Do cross-listed firms provide the same quality disclosure as U.S. firms? Evidence from the internal control deficiency disclosure under Section 302 of the Sarbanes-Oxley Act

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Abstract

We test whether cross-listed firms provide the same quality disclosure as U.S. firms by examining the internal control deficiency (ICD) disclosure under Section 302 of the Sarbanes-Oxley Act. We hypothesize that cross-listed firms are less likely than U.S. firms to truthfully disclose the existence of an ICD. Consistent with this hypothesis, we find that the documented association between ICD disclosure and poor earnings quality for U.S. firms becomes weaker for cross-listed firms, especially for those domiciled in weak investor protection countries. In addition, the likelihood of disclosing an ICD is lower for cross-listed firms that are domiciled in weak investor protection countries and whose management enjoys significant private benefits of control. Our results suggest that cross-listed firms' ICD disclosure under Section 302 is of lower quality than that of U.S. firms.

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1. Introduction

The objective of this study is to use the internal control deficiency (ICD) disclosure under Section 302 of the Sarbanes-Oxley Act of 2002 (SOX) to examine whether foreign firms that are listed on U.S. stock exchanges (hereafter referred to as cross-listed firms) provide the same quality financial disclosure as U.S. firms. A Section 302 ICD disclosure is deemed to be of high quality if firm management truthfully reports the existence of any ICDs. Our research question is partly motivated by SOX's stated objective of using the ICD disclosures to improve publicly traded firms' financial reporting quality. Although cross-listed firms are often exempt from many U.S. securities regulations (see Licht 2003), they are subject to the same disclosure requirements as U.S. firms in reporting internal control over financial reporting under Section 302 of SOX. Prior research (see, e.g., Beneish et al. 2006; Hammersley et al. 2007; Ashbaugh-Skaife et al. 2007a; Ashbaugh-Skaife et al. 2007; Doyle et al. 2007a) finds that the ICD disclosures made by U.S. firms are useful in assessing U.S. firms' cost of capital and earnings quality. No research has examined whether cross-listed firms' ICD disclosure is of similar quality to that of U.S. firms. Due to significant differences across U.S. firms and cross-listed firms (such as home-country investor protection and shareholder litigation risk), the existing evidence on U.S. firms cannot be readily generalized to cross-listed firms.

Our research question is also motivated by the cross listing literature's bonding hypothesis (see Coffee 1999, 2002; Stulz 1999). The premise underlying the bonding hypothesis is that cross-listed firms will be subject to the more stringent U.S. financial reporting regime and stronger enforcement power of the U.S. Securities and Exchange Commission (SEC), among other things. To assess the bonding hypothesis, it is important to study how cross-listed firms actually behave in complying with the SEC's financial reporting requirements.

Prior accounting research mostly focuses on cross-listed firms' financial statement reporting behavior, such as the 20-F reconciliations of earnings, cash flows, and balance sheet items (e.g., Amir et al. 1993; Harris and Muller 1999). Presumably due to high data collection costs, only a few studies have examined cross-listed firms' disclosure practices outside the financial statements (Frost and Pownall 1994; Frost and Kinney 1996; Khanna et al. 2004). Frost and Pownall (1994) examine the frequency and timing of mandatory and voluntary accounting disclosures (such as SEC filings and news releases) made by a small sample of 107 firms from 13 domiciles with equity securities traded on U.S. and/or U.K. exchanges during 1989. Frost and Kinney (1996) compare the frequency of interim reports and the timing of periodic SEC filings and earnings announcements between a sample of cross-listed firms and a sample of matched U.S. firms in 1989 and 1990. Both studies find that U.S. domestic firms comply more closely with the SEC's annual and interim reporting rules than do non-U.S. firms that are cross listed on U.S. stock exchanges. A more recent study by Khanna et al. (2004) finds that non-U.S. firms that have significant interactions with U.S. product, labor, and financial markets have higher Standard and Poor's disclosure scores (a simple counting of a firm's financial disclosures) than other non-U.S. firms. While these studies offer empirical evidence regarding the frequency and timeliness of financial disclosures, none of them examine the *quality* of cross-listed firms' disclosed information.

Our study is closely related with Lang et al. (2006), who compare the quality of cross-listed firms' reconciled earnings with the quality of U.S. firms' earnings. They find that cross-listed firms' reconciled earnings are of lower quality than comparable U.S. firms' earnings, especially for cross-listed firms from weak investor protection countries. However, it is *ex ante* unclear whether Lang et al.'s findings on accounting earnings can be readily extended to

financial disclosures outside the financial statements because the latter are often voluntary in nature and receive less scrutiny by external auditors and outside investors. Evidence from prior research suggests that off-statement financial disclosures are of lower quality than recognized accounting numbers even for U.S. firms (e.g., Aboody 1996; Davis-Friday et al. 1999, 2004). Thus, it is possible that both U.S. firms and cross-listed firms make similar but low quality disclosures outside the financial statements.

The Section 302 ICD disclosure offers several advantages for testing cross-listed firms' financial disclosure quality. First, the Section 302 disclosure is applicable to all SEC registrants and easy to identify and measure, thus avoiding one of the major obstacles to prior disclosure research: the lack of a uniform and reliable disclosure metric that applies to a large cross section of firms (see Healy and Palepu 2001). Second, the Section 302 ICD disclosure is not subject to the external audit and thus firm management's disclosure decision can be interpreted as voluntary in nature (see Ashbaugh-Skaife et al. 2007 for a similar argument). As a result, the Section 302 ICD disclosure provides a promising venue to identify management's underlying disclosure incentives that are otherwise suppressed with the presence of an external audit.[1]

As Ashbaugh-Skaife et al. (2007) indicate, three conditions must be satisfied for a firm to disclose an ICD. First, an ICD must exist. Second, the deficiency must be discovered by either the management or the external auditor. Third, the management must conclude that the discovered deficiency should be publicly disclosed under Section 302. Although we expect ICDs to exist in both U.S. firms and cross-listed firms, cross-listed firms' Section 302 ICD disclosure

[1] We do not consider cross-listed firms' ICD disclosure under Section 404 of SOX because the Section 404 disclosure requires the external auditor's explicit attestation of management's assessment of firms' internal control effectiveness.

may be of lower quality because the findings of Lang et al. (2006) suggest that the incentive to detect and disclose an ICD existence could be weaker for cross-listed firms.[2]

First, cross-listed firms' management may have weaker incentives to detect and disclose an ICD existence because of the influence of home country institutional forces (see Lang et al. 2006; Leuz 2006). Many cross-listed firms are located in countries where investor protection is weaker than that in the U.S. and thus firm insiders (including the management, controlling shareholders, and other major stakeholders such as the employee union) have a better ability and stronger incentive to expropriate minority shareholders. An inadequate internal control system makes it easier for firm insiders to conceal their expropriation activities. As the disclosure of an ICD forces the management to implement remediation procedures to eliminate the ICD,[3] which in turn reduces the opportunity to exploit minority shareholders, we expect cross-listed firms' management has weaker incentives to detect and report the existence of an ICD in their financial reports, especially for firms domiciled in weaker investor protection countries.

Second, critics of the bonding hypothesis have argued that the risks of SEC enforcement and shareholder litigation are lower for cross-listed firms than for U.S. firms. Licht (2003) claims that the U.S. regulatory regime that applies to foreign firms often cuts corners exactly on the issues of corporate governance relating to corporate insiders; in addition, the SEC has largely adopted a "hands-off" enforcement policy toward foreign issuers. Siegel (2005) finds that for the entire period since the enactment of the Securities Acts, there are virtually no reports regarding public enforcement steps for cross-listed firms, even when egregious misconduct was involved

[2] We cannot tell whether cross-listed firms' lack of ICD disclosure is due to the lack of reasonable effort to detect ICDs or due to the lack of incentives to report detected ICDs. However, this limitation does not affect our inferences because both reasons would indicate management's incentives to hide ICD problems from outside shareholders in order to continue to enjoy their private benefits of control.

[3] As indicated in SEC staff's response to Frequently Asked Questions, "if the registrant were to identify a material weakness, it should carefully consider whether that fact should be disclosed, as well as *changes made in response to the material weakness*" (italics added) (SEC Release No. 33-8392, #9).

and had been publicized in the foreign firms' home countries. Siegel (2005) also finds little evidence of minority shareholder success in pursuing litigation cases against cross-listed firms who violated U.S. securities laws. Similarly, Frost and Pownall (1994) are unable to find a single case in which cross-listed firms that violated U.S. disclosure rules have been sued in court or subject to SEC's formal investigations or administrative proceedings.

Because of these two reasons, we expect cross-listed firms to underreport the existence of ICD to a greater extent than do U.S. firms, especially for those domiciled in weak investor protection countries. However, there also exist countervailing forces that could induce cross-listed firms to report ICD as truthfully as U.S. firms. SOX was enacted in the aftermath of several high-profile accounting scandals and the U.S. stock market crash. In addition, SOX represents one of the most significant securities legislations since the 1933 and 1934 Securities Acts and the ICD disclosures are one of the most important provisions of SOX. Due to significant changes in the financial reporting and litigation environment after the passage of SOX, corporate boards, investors and the SEC could be more alert on potential corporate governance issues and scrutinize firm management's ICD disclosures more carefully. Coffee (2002) indicates that the SEC has recently brought high-profile enforcement actions against cross-listed firms in the U.S. Therefore, it is important to empirically analyze cross-listed firms' Section 302 ICD disclosures.

