.28  | Transportation               | 7   | 0.98  |
| Turkey                      | 1   | 0.14  | South Africa                         | 6   | 0.84  | Utilities                    | 20  | 2.81  |
| United Kingdom              | 39  | 5.48  | South Korea                          | 10  | 1.40  | Wholesale                    | 16  | 2.25  |
|                             |     |       | Spain                                | 5   | 0.70  |                              |     |       |
|                             |     |       | Sweden                               | 1   | 0.14  |                              |     |       |
|                             |     |       | Switzerland                          | 6   | 0.84  |                              |     |       |
|                             |     |       | Taiwan                               | 2   | 0.28  |                              |     |       |
|                             |     |       | Turkey                               | 1   | 0.14  |                              |     |       |
|                             |     |       | United Kingdom                       | 28  | 3.93  |                              |     |       |
|                             |     |       | United States                        | 88  | 12.36 |                              |     |       |
| Total                       | 712 | 100   | Total                                | 712 | 100   | Total                        | 712 | 100   |

**Table 2: Cross-sectional distribution of cumulative abnormal returns for cross-listed stocks**

Table 2 presents the summary statistics of average cumulative three-day abnormal returns for all cross-listed stocks that satisfying the sampling method. To be included in the subsamples for each event, the firm needs to have filed with the SEC financial statements audited by a foreign auditor during the 15 months before the event date, and the firm's stock price is at least 1 dollar during this period. In addition, the firm needs to be headquartered in a non-U.S. country.

Abnormal returns are calculated using the expected return estimation model as below:

$$R_{i,t} = \alpha_i + \beta_i R_{s\&p500,t} ;$$

where, on day  $t$ ,  $R_{it}$  is the return to firm  $i$ ;  $R_{s\&p500,t}$  is the return to the Standard & Poor 500 Index. Test statistic is a modified version of the widely used t-statistic of Boehmer, Musumeci, and Poulsen (BMP, 1991), as proposed by Kolari and Pynnonen (2010). This new statistic takes event-induced variance into account while adjusting for cross-sectional correlation.

| Event             | Mean    | St. Dev | t-stat.  | P1      | P25     | P50     | P75    | P99    |
|-------------------|---------|---------|----------|---------|---------|---------|--------|--------|
| December 04, 2008 | 0.0015  | 0.0854  | 0.166    | -0.2637 | -0.0362 | 0.0001  | 0.039  | 0.2351 |
| April 07, 2009    | 0.0129  | 0.0669  | 0.587    | -0.1603 | -0.0184 | 0.0049  | 0.0403 | 0.2222 |
| June 25, 2009     | 0.0022  | 0.0566  | 0.166    | -0.1397 | -0.0242 | -0.0010 | 0.0223 | 0.1926 |
| August 12, 2009   | 0.0048  | 0.0541  | 0.609    | -0.1443 | -0.0186 | 0.0026  | 0.0242 | 0.1869 |
| February 03, 2010 | -0.0136 | 0.0428  | -1.463   | -0.1286 | -0.0378 | -0.0124 | 0.0063 | 0.1277 |
| May 18, 2010      | -0.0226 | 0.0420  | -2.094** | -0.1365 | -0.0488 | -0.0167 | 0.0035 | 0.0703 |
| January 10, 2011  | 0.0093  | 0.0340  | 1.039    | -0.0653 | -0.0099 | 0.0043  | 0.0248 | 0.1031 |

**Table 3: Announcement 3 (May 18, 2010), stock market reactions**

Table 3 presents abnormal returns for the May 18, 2010 event, the primary disclosure that goes to the client level. On May 18, 2010, the PCAOB for the first time published a name list of companies by countries denying the PCAOB access to information need for U.S. cross-border audit inspection. The mentioned countries are China, Hong Kong area (to the extent that audit clients have operations in mainland China), Norway, Switzerland, Austria, Belgium, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Luxembourg, Netherlands, Poland, Portugal, Spain, Sweden, and United Kingdom.

Non-mentioned foreign countries in the sample are hiring auditors from Argentina, Australia, Bermuda, Brazil, Canada, Chile, Columbia, India, Indonesia, Israel, Japan, South Korea, Mexico, New Zealand, Panama, Papua New Guinea, Peru, Philippines, Russia, Singapore, South Africa, Taiwan (China), and Turkey. We classify these countries as “others”.

Panel A- Panel G provide the mean of daily and cumulative abnormal returns calculated across the three expected return models.

$$R_{i,t} = \alpha_i + \beta_i R_{m,t} + s_i SMB_t + h_i HML_t + \varepsilon_i \quad (1)$$

$$R_{i,t} = \alpha_i + \beta_i R_{m,t} + \varepsilon_i \quad (2)$$

$$R_{i,t} = \alpha_i + \beta_i R_{s\&p500,t} + \varepsilon_i \quad (3)$$

where, on Day  $t$ ,  $R_{it}$  is the return to firm  $i$ ;  $R_{m,t}$  is the return on the value weighted CRSP market index; and  $SMB_t$  and  $HML_t$ , are the returns to the small-minus-big (SMB) and high-minus-low (HML) portfolios meant to capture size and book-to-market;  $R_{s\&p500,t}$  is the return to the U.S. S&P 500 Index. Day 0 is May 18, 2010. Panel A- Panel G provides the abnormal returns across the three expected return models for various company groups. Panel H compares the abnormal return between groups. \*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% level for a two-tailed test, respectively.

Panel A: May 18, 2010, companies with principal auditors from China and Hong Kong

| Day     | N   | FF factor |          | Market value weighed |           | S&P 500 |           |
|---------|-----|-----------|----------|----------------------|-----------|---------|-----------|
|         |     | Return    | t-stat.  | Return               | t-stat.   | Return  | t-stat.   |
| -1      | 122 | -1.74%    | -2.564** | -1.80%               | -2.652*** | -1.81%  | -2.576*** |
| 0       | 121 | 0.48%     | 0.796    | 0.46%                | 0.759     | 0.44%   | 0.716     |
| +1      | 121 | -1.17%    | -1.688*  | -1.35%               | -1.882*   | -1.48%  | -2.003**  |
| +2      | 116 | -0.01%    | -0.029   | 0.06%                | 0.031     | -0.07%  | -0.109    |
| +3      | 121 | 0.78%     | 0.841    | 0.96%                | 0.882     | 0.88%   | 0.762     |
| (-1,+1) | 124 | -2.38%    | -1.669*  | -2.64%               | -1.887*   | -2.80%  | -1.944*   |
| (-1,+2) | 124 | -2.40%    | -1.365   | -2.58%               | -1.506    | -2.87%  | -1.634    |
| (-1,+3) | 124 | -1.63%    | -0.920   | -1.64%               | -1.016    | -2.01%  | -1.210    |

Panel B: May 18, 2010, companies with auditors from Norway, Switzerland and EU

| Day     | N   | FF factor |         | Market value weighed |         | S&P 500 |         |
|---------|-----|-----------|---------|----------------------|---------|---------|---------|
|         |     | Return    | t-stat. | Return               | t-stat. | Return  | t-stat. |
| -1      | 134 | -0.42%    | -0.901  | -0.52%               | -0.997  | -0.53%  | -1.017  |
| 0       | 134 | -0.20%    | -0.484  | -0.21%               | -0.485  | -0.20%  | -0.454  |
| +1      | 133 | -0.02%    | 0.441   | 0.04%                | 0.589   | -0.11%  | 0.371   |
| +2      | 132 | 0.20%     | 0.644   | 0.35%                | 0.754   | 0.25%   | 0.642   |
| +3      | 133 | 0.35%     | 0.314   | 0.56%                | 0.592   | 0.46%   | 0.394   |
| (-1,+1) | 134 | -0.64%    | -0.399  | -0.68%               | -0.339  | -0.84%  | -0.478  |
| (-1,+2) | 134 | -0.44%    | 0.032   | -0.34%               | 0.119   | -0.59%  | -0.026  |
| (-1,+3) | 134 | -0.09%    | 0.143   | 0.22%                | 0.310   | -0.13%  | 0.116   |

