The Impact of Sarbanes-Oxley on Cross-listed Companies\*

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September 8, 2011

Preliminary - Please do not circulate or cite without permission. Comments welcome.

\* We appreciate helpful comments from Paul Healy, Krish Palepu, Suraj Srinivasan, Irem Tuna, Gwen Yu, Jerry Zimmerman, Julie Zhu, and workshop participants at Harvard University, the LBS Accounting Symposium, and the Tel Aviv International Conference in Accounting. The authors gratefully acknowledge financial support as follows: Berger from the University of Chicago Booth School of Business, Li from the Ernst and Young faculty development fund at the University of Michigan, and Wong from the Rotman School of Management at the University of Toronto and the Social Sciences and Humanities Research Council of Canada.

## Abstract

We examine the impact of the Sarbanes-Oxley Act (SOX) of 2002 on firms with securities cross-listed on U.S. exchanges in order to (i) test the importance of the legal bonding motive for cross-listing into the U.S. market and (ii) measure the benefits and costs of SOX. The two research questions are interrelated, because a potential benefit of SOX is to increase the extent of legal bonding from a U.S. listing. We exploit SOX being an exogenous change in investor protection for cross-listed firms, which allows us to overcome self-selection issues that have made it difficult for prior research to answer our research questions. Finally, we combine event study evidence from around the time of SOX's passage with evidence about multiple real changes in behavior between the pre- and post-SOX periods in order to reduce the possibility of incorrectly attributing results to the passage of SOX that could instead be associated with other contemporaneous events. Our event study evidence indicates that SOX's costs exceed its benefits for cross-listed firms, but that incremental legal bonding does provide a benefit. Our real changes evidence supports the existence of an incremental legal bonding benefit of SOX that substitutes for external monitoring by parties such as institutional blockholders. One cost of SOX for cross-listed firms is an increase in audit fees that can be only partially attributed to the increased legal liability faced by auditors. An additional cost of SOX is a decrease in risky investment that is stronger for firms from high investor protection home countries.

## 1. Introduction

We use the application of the Sarbanes-Oxley Act (SOX) of 2002 to cross-listed companies to examine the costs and benefits of SOX for these firms.<sup>1</sup> Prior SOX studies have examined the market reaction to events related to SOX's enactment (Jain and Rezaee (2006), Zhang (2007), Li, Pincus and Rego (2008)); post-SOX changes in reporting transparency or risk-taking (Cohen, Dey and Lys (2008), Bargeron, Lehn and Zutter (2010)); and causes and consequences of avoiding SOX via such means as staying below a size threshold (Gao, Wu and Zimmerman (2009)) or delisting, deregistering, or initially cross-listing onto non-U.S. exchanges (Engel, Hayes and Wang (2007), Leuz, Triantis and Wang (2008), Piotroski and Srinivasan (2008)).

Little consensus has emerged as to SOX's effects. Proponents claim it improves disclosure and governance whereas opponents argue it is ineffective in improving either, but imposes large direct and indirect compliance costs. The biggest challenge in assessing these competing views is the lack of a control group of publicly traded U.S. firms unaffected by the SOX legislation.

Our aim is to combine event study evidence with post-SOX changes for cross-listed firms in a manner that reduces the possibility of alternative explanations besides SOX driving our results. Note that our approach aims to identify the relative impact of SOX on treatment relative to control firms. We will thus not be able to assess the overall welfare effect of SOX.

We investigate shareholder wealth effects and changes in behavior surrounding passage of SOX in 2002. The benefit we study is improvement in minority shareholder protection via incremental legal bonding. Our tests of this benefit are tests of the joint hypothesis that legal bonding is a significant motive for cross-listing and that SOX increased the extent of legal

<sup>&</sup>lt;sup>1</sup> By cross-listed companies, we mean firms that are legally defined as "foreign private issuers" in the U.S. Under U.S. securities laws, a "foreign private issuer" is defined as any issuer, other than a foreign government, that does not have more than 50 percent of its outstanding voting securities held by U.S. residents and that does not satisfy any one of three conditions: (i) the majority of directors or executive officers are U.S. citizens or residents; (ii) more than 50 percent of the issuer's assets are located in the U.S.; or (iii) the issuer's business is administered principally in the U.S. (17 C.F.R. § 240.3b-4(c) (2003)).

bonding for firms already cross-listed. The costs of SOX we study include increased audit fees, displacement of private monitoring, and decreased risky investment.