One immediate consequence of a weak internal control system is poor quality financial reporting. Recent studies provide consistent evidence that U.S. firms that report ICD under Sections 302 and/or 404 of SOX exhibit lower earnings quality than U.S. firms that do not report any ICD (Doyle et al. 2007a; Ashbaugh-Skaife et al. 2007a). If cross-listed firms intentionally underreport the existence of ICDs, the sample of no ICD disclosure firms would be contaminated

with firms having ICDs.[4] As a result, the expected association between the ICD disclosure and poor earnings quality would become weaker for cross-listed firms than for U.S. firms, especially for cross-listed firms domiciled in weak investor protection countries.

Similar to recent studies (Ashbaugh-Skaife et al. 2007a; Doyle et al. 2007a), we find that U.S. firms that report the existence of ICDs have lower earnings quality than U.S. firms that do not report any ICDs under the Section 302 reporting regime. More importantly, we find that the association between Section 302 ICD disclosure and poor earnings quality becomes significantly weaker for cross-listed firms than for U.S. firms. In fact, cross-listed firms' Section 302 ICD disclosures provide little information regarding earnings quality in that ICD disclosure firms exhibit similar earnings quality to ICD non-disclosure firms. Furthermore, the association between Section 302 ICD disclosure and poor earnings quality is even weaker for cross-listed firms from weak investor protection countries than for cross-listed firms from strong investor protection countries.

Consistent with the notion that managerial private control benefits diminish management's incentives to detect and report ICDs, we also find that cross-listed firms domiciled in weak investor protection countries are less likely to report ICDs when the management group is in control of the firm and its voting rights exceed cash flow rights (an indication of private control benefits). We do not find similar results for cross-listed firms domiciled in strong investor protection countries. Overall, these results are consistent with our hypothesis that cross-listed firms, especially those from weak investor protection countries and whose management enjoys

[4] Although ICD existence foreign firms could delist from U.S. stock exchanges (e.g., by shifting listing location to OTC or other countries such as U.K.) to avoid compliance with the SOX, the delisting requirements are quite restrictive and costly. Hostak et al. (2007) find only 64 non-Canadian ADRs delisted/deregistered from U.S. stock exchanges over 2003-2006.

significant private benefits of control, underreport the existence of ICDs to a greater extent than U.S. firms under the Section 302 reporting regime.

The rest of the paper is organized as follows. The next section offers background information on the internal control disclosure requirements under SOX. Section 3 describes the sample selection procedures and data sources. We introduce the regression model that tests the association between Section 302 ICD disclosures and earnings quality in Section 4. Section 5 reports empirical results on the association between Section 302 ICD disclosures and earnings quality. Section 6 examines the association between management's private control benefits and the Section 302 ICD disclosure decision. Section 7 concludes.

2. Institutional background on the ICD disclosure requirements

Signed into law on July 30, 2002, the Sarbanes–Oxley Act (SOX) mandates a series of changes in corporate financial reporting and corporate governance for public companies that are listed on major U.S. stock exchanges (see Zhang 2007 and Coates 2007 for detailed discussions of the SOX provisions). The internal control disclosure requirements under Sections 302 and 404 are a major component of the Act.[5] Section 302 requires that company management certifies the accuracy of the periodic financial reports filed with the SEC, evaluates the effectiveness of the firm's internal control over financial reporting, and discloses their conclusion on the internal control effectiveness and any material changes in internal control since the last periodic financial report. Section 404 requires company management to include an explicit and separate internal

[5] Firms were required to maintain an adequate internal control system even before the passage of the SOX, but they were only required to publicly disclose internal control deficiencies when there was a change in auditor. In these situations, companies were required to state whether their auditor had, over the previous two fiscal years and the interim period preceding the auditor change, advised them "that the internal controls necessary for the registrant to develop reliable financial statements do not exist" (SEC, Regulation S-B Item 304a5A).

control report in the annual filings with the SEC, and requires the external auditor to attest to management's assessment of firms' internal control effectiveness.

All SEC filers are required to comply with the Section 302 disclosure requirements for fiscal years ending on or after August 29, 2002. Section 404's effective date varies across U.S. firms and cross-listed firms. For cross-listed (U.S.) accelerated filers, Section 404 became effective for fiscal years ending on or after July 15, 2006 (November 15, 2004). An accelerated filer refers to a company that (1) has a public float of at least $75 million, (2) has been subject to the SEC's periodic reporting requirements for at least 12 months and has filed one annual report, and (3) is not eligible to use the SEC's small business reporting forms. For both U.S. and cross-listed non-accelerated filers, Section 404 becomes effective for fiscal years ending on or after December 15, 2007. Cross-listed firms that trade on the over-the-counter market are exempt from the SOX. As we are interested in studying management's ICD disclosure behavior prior to the external auditor's attestation of the ICD disclosure, we limit our analyses to the Section 302 ICD disclosure in this paper.[6]

The ICD disclosures can be generally classified into three types in the order of ascending severity: deficiency, significant deficiency, and material weakness. According to Auditing Standard (AS) No. 2 issued in March 2004, a control *deficiency* exists when the design or operation of a control does not allow management or employees, in the normal course of performing their assigned functions, to prevent or detect misstatements on a timely basis (AS No. 2, paragraph 8). A *significant deficiency* is a control deficiency, or combination of control deficiencies, that adversely affects the company's ability to initiate, authorize, record, process, or report external financial data reliably in accordance with generally accepted accounting

[6] Brown et al. (2007) report that Germany is the *only* foreign country that adopted internal control regulation prior to 2002. No German firms cross listed on U.S. stock exchanges have reported any Section 302 ICD since the enactment of SOX. Results are similar if we exclude German firms from our non-ICD disclosure sample.

principles such that there is more than a remote likelihood that a misstatement of the company's annual or interim financial statement that is more than inconsequential will not be prevented or detected (AS No. 2, paragraph 9). A *material weakness* is a significant deficiency, or combination of significant deficiencies, that results in more than a remote likelihood that a material misstatement of the annual or interim financial statements will not be prevented or detected (AS No. 2, paragraph 10).[7]

Because AS No. 2 was issued well after many firms issued their first ICD disclosure, Ashbaugh-Skaife et al. (2007b) argue that different firms might have used different thresholds when reporting their ICD types. Therefore, we conduct our empirical analyses using all three types of ICD disclosures as well as the material weakness disclosures only.

3. Sample selection procedures and data sources

We restrict the U.S. firm and cross-listed firm samples to firms listed on the three major U.S. stock exchanges (NYSE, AMEX, or NASDAQ) since foreign firms that trade over-the-counter or issue private equity under SEC Rule 144a are exempt from the SOX. Our sample of cross-listed firms is identified based on Compustat's incorporation code, FINC, and cross-checked with other data sources such as SEC filings, CRSP and Audit Analytics. The ICD disclosure samples for U.S. firms and cross-listed firms primarily come from the Audit Analytics' Disclosure Controls database. This database covers all SEC registrants who have

[7] The SEC Releases No. 33-8809 (Amendments to rules regarding management's report on internal control over financial reporting) dated June 20, 2007 and the SEC Releases No. 33-8829 (Definition of the term significant deficiency) dated August 3, 2007 further clarified the definitions of a *material weakness* and a *significant deficiency*. A *material weakness* is redefined as a deficiency, or a combination of deficiencies, in internal control over financial reporting such that there is a reasonable possibility that a material misstatement of the registrant's annual or interim financial statements will not be prevented or detected on a timely basis. A *significant deficiency* is redefined as a deficiency, or a combination of deficiencies, in internal control over financial reporting that is less severe than a material weakness, yet important enough to merit attention by those responsible for oversight of the registrant's financial reporting.

disclosed since September 2002 management's certification of internal controls under Section 302 of the SOX in periodic SEC filings (including 10-K, 10KSB, 10-Q, 10QSB, 20-F and 40-F). We further require the availability of firm characteristics used in later regression models from Compustat.

With these sample restrictions we generate a sample of 438 unique cross-listed firms, of which 80 firms disclosed at least one Section 302 ICD ("material weakness", "significant deficiency", or "deficiency") and 49 firms disclosed at least one "material weakness" in internal controls over the period September 2002 – July 2006.[8] There are 358 cross-listed firms that never disclosed any ICD over the same time period.[9] The foreign countries that have at least 10 unique firms included in our sample are Canada (90), Israel (53), United Kingdom (47), Bermuda (19), Japan (22), Netherlands (21), France (14), Mexico (15), British Virgin Islands (12), and Chile (11). Because Canadian and U.K. firms' investor protection is generally stronger than the other non-U.S. firms' (see Aggarwal et al. 2007) and these firms comprise a large portion of our sample, we performed all of our primary regression analyses after excluding firms from these two countries and found similar results.