Panel C: May 18, 2010, companies with principal auditors from other countries

| Day     | N   | FF factor |           | Market value weighed |           | S&P 500 |           |
|---------|-----|-----------|-----------|----------------------|-----------|---------|-----------|
|         |     | Return    | t-stat.   | Return               | t-stat.   | Return  | t-stat.   |
| -1      | 393 | -1.45%    | -2.690*** | -1.52%               | -2.871*** | -1.54%  | -2.804*** |
| 0       | 393 | 0.30%     | 0.679     | 0.29%                | 0.657     | 0.30%   | 0.641     |
| +1      | 392 | -1.24%    | -1.816*   | -1.23%               | -1.786*   | -1.35%  | -1.973**  |
| +2      | 387 | -0.11%    | -0.046    | 0.01%                | 0.195     | -0.08%  | 0.027     |
| +3      | 395 | 0.12%     | 0.155     | 0.26%                | 0.383     | 0.18%   | 0.203     |
| (-1,+1) | 396 | -2.36%    | -2.294**  | -2.44%               | -2.409**  | -2.57%  | -2.491**  |
| (-1,+2) | 396 | -2.47%    | -1.891*   | -2.42%               | -1.846*   | -2.65%  | -2.004**  |
| (-1,+3) | 396 | -2.36%    | -1.749*   | -2.17%               | -1.612    | -2.47%  | -1.858*   |

**Table 4: Announcement 1 (August 12, 2009), stock market reactions**

Table 4 presents the abnormal returns for the days surrounding August 12, 2009. On August 12, 2009, the PCAOB published a list of audit firms that were not yet inspected even though four years have passed since issuance of an audit report while registered (i.e. audit firms that experienced inspection delays). This list contains 18 audit firms and 9 jurisdictions. The 9 mentioned jurisdictions of the mentioned audit firms are China, France, Germany, Israel, Netherlands, Portugal, Sweden, and Switzerland. S&P 500 index is used as the benchmark in the expected return estimation model. The PCAOB did not mention reason for the day in this announcement. August 12, 2009 is day 0. Panel A – Panel E provide the abnormal returns by mentioned/others or by regions. \*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% level for a two-tailed test, respectively.

| Day     | China and Hong Kong         |          |                               |         | Norway, Switzerland and EU |         |                                |         | Others |         |
|---------|-----------------------------|----------|-------------------------------|---------|----------------------------|---------|--------------------------------|---------|--------|---------|
|         | On the PCAOB list<br>(N=35) |          | Not on the PCAOB list<br>N=84 |         | On the PCAOB list<br>N=28  |         | Not on the PCAOB list<br>N=110 |         | N=431  |         |
|         | Return                      | t-stat.  | Return                        | t-stat. | Return                     | t-stat. | Return                         | t-stat. | Return | t-stat. |
| -1      | -0.86%                      | -0.638   | -0.40%                        | -0.302  | -0.65%                     | -0.543  | -0.35%                         | -0.056  | -0.41% | -0.443  |
| 0       | -0.81%                      | -0.446   | -0.72%                        | -0.663  | 1.33%                      | 1.301   | 0.12%                          | 0.168   | 0.45%  | 0.615   |
| +1      | -1.91%                      | -1.116   | -0.67%                        | -0.318  | 1.26%                      | 0.751   | 0.96%                          | 1.031   | 0.64%  | 0.899   |
| +2      | -0.60%                      | -0.637   | -0.87%                        | -0.553  | -0.05%                     | -0.266  | 0.03%                          | -0.002  | -0.43% | -0.376  |
| +3      | -2.52%                      | -1.724*  | -2.34%                        | -2.280* | -0.18%                     | -0.298  | -1.21%                         | -1.169  | -1.28% | -1.216  |
| (-1,+1) | -3.53%                      | -1.223   | -1.76%                        | -0.780  | 1.93%                      | 1.325   | 0.74%                          | 0.887   | 0.68%  | 0.630   |
| (+1,+2) | -2.51%                      | -1.470   | -1.51%                        | -0.639  | 1.21%                      | 0.343   | 0.99%                          | 0.728   | 0.21%  | 0.414   |
| (+1,+3) | -4.95%                      | -2.122** | -3.81%                        | -1.713* | 1.03%                      | 0.108   | -0.21%                         | -0.081  | -1.06% | -0.483  |

**Table 5: Announcement 2 (February 03, 2010), stock market reactions**

Table 5 presents the abnormal returns for the days surrounding February 03, 2010. On February 03, 2010, the PCAOB published an updated list of audit firms that experienced inspection delays. There are 25 jurisdictions on the February 3, 2010 audit name list. The 25 jurisdictions cover the 21 jurisdictions in the May 18, 2010 list. For the first time, the PCAOB mentioned in the news release that access to local audit information is denied by certain jurisdictions. But the PCAOB did not explicitly indicate that denial of access to information is the reason for the delays. S&P 500 index is used as the benchmark in the expected return estimation model. February 03, 2010 is day 0. Panel A – Panel E provide the abnormal returns by mentioned/others or by regions. \*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% level for a two-tailed test, respectively.

| Day     | China and Hong Kong       |          |                               |           | Norway, Switzerland and EU |           |                               |          | Others |         |
|---------|---------------------------|----------|-------------------------------|-----------|----------------------------|-----------|-------------------------------|----------|--------|---------|
|         | On the PCAOB list<br>N=81 |          | Not on the PCAOB list<br>N=46 |           | On the PCAOB list<br>N=70  |           | Not on the PCAOB list<br>N=74 |          | N=431  |         |
|         | Return                    | t-stat.  | Return                        | t-stat.   | Return                     | t-stat.   | Return                        | t-stat.  | Return | t-stat. |
| -1      | 0.08%                     | 0.047    | 1.67%                         | 1.343     | 0.32%                      | 0.439     | 0.27%                         | 0.178    | -0.36% | -0.631  |
| 0       | 0.60%                     | 0.681    | 0.87%                         | 1.237     | -0.32%                     | -0.81     | -0.29%                        | -0.622   | -0.20% | -0.432  |
| +1      | -1.75%                    | -2.193** | -2.60%                        | -2.057**  | -1.08%                     | -1.759*   | -0.80%                        | -0.986   | -0.81% | -0.953  |
| +2      | 0.14%                     | -0.206   | -0.57%                        | -0.583    | -1.54%                     | -2.522**  | -1.16%                        | -2.150** | -0.02% | -0.262  |
| +3      | -0.22%                    | -0.217   | -0.35%                        | 0.303     | -0.04%                     | 0.042     | -0.44%                        | -0.599   | 0.21%  | 0.309   |
| (-1,+1) | -1.07%                    | -0.643   | -0.81%                        | -0.824    | -1.08%                     | -1.353    | -0.81%                        | -0.824   | -1.35% | -1.035  |
| (+1,+2) | -1.61%                    | -1.861*  | -3.17%                        | -2.288**  | -2.62%                     | -3.267*** | -1.95%                        | -1.955*  | -0.82% | -0.912  |
| (+1,+3) | -1.83%                    | -1.586   | -3.52%                        | -3.230*** | -2.66%                     | -3.056*** | -2.40%                        | -2.153** | -0.61% | -0.562  |

**Table 6: January 10, 2011, stock market reactions**

Table 6 provides the abnormal returns for the days surrounding January 10, 2011. On January 10, 2011, the PCAOB published a news release indicating that it entered into cooperative agreement with the United Kingdom audit regulators. On the same day, the cooperative agreement was published at the PCAOB website. S&P 500 index is used as the benchmark in the expected return estimation model. January 10, 2011 is day 0. Abnormal returns for firms with auditors located in UK and for firms with auditors located in other countries are provided in groups. \*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% level for a two-tailed test, respectively.