We estimate stock price effects overall and examine the cross-sectional variation in these effects. We find the portfolio of foreign private issuers had a significantly more negative stock price reaction to SOX than did the U.S. market. We interpret the negative reaction of the foreign issuers as showing that any incremental legal bonding benefit provided by SOX for cross-listed firms was exceeded by SOX's incremental costs. Our current cross-sectional stock price reaction tests focus on whether the bonding benefits can explain part of the variation in foreign private issuers' reaction to SOX.

The cross-sectional event study results provide some support for the notion that the stock market reaction of foreign issuers is increasing in the legal bonding benefits provided by SOX. We find that SOX is more beneficial to foreign issuers from countries with high judicial efficiency, which may help to enforce investor rights derived from cross-listing, and from countries with weak private enforcement and weak minority shareholder protections. Our results are consistent with SOX being useful in helping foreign issuers from countries with weak investor protection to increase the extent of their commitment to following higher standards.

We follow our event study analyses with examinations of changes in audit fees, blockholder ownership, firm investment decisions, and other real changes. Audit fees increase for crosslisted firms after the internal control provisions of SOX begin to apply to them, after controlling for the change in audit fees among U.S. firms in the same industry. The extent of the audit fee increase is positively associated with most aspects of home country investor protection. The positive association of the audit fee increase with most dimensions of home country investor protection is inconsistent with the fee increase being driven by increased auditor legal liability associated with legal bonding. We note that our audit fee results must be interpreted with caution because we have relatively few observations with audit fee data. Outside block shareholders are often viewed as monitors of firm management because, by virtue of the size of their stake, they have an incentive to actively oversee management. In order to focus on the monitoring role of outside blockholders we restrict our attention to outside *institutional* blockholders, who are unlikely to be able to extract large private benefits from arrangements such as artificially priced business contracts with the foreign private issuer. If enactment of SOX increases minority shareholder protection and thus lowers the benefit of outside monitoring, it likely reduces the benefit of being an outside institutional blockholder.

We find no significant average change in industry-adjusted blockholder ownership after SOX. The cross-sectional variation in the industry-adjusted change in blockholder ownership is, however, generally positively associated with measures of home country investor protection and accounting standards. These results are consistent with SOX having created an incremental legal bonding impact that in turn substituted for institutional blockholder monitoring because the results show that the change in blockholder ownership following SOX was relatively more negative when home country investor protection was weaker.

SOX has been argued by some to impose a cost by discouraging profitable risk-taking due to provisions related to the expanded role of independent directors, the increase in director and officer liability, and internal control attestations. Bargeron et al. (2010) find that several measures of risk-taking decline significantly for U.S. versus non-U.S. firms after SOX. We examine whether investment by cross-listed firms, adjusted for the corresponding average of U.S. firms in the same industry, changes after SOX and whether the change is associated with the level of home country investor protection. We find that the industry-adjusted investment of the cross-listed firms does not change significantly after SOX on average. There is, however, evidence that investment decreases relatively more for cross-listed firms from home countries with stronger private and public enforcement of investor protections. Thus, we find some support for the argument that firms from countries with relatively strong investor protection not

only obtained less incremental bonding benefits from SOX, but also were more likely to decrease risky investment following SOX.

Section 2 develops our hypotheses and Section 3 provides sample selection and descriptive information. Our empirical tests are developed and results are presented in Section 4. Section 5 concludes, Appendices A and B provide event dates related to SOX, and Appendix C describes the investor protection and control variables used as explanatory variables in our tests.

## 2. Hypothesis Development

## Predictions about stock market reaction

Our predictions represent joint tests of the motive underlying the foreign private issuer's decision to cross-list prior to SOX and the impact of SOX on the costs and benefits of being cross-listed given that motive. Our focus is on legal bonding as a potentially important motive for firms that cross-list. There are other theories of cross-listing (related to market segmentation, investor recognition, product recognition, and liquidity), but they do not have clear implications for the benefits and costs of SOX.

Prior research provides strong evidence that cross-listing improves liquidity (Domowitz, Glen, and Madhavan (1998), Foerster and Karolyi (1998)), but a debate is ongoing about the extent to which cross-listing improves minority shareholder protection. The legal bonding (or functional convergence) hypothesis, most broadly developed by Coffee (1999, 2002a, 2002b), argues that American laws covering U.S.-listed foreign firms can potentially deter insiders from engaging in extraction of private benefits. Using agency theory, Coffee, as well as Fuerst (1998) and Stulz (1999) predict that U.S. laws could protect minority shareholders.