As noted in Section 2 above, accelerated U.S. filers' ICD disclosures made after November 15, 2004 are subject to both Section 302 and Section 404 reporting requirements. Because Section 404 requires additional auditor attestation to management's assessment of

[8] The disclosed ICD by cross-listed firms relate to ineffective control environment, inadequate qualified staff who are familiar with U.S. GAAP, complexity of transactions such as derivatives, taxes and stock option compensation, etc. Due to the small sample size, we do not separately analyze each category of ICD disclosure in empirical analyses.

[9] To ensure the accuracy and completeness of the Audit Analytics database, we read all foreign firms' 20-Fs or 40-Fs filed through Edgar over the period September 2002-November 2006. The details of internal control problems are provided in the Item – "Controls and Procedures" in 20-Fs or various places in 40-Fs. Although each registrant is required to report whether their disclosure controls are "effective" or "ineffective", most registrants use qualifying languages in their filings such as "reasonably effective", "effective, however", "effective, subject to", "effective, however our auditors have disclosed material weaknesses…". Despite these non-standard reporting terms, the classification of ICD disclosures by Audit Analytics appears reasonably accurate and the coverage of the database seems complete.

internal control effectiveness, the characteristics of the ICDs disclosed before and after Section 404's effective date may be different. To facilitate the comparison with the Section 302 ICD disclosures by cross-listed firms, we exclude accelerated U.S. filers' ICD disclosures made after November 15, 2004 (i.e., the effective date of Section 404 for U.S. accelerated filers). We identify accelerated U.S. filers as firms incorporated in the U.S. with market value of equity greater than $75 million at the end of the most recent second fiscal quarter prior to November 15, 2004. Our U.S. firm sample contains 3,332 unique firms, of which 524 firms reported at least one ICD ("material weakness", "significant deficiency", or "deficiency") while 327 firms reported at least one "material weakness" under the Section 302 reporting regime.[10]

4. Research design

4.1. The association between Section 302 ICD disclosure and earnings quality

We use the following model modified from Doyle et al. (2007a) to test the association between Section 302 ICD disclosures and earnings quality for cross-listed firms and U.S. firms together:

$$\begin{aligned} Ln(EQ)_{ij} &= \alpha + \beta_1 ICD_{ij} + \beta_2 FOREIGN_{ij} + \beta_3 ICD_{ij} \times FOREIGN_{ij} \\ &+ \beta_4 Control\ variables_{ij} + \beta_5 Control\ variables_{ij} \times FOREIGN_{ij} + \varepsilon_{ij}. \end{aligned} \quad (1)$$

where

i = firm index;

j = country index;

[10] We cross-checked the sample of US firms' ICD disclosures identified by Audit Analytics with the sample of ICD disclosures provided by Doyle et al. (2007a). We did not find identification errors in the Audit Analytics database. We supplemented the Audit Analytics sample by ICD disclosures collected by Doyle et al. (2007a). These supplemented ICD disclosures are mostly reported in form 8-Ks, which are not screened by Audit Analytics.

EQ = earnings quality metrics estimated using the Dechow and Dichev (2002) method (see below for the measurement details);

ICD = a dummy variable equal to one if there is a Section 302 ICD disclosure during our sample period, and zero otherwise;

FOREIGN = a dummy variable equal to one if a firm is a non-U.S. firm that trade on NYSE, AMEX, or NASDAQ, and zero otherwise; and

Controlvariables = a list of control variables that affect earnings quality as discussed below.

We measure earnings quality (*EQ*) using two alternative approaches. Similar to Doyle et al. (2007a) and Ashbaugh et al. (2007a), both approaches estimate earnings quality over 1996-2002 because it is likely that a firm's ICDs have existed for a while before the disclosure. The first approach uses the following modified cross-sectional Dechow and Dichev (2002) model, estimated by each industry year (using Fama and French (1997) 48-industry classification) over 1996-2002:

$$\Delta WC_t = \beta_0 + \beta_1 CFO_{t-1} + \beta_2 CFO_t + \beta_3 CFO_{t+1} + \beta_4 \Delta REV_t + \beta_5 PPE_t + \varepsilon_t. \quad (2)$$

ΔWC is the change in working capital accruals, defined as -(Compustat Annual Data #302 + #303 + #304 + #305 + #307), scaled by average total assets (#6). *CFO* is cash flows from operations (#308) scaled by average total assets. *ΔREV* is change in sales (#12) scaled by average total assets. *PPE* is property, plant, and equipment (#7) scaled by average total assets. Following McNichols (2002) and Francis et al. (2005), we include *ΔREV* and *PPE* in model (2), the two determinants of non-discretionary accruals in the Jones (1991) model. We require at least 3 observations per firm and at least 20 observations per industry-year. Each firm's earnings quality is measured as the standard deviation of the residuals from estimating the above cross sectional model (denoted *EQ_CROSS*). Higher values of *EQ_CROSS* represent lower earnings quality.

The second approach uses the following firm-specific time-series Dechow and Dichev (2002) model estimated over the period 1996-2002, requiring at least 6 years of data per firm:

$$\Delta WC_t = \beta_0 + \beta_1 CFO_{t-1} + \beta_2 CFO_t + \beta_3 CFO_{t+1} + \varepsilon_t. \quad (3)$$

We do not add *ΔREV* and *PPE* in model (3) in order to retain as many firms as possible. Each firm's earnings quality is estimated as the standard deviation of the residuals from estimating the above time-series model (denoted *EQ_TIME*). Higher values of *EQ_TIME* represent lower earnings quality.

Doyle et al. (2007a) and Ashbaugh et al. (2007a) use *EQ_CROSS* but not *EQ_TIME* in their empirical tests. We use both measures because our sample contains both U.S. firms and foreign firms. Thus, model (2)'s assumption that the regression coefficients are the same for both U.S. firms and cross-listed firms within the same industry-year may not be valid. Model (3) relaxes this assumption by allowing the regression coefficients to differ across firms. However, a significant limitation of model (3) is that it requires a minimum of 5 observations per firm for the coefficient estimation and thus reduces the sample size. Both earnings quality measures are expressed in natural logarithm to reduce skewness.

Prior accounting research has also used other earnings quality proxies. The common ones used in prior research include the absolute value of abnormal accruals estimated from various versions of the Jones' (1991) model, earnings smoothing, Basu's (1997) timely loss recognition, and earnings restatements (see, e.g., Leuz et al. 2003; Lang et al. 2006; Doyle et al. 2007a). We do not use them as our earnings quality proxies for the following reasons. First, Doyle et al. (2007a) indicate that ICD will result in both intentional and unintentional estimation errors in reported earnings. Because *EQ_CROSS* and *EQ_TIME* are designed to capture both types of estimation errors, they are preferred to other earnings quality proxies such as abnormal accruals

and earnings smoothing that more closely relate to managerial incentives to manipulate earnings. Second, any earnings quality measures based on stock prices such as Basu's timely loss recognition could be problematic in our setting because the degree of stock price efficiency may differ across U.S. firms and cross-listed firms. Third, earnings restatements may not adequately capture the unobservable true earnings quality for many cross-listed firms. Similar to Section 302 ICD disclosure, the likelihood of an earnings restatement depends on the strength of a firm's corporate governance. Given that cross-listed firms on average have weaker corporate governance than U.S. firms, cross-listed firms that have misstated earnings should be less likely to report an earnings restatement than U.S. firms. Thus, the incidence of an earnings restatement will not serve as a clean earnings quality proxy for cross-listed firms as well as for U.S. firms.

Nevertheless, as a robustness check, we also used several commonly used alternative earnings quality proxies and found qualitatively similar inferences (results untabulated). The alternative earnings quality proxies include the logarithm of the average absolute value of abnormal accruals over 1996-2002 estimated from the cross-sectional Jones (199) model, the time-series Jones (1991) model, and the Kothari et al.'s (2005) performance-adjusted cross-sectional Jones model.[11]

Following Doyle et al. (2007a), we control for the determinants of *EQ* that are potentially correlated with the variable *ICD* in estimating model (1). We measure the control variables over the time period 1996-2002 to be consistent with the measurement of *EQ*. *MEAN_%LOSS* is the ratio of the number of years of losses (Compustat #123) relative to the total number of years of data from 1996-2002. *SALES_VOLATILITY* is the standard deviation of the ratio of annual sales

[11] It is well recognized that existing earnings quality proxies (including *EQ_CROSS* and *EQ_TIME*) are noisy and even biased. However, we have no reason to believe that our variable of interest *ICD*×*FOREIGN* will be affected because any noises/biases would apply to both U.S. firms and cross-listed firms. In addition, we analyze regression model (1) for cross-listed firms domiciled in weak and strong investor protection countries separately (see Section 4.2).