| Day      | UK (N=38) |         | Others (N=626) |         |
|----------|-----------|---------|----------------|---------|
|          | Return    | t-stat. | Return         | t-stat. |
| -1       | -0.02%    | 0.076   | -0.15%         | -0.407  |
| 0        | 0.12%     | 0.273   | 0.08%          | 0.010   |
| 1        | 0.25%     | 0.376   | 0.71%          | 1.600   |
| 2        | 0.38%     | 0.554   | 0.17%          | 0.579   |
| 3        | 0.52%     | 1.140   | -0.10%         | 0.029   |
| (-1,+1)  | 0.35%     | 0.488   | 0.63%          | 0.713   |
| (+1, +2) | 0.63%     | 0.614   | 0.87%          | 1.497   |
| (+1, +3) | 1.13%     | 1.083   | 0.77%          | 1.114   |

**Table 7: Summary statistics and correlation for variables for cross-sectional analysis**

Table 7 Panel A presents the summary statistics for variables in the May 18, 2010 cross-sectional analysis. LNASSET is the natural logarithm of total assets. MB is the ratio of the market value of total assets to book value of total assets; LEVERAGE is the ratio of total liabilities to total assets; SALEGRW is the net revenue growth over the past year; CFO is cash flow from operating scaled by total assets; OWNERCON is the total percentage of shares owned by owners with more than five percent of total shares outstanding; BIG4 is an indicator variable which equals to 1 if the firm hires a big 4 auditor, and 0 otherwise; AGE is the year 2010 minus the year the firm was founded; FOREIGNSUM is the total number of foreign countries the firm is listed in; LNGDP is the natural logarithm of the home country's per capita GDP expressed in current US dollars as retrieved from World Bank Development Indicators; RULE\_OF\_LAW is an index capturing the perceived influence and authority of laws for a country, as obtained from World Bank Governance Indicators; JUDICIAL measures the efficiency of a country's legal system; AUDIT is an index measuring the extent to which auditors are likely to comply with the auditing standard and accounting standard, as constructed by Preiato, Brown and Tarca (2013); DISCLOSURE is index of disclosures required in periodic disclosures (e.g., annual reports), with higher scores representing higher disclosure requirements, as constructed by Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2008); FRENCH\_OR is 1 if the home country's legal regime is based on French law, and to 0 otherwise. Firms in the financial industry are dropped (SIC between 6000 and 6999). Detailed variable definition and data source is in Appendix A.

*Panel A: Summary statistics of variables in the cross-sectional analysis*

| Variable    | Mean  | Std Dev | P1    | P25   | P50   | P75   | P99    |
|-------------|-------|---------|-------|-------|-------|-------|--------|
| LNASSET     | 6.99  | 2.32    | 2.66  | 5.23  | 6.87  | 8.71  | 11.79  |
| MB          | 1.66  | 0.92    | 0.63  | 1.02  | 1.39  | 1.98  | 5.46   |
| LEVERAGE    | 0.12  | 0.14    | 0.00  | 0.00  | 0.07  | 0.20  | 0.59   |
| SALEGRW     | 0.09  | 0.42    | -0.59 | -0.15 | 0.02  | 0.24  | 2.29   |
| CAPEX       | 0.25  | 0.20    | 0.01  | 0.11  | 0.19  | 0.32  | 0.94   |
| CFO         | 0.08  | 0.12    | -0.45 | 0.04  | 0.09  | 0.14  | 0.33   |
| R&D         | 0.02  | 0.05    | 0.00  | 0.00  | 0.00  | 0.01  | 0.33   |
| OWNERCON    | 0.44  | 0.32    | 0.00  | 0.20  | 0.41  | 0.63  | 1.00   |
| BIG4        | 0.84  | 0.36    | 0.00  | 1.00  | 1.00  | 1.00  | 1.00   |
| AGE         | 32.92 | 29.46   | 4.00  | 12.00 | 22.00 | 44.00 | 130.00 |
| CROSS       | 0.61  | 0.49    | 0     | 0     | 0     | 1     | 1      |
| SINGLE      | 0.07  | 0.26    | 1     | 0     | 0     | 0     | 0      |
| LNGDP       | 9.78  | 0.98    | 7.05  | 9.03  | 10.33 | 10.59 | 10.59  |
| RULE_OF_LAW | 0.91  | 0.91    | -0.77 | -0.22 | 1.30  | 1.81  | 1.81   |
| JUDICIAL    | 4.11  | 0.97    | 2.33  | 2.98  | 4.58  | 5.00  | 5.00   |
| AUDIT       | 24.41 | 7.85    | 4.00  | 21.00 | 26.00 | 32.00 | 32.00  |
| DISCLOSURE  | 0.83  | 0.28    | 0.00  | 0.80  | 1.00  | 1.00  | 1.00   |
| FRENCH_OR   | 0.26  | 0.44    | 0.00  | 0.00  | 0.00  | 1.00  | 1.00   |

**Table 7 (con'd)**Panel B: *Pearson and Spearman correlation matrix of variables in the cross-sectional analysis*

|             |      | (1)   | (2)   | (3)   | (4)   | (5)   | (6)   | (7)   | (8)   | (9)   | (10)  | (11)  | (12)  | (13)  | (14)  | (15)  | (16)  |
|-------------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| LNASSET     | (1)  | 1.00  | -0.18 | 0.51  | -0.02 | -0.28 | 0.09  | -0.19 | 0.24  | 0.44  | 0.62  | 0.05  | 0.01  | 0.03  | -0.11 | -0.25 | 0.08  |
| MB          | (2)  | -0.25 | 1.00  | -0.21 | 0.38  | 0.25  | 0.33  | 0.04  | -0.01 | -0.11 | -0.00 | 0.02  | 0.07  | 0.03  | 0.09  | 0.08  | 0.09  |
| LEVERAGE    | (3)  | 0.36  | -0.20 | 1.00  | -0.04 | -0.30 | 0.02  | -0.07 | 0.10  | 0.23  | 0.31  | 0.03  | -0.01 | -0.00 | -0.10 | -0.14 | 0.07  |
| SALEGRW     | (4)  | -0.07 | 0.33  | -0.02 | 1.00  | 0.06  | 0.16  | 0.12  | -0.04 | 0.04  | 0.05  | -0.13 | -0.07 | -0.15 | -0.12 | -0.08 | 0.25  |
| CAPEXP      | (5)  | -0.28 | 0.20  | -0.22 | 0.04  | 1.00  | 0.07  | -0.03 | -0.06 | -0.21 | -0.11 | -0.05 | -0.05 | -0.07 | 0.01  | 0.02  | -0.03 |
| CFO         | (6)  | 0.17  | 0.21  | 0.04  | 0.06  | -0.04 | 1.00  | 0.10  | 0.06  | -0.01 | 0.04  | -0.07 | -0.03 | -0.04 | -0.06 | -0.01 | 0.06  |
| OWNERCON    | (7)  | -0.16 | 0.02  | -0.01 | 0.08  | -0.01 | 0.05  | 1.00  | -0.10 | -0.20 | -0.22 | -0.53 | -0.48 | -0.49 | -0.49 | -0.21 | 0.38  |
| BIG4        | (8)  | 0.22  | 0.01  | 0.08  | -0.07 | -0.07 | 0.01  | -0.07 | 1.00  | 0.10  | 0.21  | -0.01 | -0.03 | 0.04  | -0.04 | -0.05 | 0.06  |
| AGE         | (9)  | 0.49  | -0.13 | 0.11  | 0.03  | -0.21 | 0.02  | -0.16 | 0.11  | 1.00  | 0.38  | 0.13  | 0.05  | 0.09  | -0.10 | -0.12 | -0.04 |
| FOREIGNSUM  | (10) | 0.59  | -0.06 | 0.16  | 0.03  | -0.13 | 0.05  | -0.14 | 0.16  | 0.30  | 1.00  | 0.16  | 0.11  | 0.09  | 0.01  | -0.14 | -0.03 |
| LNGDP       | (11) | 0.01  | -0.04 | -0.02 | -0.13 | -0.00 | -0.10 | -0.40 | -0.09 | 0.03  | 0.07  | 1.00  | 0.94  | 0.94  | 0.90  | 0.64  | -0.74 |
| RULE_OF_LAW | (12) | -0.01 | 0.03  | -0.06 | -0.09 | -0.02 | -0.08 | -0.40 | -0.06 | 0.03  | 0.04  | 0.91  | 1.00  | 0.94  | 0.92  | 0.75  | -0.68 |
| JUDICIAL    | (13) | -0.05 | 0.01  | -0.05 | -0.14 | -0.04 | -0.07 | -0.35 | -0.01 | 0.02  | -0.05 | 0.87  | 0.92  | 1.00  | 0.87  | 0.69  | -0.70 |
| AUDIT       | (14) | -0.15 | 0.08  | -0.15 | -0.13 | 0.09  | -0.11 | -0.41 | -0.08 | -0.22 | -0.06 | 0.76  | 0.77  | 0.68  | 1.00  | 0.68  | -0.69 |
| DISCLOSURE  | (15) | -0.24 | 0.08  | -0.21 | -0.14 | 0.08  | -0.08 | -0.23 | 0.00  | -0.15 | -0.22 | 0.61  | 0.79  | 0.80  | 0.64  | 1.00  | -0.66 |
| FRENCH_OR   | (16) | 0.07  | 0.07  | 0.07  | 0.19  | -0.02 | 0.06  | 0.34  | 0.06  | 0.05  | -0.01 | -0.85 | -0.75 | -0.80 | -0.70 | -0.61 | 1.00  |