Others have questioned the interpretation of this evidence and called for more direct tests of the legal bonding hypothesis (Cheung and Lee (1995), Licht (2000), and Leuz et al. (2003)). MacNeil (2001) finds that legal commitments made by foreign firms listing in London are not as strong as prior work had argued. La Porta et al. (2000) contend that cross-listing in New York improves disclosure, but does not give minority shareholders many effective rights. Fanto (1996) argues SEC disclosure requirements are effectively meaningless. Licht (2000, 2003) notes managerial opportunism might lead insiders to take advantage of poor U.S. enforcement. Siegel (2005) supports these arguments using a detailed analysis of behavior by insiders of Mexican American Depository Receipt (ADR) firms.

The bonding explanation for cross-listing presumes that large foreign firms are the ones with the potential to cross-list and that such firms are generally controlled by large shareholders (see, e.g., Coffee 1999, Stulz 1999, Reese and Weisbach 2002). These large shareholders exploit their position to extract private benefits of control through such actions as asset transfers, excessive perquisite consumption, or even outright theft. By cross-listing, these controlling insiders commit to extract lower private benefits of control because of "renting" U.S. securities laws and disclosure standards via the cross-listing. The commitment facilitates lower cost access to global capital markets. Consistent with this hypothesis, Reese and Weisbach (2002) find an increase in equity issuance both in the U.S. and abroad by foreign firms cross-listed in the U.S., especially for those from countries with weak investor protection.

Controlling insiders who select to cross-list do so with the expectation that the private benefits they are foregoing as a result are smaller than their share of the increase in firm value that results from the lower cost access to capital. This is more likely when the controlling shareholder's firm has valuable growth opportunities that cannot be financed internally or with riskless debt. Doidge et al. (2004) show that the increase in firm value (premium) from cross listing is positively related to the firm's growth opportunities. They also find the cross-listing premium is inversely related to home country investor protection, consistent with bonding to U.S. law being more valuable when it adds more to the level of investor protection.

If bonding is an important motive for cross-listing, then any impact of SOX on bonding will be incremental to what was already achieved by cross-listing. On balance, prior literature indicates that cross-listing prior to SOX raised the level of investor protection for foreign private issuers, but not all the way to the level that applied to domestic U.S. issuers. The application of SOX to foreign private issuers may therefore have further raised the level of investor protection and thus created additional bonding benefits. If so, the stock price response to SOX should be inversely related to the level of investor protection in the issuer's home country and positively related to the foreign private issuer's growth opportunities.

We use several country-level variables to characterize the quality of investor protection of the foreign issuers' home jurisdictions. The anti-director rights index captures the strength of corporate law in protecting the rights of minority shareholders against management and majority shareholders with respect to the decision-making and voting processes. Judicial efficiency measures the "efficiency and integrity of the legal environment as it affects business, particularly foreign firms" and is used by LaPorta et al. (1998) to capture the quality of law enforcement. LaPorta et al. (1998) show that the indices for anti-director rights and judicial efficiency are highest in common-law countries and lowest in French-civil-law countries.

Securities law also provides investor protection. LaPorta et al. (2006) examine the role of securities laws in the development of financial markets. They analyze the specific rules in securities laws governing security issuance and measure how these rules facilitate the private and public enforcement of investor rights. The private enforcement aspect of securities law measures the extent to which standardized disclosures and clarification of liability rules help reduce the costs of private contracting and of enforcing those contracts. The public enforcement aspect of securities law. Together, anti-director rights, judicial efficiency, private enforcement, and public enforcement measure the quality of corporate and securities laws and the quality of law enforcement in protecting minority investors.

We measure growth opportunities as the two-year sales growth rate of the foreign issuer. Finally, we use the logarithm of the market value of equity to control for size and we measure leverage as the ratio of long-term debt to total assets. We expect that the net benefit of SOX is increasing in firm size if the implementation cost of SOX is fixed. We cannot predict the effect of leverage, as it might facilitate bonding (i.e., bondholders might align with minority shareholders) or tempt insiders to expropriate minority shareholders (instead of bondholders) in weak investor protection environments.

## Predictions about post-SOX changes in the actions of monitors and firm managers

Prior research finds firms cross-listing into countries with stronger legal regimes incur audit fee premia that increase with the difference in strength of the legal regimes (Setharaman et al. 2002; Choi et al. 2009). If SOX increases the legal bonding effect of being cross-listed, then audit fees of cross-listed firms will increase for legal liability reasons. Increases in audit fees of foreign private issuers arising from legal liability reasons should be associated with the extent to which SOX increases investor protection. We capture investor protection and other firm characteristics using the same set of variables we use in the market reaction tests.