(Compustat #12) to average total assets (Compustat #6) over 1996-2002. *CFO_VOLATILITY* is the standard deviation of the ratio of operating cash flows (Compustat #308) to average total assets over 1996-2002. *MEAN_ASSETS* is the average total assets over 1996-2002. *MEAN_CYCLE* is the average of [average accounts receivable/(sales/360)+average inventory/(cost of goods sold/360)] over 1996-2002. *MEAN_SEGMENTS* is the average number of total operating and geographic segments over 1996-2002. *FIRM_AGE* is the number of years the firm has CRSP data as of 2003. *EXTREME_GROWTH* is a dummy variable equal to one if the average annual two-digit industry adjusted sales growth (Compustat #12) over 1996-2002 is in the top quintile, and zero otherwise. *RESTRUCTURE_CHARGE* is the sum of restructuring charges (Compustat #376*(-1)/market value of equity at the fiscal year end) over 1996-2002. Except for *MEAN_%LOSS*, *EXTREME_GROWTH*, and *RESTRUCTURE_CHARGE*, all the control variables are converted into natural logarithm in later regressions to reduce skewness. Following Doyle et al. (2007a), *EQ* is predicted to increase with *MEAN_%LOSS*, *SALES_VOLATILITY*, *CFO_VOLATILITY*, and *MEAN_CYCLE*, and decrease with *MEAN_ASSETS*. We do not include country dummies in regression model (1) because the ICD disclosure quality is partially a function of a country's investor protection level and thus including the country dummies will take away a portion of the effect we wish to capture from the *ICD* variable. For the same reason, we do not include firm-specific corporate governance proxies (e.g., the quality of the external auditor).[12]

The coefficient on *ICD* in model (1) represents the difference in earnings quality between U.S. ICD disclosure firms and U.S. non-disclosure firms. The coefficient on *ICD×FOREIGN* represents the incremental effect of ICD disclosure on earnings quality for cross-listed firms

[12] Nevertheless, all of our inferences are robust to the inclusion of an auditor quality dummy (*BIG5*) and its interaction with *FOREIGN*. The coefficients on those two added variables are generally insignificant.

relative to U.S. firms. The sum of the coefficients on *ICD* and *ICD×FOREIGN* captures the difference in earnings quality between cross-listed ICD disclosure firms and cross-listed non-disclosure firms.

Consistent with Ashbaugh-Skaife et al. (2007a) and Doyle et al. (2007a), we expect U.S. firms' Section 302 ICD disclosures to be informative about earnings quality and thus the coefficient on *ICD* is expected to be positive. If cross-listed firms' Section 302 ICD disclosures are as informative as U.S. firms', the sum of the coefficients on *ICD* and *ICD×FOREIGN* should be positive, too. In addition, given that the overall home country investor protection is weaker for cross-listed firms than for U.S. firms, the effect of an ICD on earnings quality could be larger for cross-listed firms than for U.S. firms. As a result, the coefficient on *ICD×FOREIGN* could be even significantly positive assuming that the degree of truthful reporting is the same for both U.S. firms and cross-listed firms. However, as we have argued above, if cross-listed firms underreport ICDs to a greater extent than U.S. firms, the sum of the coefficients on *ICD* and *ICD×FOREIGN* is likely to be less positive and the coefficient on *ICD×FOREIGN* is expected to be significantly negative.[13]

4.2. Section 302 ICD disclosure and earnings quality by country-level investor protection

As explained in the Introduction, one of the reasons that cross-listed firms are reluctant to truthfully report ICD is their home countries' weaker investor protection relative to that of the U.S. Thus, we expect the predicted coefficient on *ICD×FOREIGN* to be more negative for cross-listed firms located in weak investor protection countries than for cross-listed firms located in

[13] The regression results of model (1) are robust to the inclusion of a list of Fama and French (1997) industry dummies and their interactions with *FOREIGN*. We require each industry to have a minimum of 100 observations to preserve the degrees of freedom.

strong investor protection countries. To test this prediction, we divide cross-listed firms into two groups based on their home country investor protection ratings reported in La Porta et al. (1998). La Porta et al.'s investor protection ratings consider both the extent of the *laws* that protect investors' property rights and the strength of the legal institutions that facilitate *law enforcement*. Because DeFond and Hung (2004) show that it is the law enforcement institutions rather than the extensive investor protection laws that matter to investor protection, we classify the foreign countries in our sample into the weak and strong investor protection groups by the median score (7.72) of La Porta et al.'s law enforcement ratings, the same cutoff used in DeFond and Hung (2004).[14]

5. Results on the association between Section 302 ICD disclosure and earnings quality

5.1. Descriptive statistics

Table 1 reports the descriptive statistics for the regression variables used in model (1). Panel A (B) reports the descriptive statistics for U.S. firms and cross-listed firms with sufficient data to estimate *EQ_CROSS* (*EQ_TIME*). The descriptive statistics for cross-listed firms are shown for strong and weak investor protection countries separately. For brevity, we do not report the descriptive statistics for the control variables in panel B since they are similar to those reported in Panel A. *CONTROL1* and *CONTROL2* are discussed in Section 6.

[14] The strong investor protection countries in our sample include Australia, Belgium, Canada, Denmark, Finland, France, Germany, Hong Kong, Ireland, Japan, Netherlands, New Zealand, Norway, Singapore, Sweden, Switzerland, and United Kingdom. The weak investor protection countries in our sample include Argentina, Bahamas, Bermuda, Brazil, British Virgin Islands, Cayman Islands, China, Chile, Dominican Republic, Greece, Hungary, India, Indonesia, Israel, Italy, Liberia, Luxembourg, Marshall Islands, Mexico, Netherland Antilles, Panama, Papua New Guinea, Peru, Philippines, Portugal, Russia, South Korea, South Africa, Spain, Taiwan, and Venezuela. Bahamas, Bermuda, British Virgin Islands, Cayman Island, China, Hungary, Liberia, Luxembourg, Marshall Islands, Netherland Antilles, Papua New Guinea, Panama, and Russia are not rated by La Porta et al. (1998) and thus are automatically assumed to belong to the weak investor protection country group.

The percentage of firms reporting ICDs or material weaknesses (MWs) in Panel A monotonically increases from U.S. firms to cross-listed firms domiciled in strong investor protection countries to cross-listed firms domiciled in weak investor protection countries, but none of the pair-wise differences are statistically significant. *EQ_CROSS* is similar across the two subsamples of cross-listed firms but is significantly higher for U.S. firms, suggesting that cross-listed firms' earnings quality is on average better than U.S. firms. However, *EQ_TIME* in Panel B is similar for U.S. firms and cross-listed firms domiciled in weak investor protection countries. Although prior research has shown good earnings quality is attributable to strong corporate governance (e.g., Klein 2002), one cannot infer from the above result that cross-listed firms' corporate governance is better than U.S. firms because the two samples differ on many other dimensions as shown in Panel A of Table 1. For example, *SALES_VOLATILITY* and *CFO_VOLATILITY* are significantly higher while *MEAN_ASSETS* is significantly smaller for U.S. firms. Prior research has shown that *EQ_CROSS* and *EQ_TIME* increase with *SALES_VOLATILITY* and *CFO_VOLATILITY* and decrease with *MEAN_ASSETS* (Dechow and Dichev 2002; Doyle et al. 2007a; Ashbaugh-Skaife et al. 2007a).

5.2. Regression results

Table 2 reports the regression results of model (1). The results in columns (1) and (2) are based on all ICD observations while the results in columns (3) and (4) use only material weakness observations. Consistent with Ashbaugh-Skaife et al. (2007a) and Doyle et al. (2007a), the coefficient on *ICD* is significantly positive at the 5% significance level for both *EQ_CROSS* and *EQ_TIME*, as shown in columns (1) and (2). Consistent with cross-listed firms underreporting ICD, the coefficient on *ICD×FOREIGN* is significantly negative at the 10%

significance level or better in columns (1) and (2). The sum of the coefficients on *ICD* and *ICD×FOREIGN* in columns (1) and (2) is never significant. Thus, in contrast to the results for U.S. firms, we find little evidence that cross-listed firms' ICD disclosures are related to firms' earnings quality. We obtain similar results after limiting the ICD observations to material weakness observations only in columns (3) and (4).

The coefficients on the control variables are generally consistent with Doyle et al. (2007a, Table 2). Although the coefficients on some of the control variables are significantly different between U.S. firms and cross-listed firms, overall the control variables explain *EQ_CROSS* and *EQ_TIME* pretty well for both U.S. firms and cross-listed firms.

5.3. Sensitivity checks

Our regression results in Table 2 are robust to a battery of sensitivity checks. We first examine whether the weaker relation between the ICD disclosure and earnings quality for cross-listed firms is caused by the poor quality of accounting data we used to measure earnings quality and other regression variables. Because many cross-listed firms report their financial data under their home country GAAP, which may be of lower quality than their equivalent U.S. GAAP numbers, there is a concern that our regression variables may not capture the theoretical constructs for the cross-listed firms as well as for the U.S. firms. To address this concern, Table 3 replicates the regressions in Table 2 after excluding the cross-listed firms that do not report under U.S. GAAP and the absolute difference between the U.S. GAAP reconciled return on assets and the home country GAAP return on assets in fiscal year 2003 is greater than the median of the cross-listed firm sample.[15] For each of the four regressions, the coefficient on

[15] Due to data collection costs, we only collected the data needed to compute the difference between U.S. GAAP return on assets and home country GAAP return on assets for the year 2003.

ICD×FOREIGN is still significantly negative, suggesting that poor accounting data quality unlikely explains the results in Table 2.