### **Table 8: Cross-sectional analysis for Announcement 3 (May 18, 2010)**

Table 8 presents the results of the cross-sectional regression for Announcement 3. Dependent variable is individual firms' cumulative abnormal returns of the three days surrounding May 18, 2010. *RULE\_OF\_LAW* is the World Bank governance index (Kaufmann et al., 2010), which reflects perceptions of the extent to which agents have confidence in and abide by the rules of society. *JUDICIAL* measures the efficiency of a country's legal system. *FRENCH\_OR* is 1 if the home country's legal regime is based on French law, and 0 otherwise. *AUDIT* is an index measuring the extent to which auditors are likely to comply with the auditing standard and accounting standard, as constructed by Preiato, Brown and Tarca (2013). *LNGDP* is the natural logarithm of the home country's per capita GDP expressed in current US dollars as retrieved from World Bank Development Indicators. *DISCLOSURE* is index of disclosures required in periodic disclosures (e.g., annual reports), with higher scores representing higher disclosure requirements, as constructed by Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2008). *LNASSET* is the natural logarithm of total assets. *BIG4* is an indicator variable which equals to 1 if the firm hires a big 4 auditor, and 0 otherwise. *OWNERCON* is the total percentage of shares owned by owners with more than five percent of total shares outstanding. *OWNERCON2* is the square of *OWNERCON*. *USGAAP* is 1 if the financial statement follows the United States General Accepted Accounting Principles, and 0 otherwise. *AGE* is the year 2010 minus the year the firm was founded. *MB* is the ratio of the market value of total assets to book value of total assets. *LEVERAGE* is the ratio of total liabilities to total assets. *SALEGRW* is the net revenue growth over the past year. *CFO* is cash flow from operating scaled by total assets. *CAPEX* is capital expenditure scaled by total assets. *FOREIGN\_SALE* IS the percentage of the company's sales from foreign operations. *CHINA* is a dummy variable equal to 1 if the company hires an audit firm from China, and 0 otherwise. *CROSS* is a dummy variable equal to 1 if the company has both home listing and US listing, and 0 otherwise. *SINGALE* is an indicator variable equal to 1 if the company only has US listing, with either home listing or other foreign listings, and 0 otherwise. All financial statement data are measured as of the end of fiscal year 2009. Financial statement data are trimmed at 1% and 99%. The indexes are as of the year that is closest prior to year 2010, among all the available years. Firms in the financial industry are dropped (SIC between 6000 and 6999). Detailed data source is in Appendix A. \*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% level for a two-tailed test, respectively.

Panel A: Abnormal returns and institutional characteristics

| Independent variables | Dependent variable is CAR (-1, +1) |                            |                              |                           |                            |                            |
|-----------------------|------------------------------------|----------------------------|------------------------------|---------------------------|----------------------------|----------------------------|
|                       | (1)                                | (2)                        | (3)                          | (4)                       | (5)                        | (6)                        |
| <b>RULE_OF_LAW</b>    | <b>0.1290***</b><br>[4.40]         |                            |                              |                           |                            |                            |
| <b>JUDICAL</b>        |                                    | <b>0.1268***</b><br>[6.53] |                              |                           |                            |                            |
| <b>FRENCH_OR</b>      |                                    |                            | <b>-0.1105***</b><br>[-5.47] |                           |                            |                            |
| <b>AUDIT</b>          |                                    |                            |                              | <b>0.0934**</b><br>[2.54] |                            |                            |
| <b>LNGDP</b>          |                                    |                            |                              |                           | <b>0.1464***</b><br>[4.69] |                            |
| <b>DISCLOSURE</b>     |                                    |                            |                              |                           |                            | <b>0.0990***</b><br>[3.79] |
| LNASSET               | 0.1623**<br>[2.12]                 | 0.1924**<br>[2.53]         | 0.1538*<br>[2.02]            | 0.1537*<br>[1.96]         | 0.1593**<br>[2.22]         | 0.1743**<br>[2.19]         |
| BIG4                  | 0.1542**<br>[2.39]                 | 0.1188**<br>[2.13]         | 0.1481**<br>[2.40]           | 0.1415*<br>[1.98]         | 0.1557**<br>[2.49]         | 0.1291*<br>[1.83]          |
| OWNERCON              | 0.1708**<br>[2.27]                 | 0.1797**<br>[2.50]         | 0.1354*<br>[1.91]            | 0.1548*<br>[1.99]         | 0.1830**<br>[2.44]         | 0.1342*<br>[1.81]          |
| OWNERCON2             | -0.0499<br>[-1.31]                 | -0.0584<br>[-1.65]         | -0.0285<br>[-0.71]           | -0.0431<br>[-1.06]        | -0.0593<br>[-1.64]         | -0.0277<br>[-0.67]         |
| USGAAP                | 0.1305***<br>[3.01]                | 0.1323***<br>[3.38]        | 0.1091**<br>[2.58]           | 0.1062**<br>[2.29]        | 0.1141***<br>[3.10]        | 0.1069**<br>[2.32]         |
| AGE                   | 0.1550***<br>[3.18]                | 0.1702***<br>[3.18]        | 0.1762***<br>[3.83]          | 0.1679***<br>[3.42]       | 0.1619***<br>[3.54]        | 0.1608***<br>[3.18]        |
| MB                    | -0.0651<br>[-1.59]                 | -0.0832*<br>[-2.08]        | -0.0534<br>[-1.32]           | -0.0685<br>[-1.71]        | -0.0622<br>[-1.51]         | -0.0634<br>[-1.70]         |
| LEVERAGE              | -0.0788<br>[-1.20]                 | -0.0953<br>[-1.48]         | -0.0649<br>[-0.96]           | -0.0809<br>[-1.14]        | -0.0802<br>[-1.24]         | -0.074<br>[-1.08]          |
| SALEGRW               | 0.0311<br>[0.93]                   | 0.0344<br>[1.13]           | 0.0401<br>[1.16]             | 0.0322<br>[1.02]          | 0.0349<br>[1.06]           | 0.0406<br>[1.25]           |
| CFO                   | 0.0629<br>[1.52]                   | 0.0328<br>[1.06]           | 0.055<br>[1.39]              | 0.0673<br>[1.61]          | 0.0651<br>[1.59]           | 0.0558<br>[1.41]           |
| CAPEX                 | -0.0722<br>[-1.02]                 | -0.0776<br>[-1.01]         | -0.0769<br>[-1.10]           | -0.077<br>[-1.09]         | -0.0724<br>[-1.02]         | -0.0751<br>[-1.07]         |
| FOREIGN_SALE          | -0.0432<br>[-0.82]                 | -0.0788*<br>[-2.07]        | -0.0509<br>[-1.06]           | -0.0438<br>[-0.85]        | -0.0357<br>[-0.59]         | -0.0465<br>[-0.93]         |
| CHINA                 | 0.0305<br>[1.11]                   | 0.0269<br>[0.97]           | 0.0648**<br>[2.11]           | 0.0179<br>[0.61]          | 0.0541***<br>[2.86]        | 0.0173<br>[0.52]           |
| N                     | 346                                | 324                        | 346                          | 343                       | 346                        | 345                        |
| adj. R-sq             | 0.0795                             | 0.0883                     | 0.0756                       | 0.0698                    | 0.0833                     | 0.0732                     |