A large body of literature emphasizes the monitoring role of external blockholders. If the value of this source of external monitoring is greater when the firm's other sources of investor protection are weaker, ownership in a foreign private issuer by external blockholders will be negatively related to the quality of the foreign issuer's corporate governance. Presumably, institutional investors take on this role because there are gains from doing so. The new governance regulations imposed by SOX might lower the value of external monitoring to the minority shareholders and thus lower the gains to the institutional blockholders from monitoring. Therefore, we predict that the changes in blockholder ownership following SOX are inversely related to the extent to which SOX increases investor protection.

Managers at cross-listed firms may respond to SOX by decreasing risk-taking for at least two reasons. First, SOX Section 301 and related changes in listing standards for the NYSE and Nasdaq approved by the SEC in the fall of 2003 expanded the role played by independent directors. Moreover, SOX imposed increased liability on officers and directors for violations of securities laws, including increased liability for CEOs and CFOs in particular due to the Section 906 requirement that they annually certify their firms' financial statements. The changes in the role of independent directors and the extent of liability for officers and directors could result in discouraging officers and directors from initiating and approving risky investment projects.

Second, SOX Section 404 requires firms to test and disclose internal control adequacy. The SEC's guidance emphasized that management should evaluate internal controls based on the risks of financial misstatement, with more extensive testing and evaluation expected where the risks are greater. The SEC's identification of firm characteristics associated with a greater risk of financial misstatements indicated that more extensive evaluation of internal controls was required for firms with activities involving specialized knowledge, decentralized organizational structures, and complex transactions. Thus, Section 404 costs may fall disproportionately on firms engaged in risky activities and may thus discourage risk taking.

## **3. Descriptive Information**

## **3.1 Event History**

We start with the list of key events leading to the passage of SOX identified by Li, Pincus, and Rego (2008). Appendix A describes the key events and the corresponding event dates. We include these event dates in the estimation of the foreign issuers' stock price reactions to SOX.

Next, we search for any events in the deliberation process that indicate the applicability of SOX to foreign issuers. Perino (2003) argues that SOX was never meant for foreign issuers and the only mention of foreign issuers during congressional deliberations occurred on the last day of the Senate debate when Senator Enzi (R-WY) commented on the finalized bill. To ensure that

we correctly identify all the related events, we search the legislative history of the House Bill number H.R. 3753, Senate Bill number S 2673, and Public Law 107-204, using the Congressional Information Services (CIS) index in the Lexis Nexis Congressional database. We electronically search each document for the key words "foreign" or "issuer" and read the resultant paragraphs to look for discussions that are related to foreign private issuers. We find three events that are directly related to foreign issuers (see Appendix B).

The full Senate began debate on bill number S. 2673 on July 8, 2002. Senator Sarbanes (D-MD) submitted an amendment to clarify the definition of "issuers" in the bill. While the legal definition does not directly mention the term "foreign issuers," it effectively states that the proposed law would apply to all "reporting companies." Hence, it implies that the foreign private issuers we study (i.e., those that are traded on U.S. exchanges) would be subject to the new law. The Senate agreed to the Amendment (No. 4173).

On July 12, 2002, Senator Dorgan (D-ND) submitted Amendment No. 4215 to clarify that the requirement that certain officers certify financial reports applies to domestic and foreign issuers. The amendment was agreed to in the Senate.

On July 25, after the Congress passed the Conference Report that reconciled the House and Senate bills, Senator Enzi (R-WY) commented on the applicability of the Act to foreign private issuers:

In addition, I believe we need to be clear with respect to the area of foreign issuers and their coverage under the bill's broad definitions. While foreign issuers can be listed and traded in the U.S. if they agree to conform to GAAP and New York Stock Exchange rules, the SEC historically has permitted the home country of the issuer to implement corporate governance standards. Foreign issuers are not part of the current problems being seen in the U.S. capital markets, and I do not believe it was the intent of the conferees to export U.S. standards disregarding the sovereignty of other countries as well as their regulators... Under the conference report, section 3(a) gives the SEC wide authority to enact implementing regulations that are 'necessary or appropriate in the public interest.' I believe it is the intent of the conferees to permit the Commission wide latitude in using their rulemaking authority to deal with technical matters such as the scope of the definitions and their applicability to foreign issuers. I would encourage the SEC to

use its authority to make the act as workable as possible consistent with longstanding SEC interpretations. (148 Congressional Record S7356, July 25, 2002)

Senator Enzi's views were not endorsed by the Senate and the SEC, in general, provided little relief from SOX's provisions to foreign private issuers.