All the earnings quality proxies discussed so far use U.S. GAAP data for the U.S. firms but home country GAAP data for the cross-listed firms that do not report under U.S. GAAP. To check whether this GAAP difference could explain the results in Table 2, we estimate regression model (1) using a new earnings quality proxy *ACC_CF* per Leuz et al. (2003). *ACC_CF* is defined as the logarithm of the ratio of the absolute total accruals to the absolute total cash flows from operations for the fiscal year 2003. Total accruals are computed as net income minus cash flows from operations. The data required for computing *ACC_CF* are based on U.S. GAAP for cross-listed firms and hand collected from cross-listed firms' 20-F reconciliations. Untabulated regression results indicate that the coefficient on *ICD* is always significantly positive while the coefficient on *ICD×FOREIGN* is always significantly negative, suggesting that the association between ICD disclosure and poor earnings quality becomes weaker for cross-listed firms than for U.S. firms. This evidence lends further support for our primary results in Table 2.

Cross-listed firms that do not issue new shares through a public offering in the United States have the option to file their annual reports 20-Fs under either Item 17 or Item 18. The major reporting difference between the two choices is that Item 18 filing requires vastly expanded footnote disclosures required by U.S. GAAP while the footnote disclosures under Item 17 filing are generally limited to those required by home country GAAP, which is typically less stringent than footnote disclosures required under U.S. GAAP. Prior research (e.g., Frost and Kinney 1996; Douthett et al. 2003) finds that the reporting quality for Item 17 filers tend to be lower than that for Item 18 filers. Thus, we also replicate Table 2's four regression models after deleting 40 cross-listed firms filed under Item 17 in 2003. Untabulated regression results indicate

that the coefficient on *ICD×FOREIGN* is always significantly negative for all the regression models except for the regression model in Column (2) of Table 2 (i.e., all ICD types with *EQ_TIME* as the dependent variable). Thus, there is no evidence indicating that Table 2's regression results are driven by the Item 17 filers, whose reported financial data have been shown to be of lower quality than those of Item 18 filers.

As noted in Section 2, accelerated U.S. filers are subject to Section 404 of SOX much earlier than non-U.S. filers and non-accelerated U.S. filers. Because the external auditor is involved in the ICD disclosure decision under Section 404, one may argue that U.S. firms' higher quality Section 302 ICD disclosure documented in Table 2 could be driven by the accelerated U.S. filers who are under greater pressure to truthfully report any discovered Section 302 ICD in anticipation of the imminent external audit under Section 404. To rule out this alternative explanation, Table 4 replicates Table 2's four regressions after deleting 2,391 accelerated U.S. filers. The coefficients on *ICD* is always positive while the coefficient on *ICD×FOREIGN* is always negative in Table 3. In addition, all these coefficients are statistically significant except for the coefficient on *ICD* in column (1)'s regression (i.e., all ICD types with *EQ_CROSS* as the dependent variable). Overall, Table 4's results suggest that Table 2's regression results are not driven by accelerated U.S. filers who may more truthfully report ICDs in preparation for more stringent internal control disclosure requirements under Section 404 of SOX.

5.4. Regression results by home country investor protection

Tables 5 replicates regression model (1) by the level of home country investor protection (weak versus strong). For brevity, we only report results using firms that made material

weakness disclosures or no ICD disclosures because the results in Table 2 are generally stronger for these observations. We find that the negative coefficient on *ICD×FOREIGN* in Table 2 is driven by the cross-listed firms domiciled in weak investor protection countries. For both earnings quality proxies, the coefficient on *ICD×FOREIGN* is significantly negative for weak investor protection countries in columns (1) and (3) but insignificant for strong investor protection countries in columns (2) and (4). In addition, the coefficient on *ICD×FOREIGN* is significantly different across cross-listed firms domiciled in weak investor protection countries and cross-listed firms domiciled in strong investor protection countries. These results are consistent with the notion that managers from weak investor protection countries have less incentive to truthfully report Section 302 ICD since they potentially enjoy greater control benefits from exploiting minority shareholders.

It is interesting to note that the sum of the coefficients on *ICD* and *ICD×FOREIGN* is negative and significant for the regressions in columns (1) and (3), suggesting that for cross-listed firms domiciled in weak investor protection countries, the cross-listed firms that report ICDs actually have better earnings quality than the cross-listed firms that do not report any ICDs.[16] Overall the results in Table 5 provide additional support for our hypothesis that cross-listed firms underreport ICDs to a greater extent than do U.S. firms.

6. Private benefits of control and Section 302 ICD disclosure decision

The results reported in Table 2 and the related sensitivity checks are consistent with our hypothesis that cross-listed firms (especially those from weak investor protection countries) underreport the existence of ICD to a greater extent than do U.S. firms. However, the descriptive statistics for *ICD* and *MW* in Table 1 show that not all cross-listed firms, whether they are

[16] We provide further evidence consistent with this finding in Section 6.

domiciled in weak or strong investor protection countries, hide their internal control deficiencies. Thus, what are the determinants of cross-listed firms' Section 302 ICD disclosure decision?

As argued in the Introduction, disclosing an ICD would necessarily lead to the remediation of the ICD, which will reduce the management's ability to exploit minority shareholders. As a result, we expect cross-listed firms whose management enjoys significant private benefits of control are less likely to disclose the existence of any ICD. In addition, we expect this effect to be stronger in weak investor protection countries where securities laws and law enforcement are generally inadequate in protecting outside investors from managerial malfeasance (La Porta et al. 1998).

To determine whether cross-listed firms' management enjoys significant private benefits of control, we collect the voting rights and cash flows rights of the firm management group (including officers, directors, and their immediate family members). First, we match our cross-listed firm sample with the datasets of Claessens et al. (2000), Faccio and Lang (2002), and Lins (2003), which contain the voting rights and cash flow rights of the firm management group for many non-U.S. firms.[17] We are able to find required data for 164 cross-listed firms. Second, for the remaining 274 cross-listed firms in our sample, we hand collect the voting rights and cash flow rights of the firm management group using the approach described in Lins (2003).[18] The data sources include SEC filings (proxy statements, 20-F, 40-F, or 10-K), company web sites, stock exchange web sites, as well as the other data sources listed in Claessens et al. (2000), Faccio and Lang (2002), and Lins (2003). Because our Section 302 ICD disclosures pertain to year 2002, we try to use the voting and cash flow rights for fiscal year 2002 if available; otherwise, we use the data for 2003, 2001, or the most recent year prior to 2001.

[17] We thank the authors of the three papers for making their data freely available to us.
[18] Lins' approach has been adopted in several follow-up papers, e.g., Lang et al. (2004) and Doidge et al. (2007).

We define a dummy variable *CONTROL1* that equals one if a cross-listed firm's management group represents the largest blockholder of the firm by voting rights and its voting rights exceed cash flow rights. We define a dummy variable *CONTROL2* that equals one if a cross-listed firm's management group represents the largest blockholder of the firm by voting rights and its voting rights do not exceed cash flow rights. When the firm management group possesses greater voting rights than cash flow rights (i.e., *CONTROL1* = 1), we expect managers enjoy the largest private benefits of control and thus should have the strongest incentive to underreport ICD. Though in control of the firm, the management group that owns substantial cash flow rights (i.e., *CONTROL2* = 1) has a weaker incentive to underreport ICD due to the incentive alignment effect of cash flow rights. We expect the remaining cross-listed firms whose management groups have much less influence over firm control (i.e., *CONTROL1* = *CONTROL2* = 0) to have the weakest incentives to underreport ICD. Finally, we expect that the above predictions more likely hold for cross-listed firms domiciled in weak investor protection countries because expropriating minority shareholders is typically more difficult in strong investor protection countries.

Panel A of Table 1 shows the descriptive statistics for *CONTROL1* and *CONTROL2* for weak and strong investor protection countries. Consistent with prior research, the means of both variables are significantly higher for cross-listed firms domiciled in weak investor protection countries. Table 6 reports the logistic regression results of Section 302 ICD disclosure on *CONTRL1* and *CONTROL2* for weak investor protection countries and strong investor protection countries separately. Because the logistic regression results are similar using either *ICD* or *MW* as the dependent variable, we focus on the results using *ICD* as the dependent variable below.

Consistent with our predictions, for cross-listed firms domiciled in weak investor protection countries, the coefficient on *CONTROL1* is significantly negative while the coefficient on *CONTROL2* is insignificant; in addition, the coefficients on *CONTROL1* and *CONTROL2* are significantly different from each other. Furthermore, we find that the coefficients on *CONTROL1* and *CONTROL2* are never significant for cross-listed firms domiciled in strong investor protection countries. These results suggest that when country-level investor protection is weak and firm management can enjoy significant private benefits of control, cross-listed firms are less likely to disclose ICDs. The results in Table 6 are consistent with the earnings quality regression results in Table 5 and thus lend further support to our analyses in Section 5.[19]

7. Conclusion

We examine whether foreign firms that trade on the U.S. stock exchanges provide the same quality financial disclosure as U.S. firms. We test our research question using the internal control deficiency (ICD) disclosure under Section 302 of the SOX. We hypothesize that cross-listed firms are less likely than U.S. firms to truthfully disclose ICD for two reasons. First, investor protection in many foreign countries is weaker than that in the U.S. Thus, cross-listed firms' insiders have more opportunities to exploit minority shareholders than U.S. firms' insiders. Because an ICD disclosure often leads to remediation of the ICD, which in turn reduces the insiders' ability to exploit minority shareholders, cross-listed firms' insiders should be less willing than their U.S. counterparts to report known ICD to outside investors. Second, the risks

[19] We also run our logistic regression model including the internal control risk factors identified by Ashbaugh-Skaife et al. (2007), under the assumption that cross-listed firms are exposed to the same set of internal control risk factors as U.S. firms. Our inferences on *CONTROL1* and *CONTROL2* are unaffected. In addition, the included internal control risk factors are mostly insignificant.

of SEC enforcement and shareholder litigation that cross-listed firms face may not be as high as those of U.S. firms.