Standard errors are clustered by country

Panel B: *Abnormal returns and listing status*

| Independent variable | Dependent variable is CAR(-1,+1) |               |                |                |               |                |
|----------------------|----------------------------------|---------------|----------------|----------------|---------------|----------------|
|                      | (1)                              | (2)           | (3)            | (4)            | (5)           | (6)            |
| <b>CROSS</b>         | <b>-0.0028</b>                   |               | <b>-0.0025</b> | <b>-0.0052</b> |               | <b>-0.0043</b> |
|                      | <b>[-0.63]</b>                   |               | <b>[-0.54]</b> | <b>[-1.04]</b> |               | <b>[-0.96]</b> |
| <b>SINGLE</b>        |                                  | <b>0.0037</b> | <b>0.0025</b>  |                | <b>0.0056</b> | <b>0.0043</b>  |
|                      |                                  | <b>[0.43]</b> | <b>[0.27]</b>  |                | <b>[0.69]</b> | <b>[0.52]</b>  |
| LNASSET              |                                  |               |                | 0.0034**       | 0.0032**      | 0.0034**       |
|                      |                                  |               |                | [2.33]         | [2.19]        | [2.33]         |
| BIG4                 |                                  |               |                | 0.0213**       | 0.0212**      | 0.0212**       |
|                      |                                  |               |                | [2.41]         | [2.39]        | [2.41]         |
| RULE_OF_LAW          |                                  |               |                | 0.0052***      | 0.0051***     | 0.0052***      |
|                      |                                  |               |                | [4.43]         | [4.37]        | [4.41]         |
| OWNERCON             |                                  |               |                | 0.0209**       | 0.0217**      | 0.0208**       |
|                      |                                  |               |                | [2.15]         | [2.18]        | [2.11]         |
| OWNERCON2            |                                  |               |                | -0.0028        | -0.0031       | -0.0027        |
|                      |                                  |               |                | [-1.12]        | [-1.20]       | [-1.08]        |
| USGAAP               |                                  |               |                | 0.0097**       | 0.0106**      | 0.0096*        |
|                      |                                  |               |                | [2.09]         | [2.71]        | [2.04]         |
| AGE                  |                                  |               |                | 0.0002***      | 0.0002***     | 0.0002***      |
|                      |                                  |               |                | [3.12]         | [3.23]        | [3.16]         |
| MB                   |                                  |               |                | -0.0033        | -0.0031       | -0.0032        |
|                      |                                  |               |                | [-1.61]        | [-1.57]       | [-1.60]        |
| LEVERAGE             |                                  |               |                | -0.0244        | -0.0239       | -0.0247        |
|                      |                                  |               |                | [-1.32]        | [-1.26]       | [-1.35]        |
| SALEGRW              |                                  |               |                | 0.0037         | 0.0032        | 0.0036         |
|                      |                                  |               |                | [1.05]         | [0.95]        | [1.07]         |
| CFO                  |                                  |               |                | 0.0232         | 0.0252        | 0.0239         |
|                      |                                  |               |                | [1.39]         | [1.55]        | [1.44]         |
| CAPEX                |                                  |               |                | -0.0154        | -0.0159       | -0.0154        |
|                      |                                  |               |                | [-0.99]        | [-1.00]       | [-0.98]        |
| FOREIGNSALE          |                                  |               |                | -0.0045        | -0.0045       | -0.0043        |
|                      |                                  |               |                | [-0.76]        | [-0.75]       | [-0.71]        |
| CHINA                |                                  |               |                | 0.0004         | 0.0031        | 0.0009         |
|                      |                                  |               |                | [0.14]         | [1.15]        | [0.35]         |
| INTERCEPT            | -0.0277***                       | -0.0280***    | -0.0280***     | -0.0838***     | -0.0879***    | -0.0852***     |
|                      | [-17.78]                         | [-12.89]      | [-12.89]       | [-4.70]        | [-4.93]       | [-4.78]        |
| N                    | 425                              | 425           | 425            | 346            | 346           | 346            |
| adj. R-sq            | -0.0013                          | -0.0035       | -0.0035        | 0.0782         | 0.0778        | 0.076          |

Standard errors are clustered by country

**Table 9: Analysis of change in perceived information asymmetry**

Table 9 presents the results of analysis for change in perceived information asymmetry as proxied by bid-ask spread. Bid-ask spread (SPREAD) is the difference between closing ask price and bid price scaled by the average of ask and bid prices. For each observations, the pre period bid-ask spread is measured as the mean of the three months daily average in the pre-announcement period, specifically, as the mean between February 7, 2010 and May 07, 2010. The post-announcement spread is calculated as the daily mean between June 1, 2010 and September 1, 2010. POST is an indicator variable equal to 1 for the pre-disclosure period, and 0 for the post-announcement period. RULE\_OF\_LAW is the World Bank governance index (Kaufmann et al., 2010), which reflects perceptions of the extent to which agents have confidence in and abide by the rules of society. JUDICIAL measures the efficiency of a country's legal system. FRENCH\_OR is 1 if the home country's legal regime is based on French law, and 0 otherwise. AUDIT is an index measuring the extent to which auditors are likely to comply with the auditing standard and accounting standard, as constructed by Preiato, Brown and Tarca (2013). LNGDP is the natural logarithm of the home country's per capita GDP expressed in current US dollars as retrieved from World Bank Development Indicators. DISCLOSURE is index of disclosures required in periodic disclosures (e.g., annual reports), with higher scores representing higher disclosure requirements, as constructed by Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2008). LNASSET is the natural logarithm of total assets. BIG4 is an indicator variable which equals to 1 if the firm hires a big 4 auditor, and 0 otherwise. OWNERCON is the total percentage of shares owned by owners with more than five percent of total shares outstanding. OWNERCON2 is the square of OWNERCON. The indexes are as of the year that is closest prior to year 2010, among all the available years. Firms in the financial industry are dropped (SIC between 6000 and 6999). RET is the average daily stock return during the corresponding period. TURNOVER is the average daily dollar trading volume during the corresponding period. Detailed data source is in Appendix A. \*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% level for a two-tailed test, respectively. The model specification is as follows:

$$\text{Spread} = \alpha_0 + \alpha_1 \times \text{Post} + \alpha_2 \times \text{Post} \times \text{Country-level governance variables} + \alpha_3 \times \text{Post} \times \text{Firm-level governance variables} + \sum_{i=1}^n \beta_i \times \text{stock market control}_i + \text{Firm fixed effect}$$