We also search the website of the Organization for International Investment (OFII), which keeps track of SOX events that would affect their member firms (mainly foreign private issuers). We do not find any SOX-related news before the signing of SOX on July 31, 2002.

Hence, we believe that the three events listed in Appendix B are the only ones during which information about the applicability of SOX to foreign issuers was made available to stock market participants. We note that the first two events overlap with event three identified by Li et al. (2008). Within this event window (July 8 to July 12), three events occurred (see Appendix A). Hence, the stock price reactions of the cross-listed sample firms in this event window should be interpreted with this in mind. Our third event took place in the same window as event six in Li et al. (2008), in which the House and Senate passed the Conference Report on July 25.

On July 30, 2002, President Bush signed the bill into law and two sections of the Act became effective immediately. We keep track of subsequent events and the SEC implementation of the Act's provisions. In the post-SOX period, the foreign private issuers and, especially, OFII actively lobby the SEC to provide exemptions or accommodation to the foreign issuers, when the proposed rules are inconsistent with the laws or practices of foreign issuers' home jurisdictions (OFII wrote two comment letters to the SEC). We collect the SOX-related press releases on the SEC's website (http://sec.gov/spotlight/sarbanes-oxley.htm), which provides the full text of the proposed and adopted rules, as well as the comment letters received during the rulemaking process. In untabulated sensitivity tests, we control for these subsequent events in the market

reaction estimation to address the possibility that these events lead to stock price reactions for the cross-listed firms and affect the estimation of the market reactions on the event days of interest.

## 3.2 Sample and Data

We focus on foreign private issuers that are listed in one of the U.S. stock exchanges via ADRs or direct listing (i.e., Level-II and Level-III foreign private issuers). Unlike those crosslisted by way of OTC listings (Level-I) or Rule 144a private placement offerings (Level-IV), the exchange-traded foreign issuers are subject to SEC rules, exchange requirements, and U.S. laws. Therefore, they are more likely to be cross-listed in the U.S. for bonding reasons.

We first get the cross-listed (Level-II and Level-III) sample using information from CRSP, Compustat, and Bank of New York. In particular, we use the CRSP share codes between 30 and 39 to identify all publicly-traded ADRs as of February 1, 2002. Next, we use the Compustat country codes 9 and 49 to identify all Canadian and Israeli firms that are directly listed in the U.S. We verify this sample and obtain the country of origin for these companies using information from the Bank of New York Depositary Receipt Services, NYSE, and NASDAQ. This procedure produces 662 foreign private issuers.

We obtain daily stock price and return data from CRSP, financial statement data from Compustat, and country-level data from La Porta et al. (2006). Appendix C details the construction of the country-level variables. We require that the sample firms have no missing daily stock returns during 2002 (the estimation period for the stock price reaction tests). We also require that the sample firms have country-level investor protection and firm-specific characteristic variables. These two requirements reduce the sample size to 510 foreign issuers.

## **3.3 Descriptive Statistics**

Table 1 reports summary statistics for the sample of foreign private issuers. The variables used to capture investor protection are measured at the country level. Panel A in Table 1 shows that the median Anti-director rights and Judicial efficiency are 4 and 9.25, respectively. Note

from Appendix C that Anti-director rights has a maximum potential value of 6 and Judicial efficiency has a maximum potential value of 10. Hence, the median firm is subject to a high level of investor protection. The range of Private enforcement is between 0.180 and 0.958. The ranges for the other country-level variables are also very large. Hence, the sample spans a wide range of countries with different levels of investor protection and legal enforcement. Sales growth, leverage, and the logarithm of the market value of equity are firm-specific variables and are computed at the most recent fiscal year ended before January 1, 2002 and winsorized at the 1% and 99% levels. Median two-year sales growth is 18% and median leverage is 14.3%.

Table 1, Panel B, presents the Pearson correlation matrix for the explanatory variables. With the exception of the Anti-director Rights index, the country-level variables are generally highly correlated. For example, the correlation between Accounting standards and Private enforcement is 0.617 and that between Private and Public enforcement is 0.635. The high correlations are consistent with those documented in La Porta et al. (2006) at the country level.

Panel C details the country-level variables by legal origin and country. We also report the number of foreign issuers from each country in the second column. In general, the number and distribution of our sample firms in each country are similar to those of the samples used by Reese and Weisbach (2002) and Doidge et al. (2004).