Consistent with this hypothesis, we find that the documented association between Section 302 ICD disclosure and poor earnings quality for U.S. firms becomes weaker for cross-listed firms, especially for those domiciled in weak investor protection countries. In addition, we find that the likelihood of reporting a Section 302 ICD is lower for cross-listed firms that are domiciled in weak investor protection countries and whose management can enjoy significant private benefits of control.

Disclosure regulation has been one of the pillars of the U.S. securities regulatory regime. The SEC mandates a significant number of financial disclosures for foreign firms that wish to list on U.S. stock exchanges. The bonding hypothesis in the cross listing literature also attaches particular importance to the SEC's disclosure regulation. Despite the importance of this topic, we know little of cross-listed firms' disclosure behavior, disclosure quality in particular. Our study is one of the first few attempts at filling in this important gap in the literature.

With respect to the Section 302 ICD disclosure, our results suggest that cross-listed firms' ICD disclosure is of little value to investors in terms of assessing firms' earnings quality. An interesting question that remains to be answered is whether cross-listed firms' Section 404 disclosure will be similar in quality to that of U.S. firms due to the direct attestation of the external auditor.

Although we have no reason to believe that the evidence from our narrow setting will not be generalizable to cross-listed firms' disclosure practice in general, given the importance of this topic, future research may also consider other disclosure contexts (both mandatory and voluntary) in order to better understand cross-listed firms' disclosure decisions.

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Table 1. Descriptive statistics for the earnings quality regression model[a]

Mean (median)[standard Deviation]

Panel A. The sample for the *EQ_CROSS* model

	U.S. firms (N=3,332)	Cross-listed firms		P Value from a Ranksum Test of the Difference		
		Strong investor protection countries (N= 247)	Weak investor protection countries (N= 191)			
	(1)	(2)	(3)	(1) vs. (2)	(1) vs. (3)	(2) vs. (3)
ICD	0.157 (0.000) [0.364]	0.162 (0.000) [0.369]	0.209 (0.000) [0.408]	0.846	0.056	0.203
MW	0.098 (0.000) [0.298]	0.105 (0.000) [0.308]	0.120 (0.000) [0.326]	0.717	0.317	0.618
EQ_CROSS	0.051 (0.041) [0.038]	0.041 (0.031) [0.033]	0.042 (0.029) [0.037]	<0.001	<0.001	0.622
MEAN_%LOSS	0.314 (0.286) [0.327]	0.314 (0.167) [0.336]	0.288 (0.142) [0.307]	0.874	0.471	0.672
SALES_VOLATILITY	0.254 (0.184) [0.222]	0.174 (0.132) [0.130]	0.176 (0.119) [0.165]	<0.001	<0.001	0.288
CFO_VOLATILITY	0.093 (0.066) [0.090]	0.079 (0.049) [0.087]	0.075 (0.056) [0.060]	<0.001	0.053	0.044
MEAN_ASSETS	1965.519 (223.371) [6259.149]	9079.410 (1723.319) [15274.120]	3271.978 (533.206) [8552.167]	<0.001	<0.001	<0.001

MEAN_CYCLE	167.318 (115.974) [224.804]	175.468 (130.070) [181.135]	155.970 (131.300) [94.300]	<0.001	0.003	0.992
MEAN_SEGMENTS	3.378 (3.000) [1.689]	4.957 (5.000) [2.231]	4.204 (4.143) [1.958]	<0.001	<0.001	<0.001
EXTREME_GROWTH	0.205 (0.000) [0.404]	0.186 (0.000) [0.390]	0.131 (0.000) [0.338]	0.480	0.013	0.120
RESTRUCTURE_ CHARGE	0.036 (0.000) [0.120]	0.020 (0.000) [0.072]	0.018 (0.000) [0.063]	0.251	0.092	0.574
FIRM_AGE	18.910 (13.000) [15.315]	14.040 (0.000) [10.907]	12.104 (10.000) [10.831]	<0.001	0.029	<0.001
BIG5	0.831 (1.000) [0.375]	0.951 (1.000) [0.215]	0.770 (1.000) [0.422]	<0.001	0.029	<0.001
CONTROL1	N/A	0.178 (0.000) [0.383]	0.424 (0.000) [0.496]	N/A	N/A	<0.001
CONTROL2	N/A	0.154 (0.000) [0.362]	0.303 (0.000) [0.461]	N/A	N/A	<0.001

Panel B. The sample for the *EQ_TIME* model

	US firms (N=2,488)	Cross-listed firms		P Value from a Ranksum Test of the Difference		
		Strong investor protection countries (N= 136)	Weak investor protection countries (N= 97)			
	(1)	(2)	(3)	(1) vs. (2)	(1) vs. (3)	(2) vs. (3)
ICD	0.154 (0.000) [0.361]	0.199 (0.000) [0.400]	0.206 (0.000) [0.307]	0.159	0.161	0.143
MW	0.094 (0.000) [0.291]	0.132 (0.000) [0.340]	0.113 (0.000) [0.319]	0.135	0.514	0.666
EQ_TIME	0.026 (0.019) [0.024]	0.022 (0.015) [0.021]	0.027 (0.016) [0.028]	0.005	0.273	0.395

[a] *EQ_CROSS* and *EQ_TIME* are firm-specific proxies for earnings quality. *EQ_CROSS* is the standard deviation of the residuals from the modified cross-sectional Dechow and Dechiv (2002) model. *EQ_TIME* is the standard deviation of the residuals from the firm-specific time-series Dechow and Dechiv (2002) model. *MEAN_%LOSS* is the ratio of the number of years of losses (Compustat #123) relative to the total number of years of data from 1996-2002. *SALES_VOLATILITY* is the standard deviation of the ratio of annual sales (Compustat #12) to average total assets (Compustat #6) over 1996-2002. *CFO_VOLATILITY* is the standard deviation of the ratio of operating cash flows (Compustat #308) to average total assets over 1996-2002. *MEAN_ASSETS* is the average total assets over 1996-2002. *MEAN_CYCLE* is the average of [average accounts receivable/(sales/360)+average inventory/(cost of goods sold/360)] over 1996-2002. *MEAN_SEGMENTS* is the average number of total operating and geographic segments over 1996-2002. *EXTREME_GROWTH* is a dummy that equals 1 if the average annual two-digit industry adjusted sales growth (Compustat #12) over 1996-2002 is in the top quintile. *RESTRUCTURE_CHARGE* is the sum of restructuring charges (Compustat #376*(-1)/market value of equity at the fiscal year end) over 1996-2002. *FIRM_AGE* is the number of years the firm has CRSP data as of 2003. See table 1 for other variable definitions. *CONTROL1* equals one if a cross-listed firm's management group (including officers, directors, and their immediate families) is the largest blockholder of the firm by voting rights and its voting rights exceed cash flow rights, and zero otherwise. *CONTROL2* equals one if a cross-listed firm's management group (including officers, directors, and their immediate families) is the largest blockholder of the firm by voting rights and its voting rights do not exceed cash flow rights, and zero otherwise.

Table 2. OLS regression results of earnings quality on ICD disclosure [a]

		(1)	(2)	(3)	(4)
		All three types of ICD disclosures		Material weakness disclosures	
	Predicted sign	Dependent variable = Ln(*EQ_CROSS)*	Dependent variable = Ln(*EQ_TIME)*	Dependent variable = Ln(*EQ_CROSS)*	Dependent variable = Ln(*EQ_TIME)*
ICD	+	0.039 (0.022)**	0.069 (0.035)**	0.071 (0.027)***	0.089 (0.044)**
FOREIGN		-0.764 (0.221)***	-0.939 (0.465)**	-0.783 (0.228)***	-0.966 (0.500)*
ICD×FOREIGN	-	-0.109 (0.063)**	-0.150 (0.113)*	-0.147 (0.077)**	-0.282 (0.139)**
MEAN_%LOSS	+	0.142 (0.032)***	0.515 (0.052)***	0.130 (0.033)***	0.503 (0.055)***
Ln(*SALES_VOLATILITY*)	+	0.157 (0.011)***	0.241 (0.018)***	0.155 (0.011)***	0.237 (0.019)***
Ln(*CFO_VOLATILITY*)	+	0.441 (0.015)***	0.362 (0.024)***	0.444 (0.015)***	0.357 (0.025)***
Ln(*MEAN_ASSETS*)	-	-0.056 (0.005)***	-0.096 (0.008)***	-0.057 (0.006)***	-0.097 (0.009)***
Ln(*MEAN_CYCLE*)	+	0.093 (0.010)***	0.150 (0.017)***	0.091 (0.011)***	0.147 (0.018)***
Ln(*MEAN_SEGMENTS*)		0.073 (0.020)***	0.119 (0.031)***	0.072 (0.020)***	0.113 (0.032)***
EXTREME_GROWTH		-0.059 (0.023)***	0.002 (0.034)	-0.056 (0.023)**	0.005 (0.035)
RESTRUCTURE_CHARGE		0.250 (0.070)***	0.345 (0.115)***	0.248 (0.073)***	0.401 (0.123)***
Ln(*FIRM_AGE*)		-0.016 (0.013)	-0.034 (0.021)	-0.017 (0.013)	-0.032 (0.022)
MEAN_%LOSS×FOREIGN		0.058 (0.090)	0.239 (0.185)	0.083 (0.093)	0.274 (0.194)