Panel A: *Change in bid-ask spreads across regions*

Correlation between CAR (-1,+1) and mean bid-ask spread: -0.04 (p-value=0.0364)

| Region of companies   | Pre    |        | Post   |        | Difference (Post- Pre) | t-stat. |
|-----------------------|--------|--------|--------|--------|------------------------|---------|
|                       | Mean   | Median | Mean   | Median |                        |         |
| All foreign countries | 0.0558 | 0.0039 | 0.0652 | 0.0041 | 0.0094***              | 9.04    |
| All excluding EU      | 0.0627 | 0.0048 | 0.0742 | 0.0051 | 0.0116***              | 9.63    |
| China                 | 0.0262 | 0.0045 | 0.0383 | 0.0056 | 0.0121***              | 8.49    |
| EU countries          | 0.0203 | 0.0020 | 0.0195 | 0.0018 | -0.0008                | -0.53   |
| Canada                | 0.1157 | 0.0114 | 0.1363 | 0.0102 | 0.0206***              | 8.02    |
| Others                | 0.0278 | 0.0029 | 0.0327 | 0.0030 | 0.0049***              | 4.00    |

Panel B: *Cross-sectional analysis for bid-ask spreads*

| Independent variables                 | Dependent variable is bid-ask spreads |                   |                   |                   |                   |                   |
|---------------------------------------|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|                                       | (1)                                   | (2)               | (3)               | (4)               | (5)               | (6)               |
| <b>POST</b>                           | <b>0.4248***</b>                      | <b>0.5063***</b>  | <b>0.3835***</b>  | <b>0.5003***</b>  | <b>0.6522***</b>  | <b>0.4712***</b>  |
|                                       | [5.53]                                | [4.21]            | [4.43]            | [4.15]            | [4.05]            | [3.63]            |
| <b>POST*RULE_OF_LAW</b>               | <b>-0.0462*</b>                       |                   |                   |                   |                   |                   |
|                                       | [-1.75]                               |                   |                   |                   |                   |                   |
| <b>POST*JUDICAL</b>                   |                                       | <b>-0.1201*</b>   |                   |                   |                   |                   |
|                                       |                                       | [-1.82]           |                   |                   |                   |                   |
| <b>POST*FRENCH_OR</b>                 |                                       |                   | <b>0.0420*</b>    |                   |                   |                   |
|                                       |                                       |                   | [1.90]            |                   |                   |                   |
| <b>POST*AUDIT</b>                     |                                       |                   |                   | <b>-0.1004*</b>   |                   |                   |
|                                       |                                       |                   |                   | [-1.83]           |                   |                   |
| <b>POST*LN GDP</b>                    |                                       |                   |                   |                   | <b>-0.2590**</b>  |                   |
|                                       |                                       |                   |                   |                   | [-2.15]           |                   |
| <b>POST*DISCLOSURE</b>                |                                       |                   |                   |                   |                   | <b>-0.0767</b>    |
|                                       |                                       |                   |                   |                   |                   | [-1.33]           |
| <b>POST*LN ASSET</b>                  | <b>-0.1561***</b>                     | <b>-0.1588***</b> | <b>-0.1618**</b>  | <b>-0.1676***</b> | <b>-0.1519***</b> | <b>-0.1770***</b> |
|                                       | [-2.98]                               | [-2.97]           | [-2.81]           | [-3.22]           | [-2.91]           | [-2.89]           |
| <b>POST*BIG4</b>                      | <b>-0.1469***</b>                     | <b>-0.1367***</b> | <b>-0.1391***</b> | <b>-0.1414***</b> | <b>-0.1426***</b> | <b>-0.1349***</b> |
|                                       | [-3.57]                               | [-4.18]           | [-3.61]           | [-4.30]           | [-3.98]           | [-4.15]           |
| <b>POST*OWNERCON</b>                  | -0.0088                               | -0.0041           | -0.0024           | -0.0075           | -0.0048           | 0.0064            |
|                                       | [-0.18]                               | [-0.13]           | [-0.08]           | [-0.20]           | [-0.18]           | [0.17]            |
| <b>POST*OWNERCON2</b>                 | 0.0055                                | 0.0016            | 0.0021            | 0.003             | 0.0043            | -0.0025           |
|                                       | [0.15]                                | [0.10]            | [0.13]            | [0.19]            | [0.28]            | [-0.14]           |
| <b>POST*MB</b>                        | <b>-0.0809**</b>                      | <b>-0.0837</b>    | <b>-0.0880*</b>   | <b>-0.0844</b>    | <b>-0.0882</b>    | <b>-0.0829*</b>   |
|                                       | [-2.48]                               | [-1.67]           | [-1.77]           | [-1.73]           | [-1.72]           | [-1.78]           |
| <b>RET</b>                            | 0.0025                                | 0.0003            | 0.0009            | 0.0018            | 0.0025            | 0.0057            |
|                                       | [0.12]                                | [0.01]            | [0.02]            | [0.04]            | [0.06]            | [0.14]            |
| <b>TURNOVER</b>                       | 0.0339                                | 0.035             | 0.0350            | 0.0345            | 0.0353            | 0.0357            |
|                                       | [1.07]                                | [1.25]            | [1.27]            | [1.26]            | [1.24]            | [1.26]            |
| <b>FIRM FIXED EFFECTS AS CONTROLS</b> |                                       |                   |                   |                   |                   |                   |
| N                                     | 768                                   | 722               | 768               | 730               | 734               | 766               |
| adj. R-sq                             | 0.8549                                | 0.8549            | 0.8549            | 0.8547            | 0.8546            | 0.8545            |

Standard errors are clustered by country

**Table 10: Abnormal dollar returns around announcement dates**

Table 10 presents the abnormal return by dollar amount. Abnormal dollar return is computed by multiplying the cumulative abnormal returns with the market value (in U.S. dollar amounts) of the firm as of the day before the return accumulation day. Market value data is from DataStream calculated as the share price multiplied by the number of ordinary shares in issue. To more precisely reflect the effect of enforcement challenges, abnormal dollar return calculation is limited to the groups of firms impacted by the announcements. Panel A provides the cumulative abnormal dollar returns for impacted stocks in each event. Panel B – Panel E reports the Top 5 highly impacted firms in each subsamples.

*Panel A: cumulative abnormal dollar returns for impacted stocks in each event*

| Announcement date                 | N   | Mean           | Median        | Sum               | stock type              |
|-----------------------------------|-----|----------------|---------------|-------------------|-------------------------|
| August 12, 2009 (Announcement 1)  | 124 | -\$170,318,261 | -\$9,376,159  | -\$20,608,510,000 | firms from China        |
| February 3, 2010 (Announcement 2) | 262 | -\$364,842,575 | -\$16,243,220 | -\$95,588,750,000 | firms from China and EU |
| May 18, 2010 (Announcement 3)     | 520 | -\$74,832,231  | -\$8,678,707  | -\$38,912,760,000 | Non-EU foreign firms    |
| January 10, 2011                  | 664 | \$139,836,562  | \$1,901,272   | \$92,851,480,000  | All foreign firms       |

*Panel B: August 12, 2009, Top 5 most highly impacted firms*

| Company name                 | Country of Auditor | Country of headquarter | Country of incorporation | Dollar amount    |
|------------------------------|--------------------|------------------------|--------------------------|------------------|
| CHINA MOBILE LTD             | Hong Kong (China)  | Hong Kong (China)      | Hong Kong (China)        | -\$9,511,344,069 |
| CNOOC LTD                    | Hong Kong (China)  | Hong Kong              | Hong Kong                | -\$2,192,628,364 |
| CHINA LIFE INSURANCE CO LTD  | Hong Kong (China)  | China                  | China                    | -\$1,562,847,821 |
| CHINA UNICOM (HONG KONG) LTD | Hong Kong (China)  | Hong Kong (China)      | Hong Kong (China)        | -\$1,421,640,265 |
| PETROCHINA CO LTD            | Hong Kong (China)  | China                  | China                    | -\$984,988,945   |