Ln(*SALES_VOLATILITY*)×*FOREIGN*		0.012 (0.035)	0.103 (0.071)	0.007 (0.036)	0.105 (0.075)
Ln(*CFO_VOLATILITY*)×*FOREIGN*		-0.104 (0.046)**	-0.190 (0.091)**	-0.102 (0.048)**	-0.208 (0.095)**
Ln(*MEAN_ASSETS*)×*FOREIGN*		-0.005 (0.015)	0.041 (0.029)	-0.001 (0.016)	0.043 (0.030)
Ln(*MEAN_CYCLE*)×*FOREIGN*		0.036 (0.038)	0.125 (0.076)	0.037 (0.039)	0.137 (0.079)*
Ln(*MEAN_SEGMENTS*)×*FOREIGN*		0.010 (0.054)	-0.254 (0.110)**	0.007 (0.057)	-0.268 (0.117)**
EXTREME_GROWTH×*FOREIGN*		0.067 (0.068)	0.113 (0.116)	0.049 (0.070)	0.111 (0.121)
RESTRUCTURE_CHARGE×*FOREIGN*		0.209 (0.346)	1.060 (0.597)*	0.849 (0.503)*	1.637 (0.942)*
Ln(*FIRM_AGE*)×*FOREIGN*		0.104 (0.039)***	0.005 (0.074)	0.094 (0.041)**	-0.027 (0.079)
Constant		-1.968 (0.069)***	-2.893 (0.119)***	-1.942 (0.071)***	-2.891 (0.124)***
p-value for H_0: *ICD* + *ICD*×*FOREIGN* = 0		0.254	0.449	0.301	0.143
Observations Adjusted R^2		3,770 0.582	2,721 0.521	3,542 0.584	2,554 0.516

[a] See Tables 1 for variable definitions. The samples in columns (3) and (4) exclude "deficiency" or "significant deficiency" ICD disclosures. Standard errors are reported in parentheses. *, **, and *** represent significance levels of 10%, 5%, and 1%, respectively. The significance level is one-tailed if there is a prediction and two-tailed otherwise.

Table 3. OLS regression results of earnings quality on ICD disclosure for cross-listed firms reporting under the same (or similar) GAAP as US firms[a]

		(1)	(2)	(3)	(4)
		All three types of ICD disclosures		Material weakness disclosures only	
	Predicted sign	Dependent variable = Ln(*EQ_CROSS)*	Dependent variable = Ln(*EQ_TIME)*	Dependent variable = Ln(*EQ_CROSS)*	Dependent variable = Ln(*EQ_TIME)*
ICD	+	0.039 (0.022)**	0.069 (0.035)**	0.071 (0.027)***	0.089 (0.044)**
FOREIGN		-1.128 (0.259)***	-1.097 (0.483)**	-1.109 (0.264)***	-0.967 (0.607)*
ICD×FOREIGN	-	-0.155 (0.074)**	-0.236 (0.142)**	-0.152 (0.088)**	-0.325 (0.167)**
MEAN_%LOSS	+	0.142 (0.031)***	0.515 (0.052)***	0.130 (0.032)***	0.503 (0.055)***
Ln(*SALES_VOLATILITY*)	+	0.157 (0.011)***	0.241 (0.018)***	0.155 (0.011)***	0.237 (0.019)***
Ln(*CFO_VOLATILITY*)	+	0.441 (0.014)***	0.362 (0.024)***	0.444 (0.015)***	0.357 (0.025)***
Ln(*MEAN_ASSETS*)	-	-0.056 (0.005)***	-0.096 (0.008)***	-0.057 (0.006)***	-0.097 (0.009)***
Ln(*MEAN_CYCLE*)	+	0.093 (0.010)***	0.150 (0.017)***	0.091 (0.011)***	0.147 (0.018)***
Ln(*MEAN_SEGMENTS*)		0.073 (0.020)***	0.119 (0.031)***	0.072 (0.020)***	0.113 (0.032)***
EXTREME_GROWTH		-0.059 (0.023)***	0.002 (0.034)	-0.056 (0.023)**	0.005 (0.035)
RESTRUCTURE_CHARGE		0.250 (0.060)***	0.345 (0.115)***	0.248 (0.072)***	0.401 (0.122)***
Ln(*FIRM_AGE*)		-0.016 (0.013)	-0.034 (0.021)	-0.017 (0.013)	-0.032 (0.022)

MEAN_%LOSS×*FOREIGN*		0.052 (0.107)	0.395 (0.234)*	0.036 (0.110)	0.370 (0.244)
Ln(*SALES_VOLATILITY*)×*FOREIGN*		-0.023 (0.041)	0.062 (0.090)	-0.031 (0.042)	0.064 (0.096)
Ln(*CFO_VOLATILITY*)×*FOREIGN*		-0.146 (0.055)***	-0.132 (0.119)	-0.140 (0.058)**	-0.157 (0.125)
Ln(*MEAN_ASSETS*)×*FOREIGN*		-0.012 (0.018)	0.065 (0.039)*	-0.010 (0.019)	0.056 (0.041)
Ln(*MEAN_CYCLE*)×*FOREIGN*		0.081 (0.044)*	0.144 (0.097)	0.085 (0.046)*	0.155 (0.102)
Ln(*MEAN_SEGMENTS*)×*FOREIGN*		-0.010 (0.063)	-0.281 (0.147)*	-0.007 (0.066)	-0.320 (0.153)**
EXTREME_GROWTH×*FOREIGN*		0.151 (0.078)*	0.088 (0.154)	0.113 (0.079)	0.023 (0.161)
RESTRUCTURE_CHARGE×*FOREIGN*		0.173 (0.366)	0.885 (0.154)	1.079 (0.537)**	1.296 (1.049)
Ln(*FIRM_AGE*)×*FOREIGN*		0.112 (0.049)**	0.005 (0.092)	0.085 (0.050)*	-0.039 (0.095)
Constant		-1.968 (0.069)***	-2.893 (0.119)***	-1.942 (0.071)***	-2.891 (0.124)***
p-value for H_0: *ICD* + *ICD*×*FOREIGN* = 0		0.100	0.223	0.331	0.143
Observations Adjusted R^2		3,647 0.583	2,636 0.522	3,430 0.584	2,478 0.517

[a] The sample excludes cross-listed firms that do not report under US GAAP and the absolute difference between the US GAAP reconciled return on assets and the home country GAAP return on assets in fiscal-year 2003 is greater than the median of the cross-listed firm sample. See Tables 1 for variable definitions. The samples in columns (3) and (4) exclude "deficiency" or "significant deficiency" ICD disclosures. Standard errors are reported in parentheses. *, **, and *** represent significance levels of 10%, 5%, and 1%, respectively. The significance level is one-tailed if there is a prediction and two-tailed otherwise.

Table 4. OLS regression results of earnings quality on ICD disclosure after excluding accelerated U.S. filers [a]

		(1)	(2)	(3)	(4)
		All three types of ICD disclosures		Material weakness disclosures	
	Predicted sign	Dependent variable = Ln(*EQ_CROSS)*	Dependent variable = Ln(*EQ_TIME)*	Dependent variable = Ln(*EQ_CROSS)*	Dependent variable = Ln(*EQ_TIME)*
ICD	+	0.043 (0.036)	0.140 (0.056)***	0.079 (0.041)**	0.166 (0.065)***
FOREIGN		-0.499 (0.248)**	-0.755 (0.490)	-0.550 (0.255)**	-0.794 (0.524)
ICD×FOREIGN	-	-0.111 (0.069)*	-0.221 (0.118)**	-0.153 (0.083)**	-0.359 (0.143)***
MEAN_%LOSS	+	0.286 (0.056)***	0.519 (0.090)***	0.281 (0.058)***	0.511 (0.094)***
Ln(*SALES_VOLATILITY*)	+	0.193 (0.021)***	0.282 (0.034)***	0.196 (0.022)***	0.271 (0.035)***
Ln(*CFO_VOLATILITY*)	+	0.418 (0.028)***	0.278 (0.046)***	0.420 (0.029)***	0.266 (0.048)***
Ln(*MEAN_ASSETS*)	-	-0.055 (0.015)***	-0.129 (0.023)***	-0.060 (0.015)***	-0.138 (0.025)***
Ln(*MEAN_CYCLE*)	+	0.104 (0.017)***	0.191 (0.029)***	0.104 (0.018)***	0.192 (0.030)***
Ln(*MEAN_SEGMENTS*)		0.076 (0.039)***	0.098 (0.059)*	0.086 (0.039)**	0.100 (0.062)***
EXTREME_GROWTH		-0.127 (0.044)***	-0.061 (0.068)	-0.134 (0.045)***	-0.060 (0.070)
RESTRUCTURE_CHARGE		0.198 (0.107)*	0.432 (0.165)***	0.223 (0.110)**	0.482 (0.177)***
Ln(*FIRM_AGE*)		0.040 (0.027)	-0.050 (0.046)	0.025 (0.028)	-0.064 (0.048)
MEAN_%LOSS×FOREIGN		-0.080 (0.102)	-0.235 (0.194)	-0.063 (0.105)	0.266 (0.203)