*Panel C: February 03, 2010, Top 5 most highly impacted firms*

| Company name             | Country of Auditor | Country of headquarter | Country of incorporation | Dollar amount    |
|--------------------------|--------------------|------------------------|--------------------------|------------------|
| LLOYDS BANKING GROUP PLC | United Kingdom     | United Kingdom         | United Kingdom           | -\$7,408,772,935 |
| BARCLAYS PLC             | United Kingdom     | United Kingdom         | United Kingdom           | -\$5,614,773,316 |
| HSBC HOLDINGS PLC        | United Kingdom     | United Kingdom         | United Kingdom           | -\$4,786,718,191 |
| ING GROEP NV             | Netherlands        | Netherlands            | Netherlands              | -\$4,655,612,125 |
| BP PLC                   | United Kingdom     | United Kingdom         | United Kingdom           | -\$4,510,540,033 |

*Panel D: May 18, 2010, Top 5 most highly impacted firms*

| Company name               | Country of Auditor | Country of headquarter | Country of incorporation | Dollar amount    |
|----------------------------|--------------------|------------------------|--------------------------|------------------|
| WESTPAC BANKING CORP       | Australia          | Australia              | United States            | -\$4,792,374,560 |
| VALE S.A.                  | Brazil             | Brazil                 | Brazil                   | -\$4,707,667,370 |
| ITAU UNIBANCO HOLDING S.A. | Brazil             | Brazil                 | Brazil                   | -\$2,919,939,401 |
| BHP BILLITON LTD           | Australia          | Australia              | Australia                | -\$2,409,420,174 |
| BARRICK GOLD CORP          | Canada             | Canada                 | Canada                   | -\$2,310,585,355 |

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## Appendix A: Variable definition

| Variables                      | Description   | Source          |
|--------------------------------|---|-----------------|
| <i>1) Firm-characteristics</i> |   |                 |
| ADR                            | = 1 if the security is an ADR, and 0 otherwise.   | DataStream      |
| AGE                            | = Current year minus the year the firm was founded;   | Capital IQ      |
| BIG4                           | = 1 if the firm hires a big 4 auditor, and 0 otherwise;   | Audit Analytics |
| LNASSET                        | = The natural logarithm of total assets;  | Capital IQ      |
| CFO                            | = Cash flow from operating scaled by total assets;  | Capital IQ      |
| CROSS                          | = 1 if the company has both home listing and US listing, and 0 otherwise;   | Capital IQ      |
| CHINA                          | = 1 if the company hires an audit firm from China (including Hong Kong), and 0 otherwise.   | Capital IQ      |
| CAPEX                          | = Capital expenditures scaled by total assets;  | Capital IQ      |
| LEVERAGE                       | = The ratio of total liabilities to total assets;   | Capital IQ      |
| MB                             | = The ratio of the market value of total assets to book value of total assets;  | Capital IQ      |
| OWNERCON                       | = Ownership concentration (OWNERCON) is measured as the total percentage of shares owned by owners with more than five percent of total shares outstanding; | Capital IQ      |
| OWNERCON2                      | = The squared ownership concentration;  | Capital IQ      |
| RET                            | = the average daily stock return during the corresponding period;   | DataStream      |
| SALEGRW                        | = Net revenue growth over the past year;  | Capital IQ      |
| SINGLE                         | = 1 if the company only has US listing, without either home listing or other foreign listings, and 0 otherwise  | Capital IQ      |
| SPREAD                         | = The daily mean of the difference between closing ask price and bid price scaled by the average of ask and bid prices                                      | DataStream      |
| TURNOVER                       | = the average daily dollar trading volume during the corresponding period;  | DataStream      |
| USGAPP                         | = 1 if the financial statement follows the United States General Accepted Accounting Principles, and 0 otherwise;   | AuditAnalytics  |

## Appendix C: Variable definition in Chapter 3 (Con'd)

### 2) Country-level variables

|             |   |  |   |
|-------------|---|--|---|
| AUDIT       | = | An index of the extent to which auditors are likely to comply with the auditing standard and accounting standard. The index was constructed using factors relating to auditor skills, training, supervision, etc. The index ranges from 0 to 32, with higher scores reflecting stronger enforcement; | Preiato, Brown and Tarca (2013)   |
| LNGDP       | = | The natural logarithm of the home country's per capita GDP expressed in current US dollars;  | World Bank Development Indicators, the GDP for Taiwan (of China) is retrieved from International Monetary Fund World Economic Outlook Data) |
| JUDICAL     | = | An index that measures the efficiency of a country's legal system;   | Laeven and Majnoni (2005)   |
| FRENCH_OR   | = | 1 if the home country's legal regime is based on French law, and to 0 otherwise;   | Reynolds and Flores (1989)  |
| DISCLOSURE  | = | Index of disclosures required in periodic disclosures (e.g., annual reports). The index ranges from 0 to 1, with higher scores representing higher disclosure requirements;  | Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2008)  |
| RULE_OF_LAW | = | An index capturing the perceived influence and authority of laws for a country. The index ranges from -2.5 to 2.5, with higher scores reflecting stronger rule of law;   | World Bank Governance Indicators  |

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## Appendix B: The PCAOB news releases on progress of cross-border inspections

| Date              | News release   | Details   |
|-------------------|--|---|
| <u>2008-11-28</u> | PCAOB to Consider Rule Amendments Concerning Timing of Non-U.S. Inspections, Seeking Comments  | Announced that it has scheduled an Open Meeting for Thursday, Dec. 4, at 9:00 a.m.  |
| <u>2008-12-04</u> | PCAOB Adopts and Proposes Rule Amendments on the Timing of Certain Non-U.S. Inspections and Seeks Comment on Related Issues                        | Webcast available (Indicates there is timing problem for certain countries.) Information also disclosed in Release No. 2008-007. But the disclosure is obscure.   |
| <u>2009-04-07</u> | PCAOB Discloses Information Related to its International Inspections Program   | Two lists are published (1) the list of non-U.S. jurisdictions in which there are registered firms that the Board intends to inspect in 2009; 2)the list of non-U.S. jurisdictions in which there are registered firms that the Board has inspected to date)  |
| <u>2009-06-19</u> | PCAOB to Consider Rule Amendment Concerning the Timing of Certain Non-U.S. Inspections   | Announced that it has scheduled an Open Meeting for Thursday, June 25, at 9:30 a.m.   |
| <u>2009-06-25</u> | PCAOB Adopts Rule Amendment on the Timing of Certain Non-U.S. Inspections  | Webcast and related documents available   |
| <u>2009-08-12</u> | PCAOB Provides New and Updated Information on Inspections  | Two lists are published 1)Jurisdictions in which PCAOB has conducted inspections; 2)Registered firms not yet inspected even though four years have passed since issuance of an audit report while registered.   |
| <u>2010-02-03</u> | Progress on PCAOB International Inspections  | Four lists are published 1)Jurisdictions in which PCAOB has conducted inspections; 2)Registered firms not yet inspected even though four years have passed since issuance of an audit report while registered 3) Jurisdictions the PCAOB intend to conduct inspections in 2010 4) Information on PCAOB international inspections. |
| <u>2010-05-18</u> | PCAOB Publishes List of Issuer Audit Clients of Non-U.S. Registered Firms In Jurisdictions where the PCAOB is Denied Access To Conduct Inspections | Publish one list: Issuer Audit Clients of Non-U.S. Registered Firms in Jurisdictions where the PCAOB is Denied Access to Conduct Inspections  |
| <u>2011-01-10</u> | PCAOB Enters into Cooperative Agreement with United Kingdom Audit Regulator  | Publish cooperative agreement with UK audit regulator.  |

## Appendix C: Timeline for the key events

### **Date: August 12, 2009 (Announcement 1)**

**Event:** Publish audit names list for inspection delays.

**Levels of disclosure:** 1) Audit names; 2) Jurisdiction names.

**Reason for the delay:** NO

**Bundling information:** List of jurisdictions that the PCAOB has conducted inspections. This list has certain overlap with the delay-list.