Ln(*SALES_VOLATILITY*)×*FOREIGN*		-0.021 (0.039)	0.062 (0.075)	-0.031 (0.041)	0.071 (0.078)
Ln(*CFO_VOLATILITY*)×*FOREIGN*		-0.082 (0.052)	-0.106 (0.096)	-0.079 (0.054)	-0.117 (0.101)
Ln(*MEAN_ASSETS*)×*FOREIGN*		-0.006 (0.020)	0.075 (0.035)**	0.002 (0.021)	0.084 (0.037)**
Ln(*MEAN_CYCLE*)×*FOREIGN*		0.025 (0.040)	0.085 (0.078)	0.023 (0.041)	0.092 (0.081)
Ln(*MEAN_SEGMENTS*)×*FOREIGN*		0.003 (0.064)	-0.233 (0.118)**	-0.011 (0.066)**	-0.255 (0.125)**
EXTREME_GROWTH×*FOREIGN*		0.135 (0.078)*	0.176 (0.127)	0.127 (0.079)	0.176 (0.132)
RESTRUCTURE_CHARGE×*FOREIGN*		0.262 (0.355)	0.973 (0.591)*	0.873 (0.508)*	1.557 (0.921)*
Ln(*FIRM_AGE*)×*FOREIGN*		0.050 (0.046)	0.021 (0.082)	0.054 (0.047)	0.005 (0.087)
Constant		-2.233 (0.132)***	-3.077 (0.225)***	-2.175 (0.135)***	-3.063 (0.234)***
p-value for H_0: *ICD* + *ICD*×*FOREIGN* = 0		0.255	0.434	0.300	0.131
Observations Adjusted R^2		1,380 0.588	908 0.528	1,290 0.593	845 0.526

[a] The sample excludes 2,391 U.S. accelerated filers (identified as U.S. firms with greater than $75 million market value of equity at the end of the most second quarter prior to November 15, 2004). See Tables 1 for variable definitions. The samples in columns (3) and (4) exclude "deficiency" or "significant deficiency" ICD disclosures. Standard errors are reported in parentheses. *, **, and *** represent significance levels of 10%, 5%, and 1%, respectively. The significance level is one-tailed if there is a prediction and two-tailed otherwise.

Table 5. Regression results of earnings quality on ICD disclosure by cross-listed firms' home country investor protection (material weakness only)[a]

		(1)	(2)	(3)	(4)
		Dependent variable = Ln(*EQ_CROSS)*		Dependent variable = Ln(*EQ_TIME)*	
	Predicted sign	Weak investor protection countries	Strong investor protection countries	Weak investor protection countries	Strong investor protection countries
ICD	+	0.071 (0.027)***	0.071 (0.027)***	0.089 (0.044)**	0.089 (0.044)**
FOREIGN		-0.465 (0.380)	-0.939 (0.289)***	-0.579 (0.828)	-1.016 (0.697)
ICD×FOREIGN	-	-0.310 (0.110)***	-0.016 (0.102)	-0.689 (0.237)***	-0.060 (0.176)
MEAN_%LOSS	+	0.130 (0.032)***	0.130 (0.032)***	0.503 (0.054)***	0.503 (0.054)***
Ln(*SALES_VOLATILITY*)	+	0.155 (0.011)***	0.155 (0.011)***	0.237 (0.019)***	0.237 (0.019)***
Ln(*CFO_VOLATILITY*)	+	0.444 (0.015)***	0.444 (0.015)***	0.357 (0.025)***	0.357 (0.025)***
Ln(*MEAN_ASSETS*)	-	-0.057 (0.006)***	-0.057 (0.006)***	-0.097 (0.009)***	-0.097 (0.009)***
Ln(*MEAN_CYCLE*)	+	0.091 (0.011)***	0.091 (0.010)***	0.147 (0.018)***	0.147 (0.018)***
Ln(*MEAN_SEGMENTS*)		0.072 (0.020)***	0.072 (0.020)***	0.113 (0.032)***	0.113 (0.032)***
EXTREME_GROWTH		-0.056 (0.023)**	-0.056 (0.023)**	0.005 (0.035)	0.005 (0.035)
RESTRUCTURE_CHARGE		0.248 (0.072)***	0.248 (0.072)***	0.401 (0.122)***	0.401 (0.122)***
Ln(*FIRM_AGE*)		-0.017 (0.013)	-0.017 (0.013)	-0.032 (0.022)	-0.032 (0.022)

MEAN_%LOSS×*FOREIGN*		0.255 (0.146)*	-0.026 (0.116)	0.698 (0.288)**	0.058 (0.264)
Ln(*SALES_VOLATILITY*)×*FOREIGN*		-0.093 (0.053)*	0.087 (0.051)*	0.101 (0.115)	0.082 (0.103)
Ln(*CFO_VOLATILITY*)×*FOREIGN*		-0.024 (0.078)	-0.162 (0.060)***	-0.060 (0.159)	-0.273 (0.121)**
Ln(*MEAN_ASSETS*)×*FOREIGN*		0.006 (0.024)	-0.017 (0.021)	0.051 (0.047)	0.044 (0.041)
Ln(*MEAN_CYCLE*)×*FOREIGN*		0.018 (0.062)	0.076 (0.051)	0.087 (0.121)	0.108 (0.115)
Ln(*MEAN_SEGMENTS*)×*FOREIGN*		-0.034 (0.080)	-0.003 (0.078)	-0.346 (0.167)**	-0.167 (0.164)
EXTREME_GROWTH×*FOREIGN*		0.110 (0.113)	0.010 (0.085)	0.047 (0.177)	0.334 (0.166)**
RESTRUCTURE_CHARGE×*FOREIGN*		1.204 (0.775)	0.692 (0.653)	-0.613 (1.215)	4.204 (1.528)***
Ln(*FIRM_AGE*)×*FOREIGN*		-0.014 (0.068)	0.147 (0.049)***	0.097 (0.125)	-0.123 (0.101)
Constant		-1.942 (0.071)***	-1.942 (0.071)***	-2.891 (0.124)***	-2.891 (0.124)***
p-value for H_0: *ICD* + *ICD*×*FOREIGN* = 0		0.024	0.582	0.010	0.865
p-value for H_0: coefficient on *ICD*×*FOREIGN* is the same for weak and strong investor protection countries		0.043		0.029	
Observations Adjusted R^2		3,309 0.585	3,368 0.589	2,427 0.520	2,466 0.516

[a] Weak (Strong) investor protection countries refer to the non-U.S. countries whose average law enforcement ratings per La Porta et al.'s (1998) are below (above) 7.72 (the median). See Tables 1 for other variable definitions. The samples in columns (1)-(4) exclude "deficiency" or "significant deficiency" ICD disclosures. Standard errors are reported in parentheses. *, **, and *** represent significance levels of 10%, 5%, and 1%, respectively. The significance level is one-tailed if there is a prediction and two-tailed otherwise.

Table 6: Logistic regression results on ICD disclosure decision[a]

		(1)	(2)	(3)	(4)
		Dependent variable = *ICD*		Dependent variable = *MW*	
	Predicated sign	Weak investor protection countries	Strong investor protection countries	Weak investor protection countries	Strong investor protection countries
CONTROL1	-	-1.489 (0.475)***	-0.509 (0.517)	-1.651 (0.626)***	0.025 (0.540)
CONTROL2		-0.331 (0.421)	-0.129 (0.490)	-0.311 (0.513)	0.000 (0.589)
Constant		-0.722 (0.296)**	-1.545 (0.205)***	-1.253 (0.359)***	-2.079 (0.257)***
p-value for H_0: *CONTROL1* = *CONTROL2*		0.015	0.559	0.034	0.972
Pseudo R^2		0.060	0.005	0.065	0.000
Likelihood ratio χ^2		11.78	1.06	8.86	0.00
Model *p*-value		0.003	0.589	0.012	0.999
Observations		191	247	174	233

[a] The sample includes cross-listed firms only. Weak (Strong) investor protection countries refer to the non-U.S. countries whose average law enforcement ratings per La Porta et al.'s (1998) are below (above) 7.72 (the median). See Tables 1 for variable definitions. Standard errors are reported in parentheses. *, **, and *** represent significance levels of 10%, 5%, and 1%, respectively. The significance level is one-tailed if there is a prediction and two-tailed otherwise.