**Title:** “PCAOB Provides New and Updated Information on Inspections”

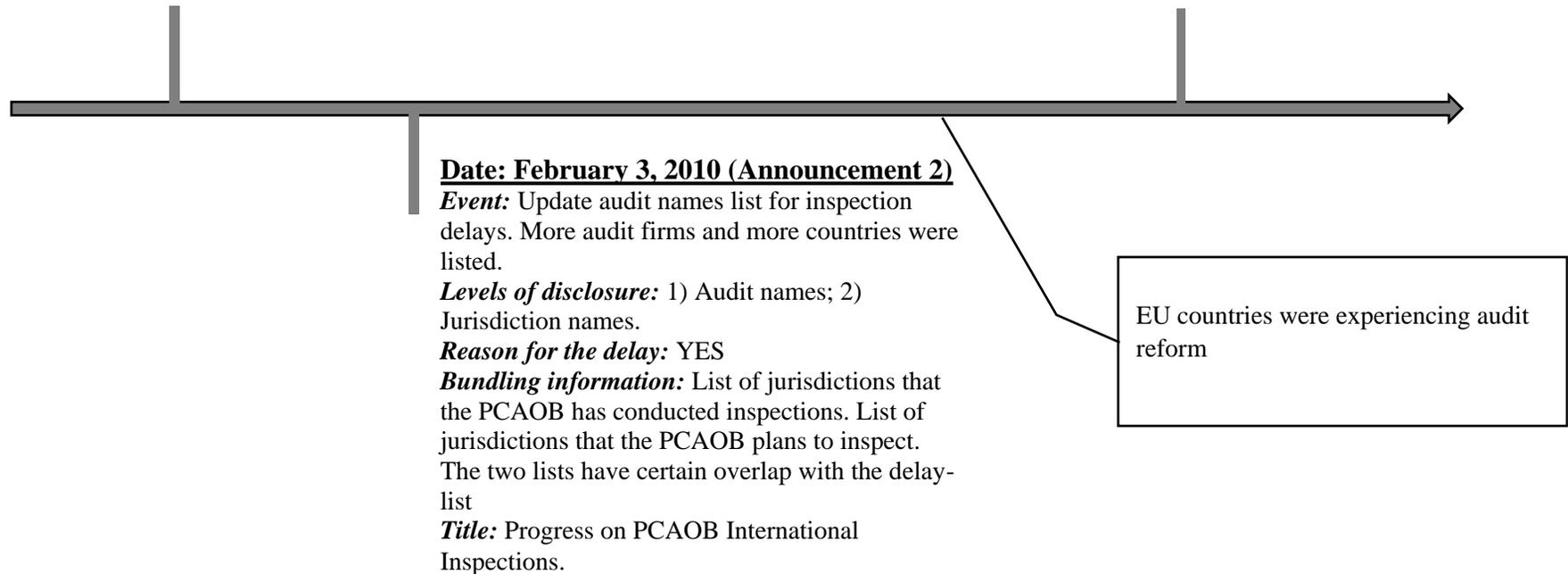
### **Date: May 18, 2010(Announcement 3)**

**Event:** All companies from countries denying the PCAOB inspection were publically listed.

**Levels of disclosure:** 1) Audit names; 2) Jurisdiction names; 3) Client name.

**Bundling information:** NO

**Title:** “PCAOB Publishes List of Issuer Audit Clients of Non-U.S. Registered Firms In Jurisdictions where the PCAOB is Denied Access To Conduct Inspections”



## Appendix D: PCAOB news release examples

### Example 1: Announcement 1 (August 12, 2009)

Note by author of this paper: the below is part of the text content in the PCAOB August 12, 2009 news release. The original text font and color are kept. Attached in this news release are two lists in PDF format: (1) “Jurisdictions in which PCAOB Has Conducted Inspections of Registered Non-U.S. Firms”; and (2) “Registered Firms Not Yet Inspected Even Though Four Years Have Passed Since Issuance of an Audit Report While Registered”. We attached part of the second PDF file as well.

#### 1) Text content:

### *PCAOB Provides New and Updated Information on Inspections*

(Note by author of this paper: this is the title of the news release.)

Washington, D.C., Aug. 12, 2009

The Public Company Accounting Oversight Board today published two lists: a list of registered firms that have not yet been inspected by the PCAOB, even though more than four years have passed since the end of the calendar year in which the firm first issued an audit report while registered with the Board; and an updated list of jurisdictions in which the Board has conducted inspections of registered non-U.S. firms. In addition, the Board today reported its progress on meeting its 2009 target for the inspection of certain non-U.S. firms eligible to be deferred, pursuant to a recent Board rule amendment. These disclosures provide transparency about aspects of the Board's inspection program, including progress with respect to international inspections.

#### **LIST OF FIRMS**

The Board previously announced its intention to publish the new list of certain firms that have not yet been inspected in two recent releases: PCAOB Release No. 2009-003, *Final Rule Concerning the Timing of Certain Inspections of Non-U.S. Firms, and Other Issues Relating to Inspections of Non-U.S. Firms* (June 25, 2009), issued in connection with the Board's adoption of PCAOB Rule 4003(g); and PCAOB Release No. 2008-007, *Rule Amendments Concerning the Timing of Certain Inspections of Non-U.S. Firms, and Other Issues Relating to Inspections of Non-U.S. Firms* (Dec. 4, 2008), issued in connection with the Board's adoption of PCAOB Rule 4003(f).

#### 2) Partial PDF file for names of audit firms:

| <b>Name of Firm</b>                             | <b>Country</b> |
|---|----------------|
| Deloitte Touche Tohmatsu CPA Ltd.               | China          |
| PricewaterhouseCoopers Zhong Tian CPAs Ltd. Co. | China          |
| Deloitte & Associes                             | France         |
| Deloitte Touche Tohmatsu                        | France         |
| Ernst & Young Audit                             | France         |
| KPMG SA   | France         |
| PricewaterhouseCoopers Audit                    | France         |
| Ernst & Young AG WPG                            | Germany        |
| Ernst & Young DATAG WPG                         | Germany        |

**Example 2: Announcement 3 (May 18, 2010)**

**1) Text content:**

## PCAOB Publishes List of Issuer Audit Clients of Non-U.S. Registered Firms In Jurisdictions where the PCAOB is Denied Access To Conduct Inspections

Washington, D.C., May 18, 2010

The Public Company Accounting Oversight Board (PCAOB) today published a list of more than 400 non-U.S. companies whose securities trade in U.S. markets, but whose PCAOB-registered auditors the Board currently cannot inspect because of asserted non-U.S. legal obstacles.

Because investors in U.S. markets may be relying on the audit work of certain firms without realizing that those firms are presently uninspected by the PCAOB, the Board is publishing this list of issuers that have in 2009 or 2010 (through mid-April), filed financial statements with the SEC that were audited by a firm in one of these jurisdictions. The auditors of the issuers appearing on the list are located in China, Hong Kong, Switzerland and 18 European Union countries.

**2) Partial PDF file for names of U.S. listed companies:**

Name of PDF file: Issuer Audit Clients of Non-U.S. Registered Firms in Jurisdictions where the PCAOB is Denied Access to Conduct Inspections

**EUROPE**

|                | <b>Auditor</b>  | <b>Issuers</b>                                      |
|----------------|---|---|
| <b>AUSTRIA</b> | KPMG Wirtschaftsprüfungs- und Steuerberatungs GmbH                      | OESTERREICHISCHE KONTROLLBANK AKTIENGESELLSCHAFT    |
| <b>BELGIUM</b> | Deloitte Bedrijfsrevisoren /<br>Reviseurs d'Entreprises                 | DELHAIZE GROUP                                      |
|                | Ernst & Young<br>Bedrijfsrevisoren - Reviseurs<br>d'Entreprises S.C.C.  | WABCO Holdings Inc.                                 |
|                | Klynveld Peat Marwick<br>Goerdeler Bedrijfsrevisoren<br>civil CVBA/SCRL | AB InBev France S.A.S.<br>Anheuser-Busch InBev S.A. |
|                | PKF Bedrijfsrevisoren BCVBA   | REMEDENT, INC.                                      |