## 4. Empirical Tests

## **4.1 Stock price reaction tests**

To estimate the average stock price reaction of the sample to the relevant SOX events, we use the following augmented market model to estimate the stock price reaction of the portfolio of cross-listed firms on the event days:

$$r_t = \alpha + \beta r_{M,t} + \sum_{s=1}^k \gamma_s d_{s,t} + \varepsilon_t , \qquad (1)$$

where  $r_t$  is the daily equal-weighted portfolio return of our cross-listed firms,  $r_{M,t}$  is the daily return on the CRSP value-weighted index, and the  $d_{s,t}$ 's are indicator variables that take the value of one on days surrounding event *s* and zero otherwise (see Appendices A and B for the event dates). The intercept,  $\alpha$ , in equation (1) represents the average stock return across all non-event days for an equal-weighted portfolio consisting of the entire sample of foreign private issuers. The unknown  $\gamma_s$  to be estimated capture the stock price response of the cross-listed portfolio on the event window *s* and  $\beta$  is the coefficient estimate capturing the association of the CRSP valueweighted index (which excludes cross-listed firms) on the returns of the cross-listed portfolio.<sup>2</sup>

We estimate equation (1) using 252 trading days of return data for 2002, as in Li et al. (2008). We use a market model in order to capture the incremental stock price impact SOX had on foreign private issuers relative to its impact on U.S. firms. In addition, the market index captures the impact of macroeconomic events that move the U.S. market on the SOX event days we study. The returns of the foreign private issuers may also be affected by home-country macroeconomic events not captured by the CRSP market index. However, when such events occur they presumably are not highly correlated across countries.

We use regression analysis to estimate the cross-sectional relation between returns on event days and explanatory variables that capture bonding motives for cross-listing as well as controls for other firm-specific characteristics. In particular, we test whether the home country investor protection mechanisms and the growth opportunities of the firm can explain the variation in the stock price reaction across firms.

For expositional purposes, we describe the research design as a two-stage procedure. An estimated coefficient from the first stage time-series regression becomes the dependent variable

 $<sup>^2</sup>$  Note that the standard deviation used in the OLS estimation of equation (1) is based on the time-series regression estimated over 252 trading days, with one observation (the portfolio return) for each day. Hence, the analysis does not suffer from cross-sectional correlation, as would result from estimating the standard deviation across firms on an event date. Also, we find the autocorrelation of portfolio returns is not significant at the .10 level.

of the second stage cross-sectional model. Because the time-series coefficients are estimated over the same time period for all sample firms, the residuals in the second stage regression model are cross-correlated. To obtain correct standard errors, we use the portfolio time-series regression approach of Sefcik and Thompson (1986) to account for cross-correlation, as well as heteroskedasticity, in the second stage regression. This method does not alter the estimated coefficients and can thus be viewed as adjusting the covariance matrix of the OLS estimates.

In the first step, the stock price reactions to the identified events are estimated for each firm j (=1, ..., J) using an augmented market model:

$$r_{j,t} = \alpha_j + \beta_j r_{M,t} + \sum_{s=1}^k \gamma_{j,s} d_{s,t} + \varepsilon_{j,t} , \qquad (2)$$

where  $r_j$ ,  $r_M$ , and  $d_{s,t}$  are firm *j*'s equity return, the market return, and event indicator variables, respectively. In the second step, we use a cross-sectional model to explain the variation in the estimated market reaction coefficients for event *s* using firm characteristics. We estimate the portfolio time-series regressions over the period from January 1, 2002 to December 31, 2002. Sefcik and Thompson (1986) show that if the residuals from the portfolio time-series regressions are serially uncorrelated, this estimation approach is valid.

## Results

Table 2 presents the estimations of equation (1). The four specifications in Table 2 vary in how they combine critical event days into event windows and in whether the sample consists of Level-II and Level-III cross-listed firms or of Level-I firms. Recall that because Level-I companies require minimal SEC disclosure, we expect that these firms are less likely to be motivated by the desire to bond to U.S. disclosure standards.

Our focus in Table 2 is on the coefficient estimates for the E3A, E3C, and E6 indicator variables, which capture the three SOX events related to foreign private issuers. Recall from

Appendix B that event E3A is a two-day window beginning with Senator Sarbanes' July 8, 2002 submission of an amendment to clarify the definition of "issuers" in a way that implicitly makes SOX applicable to foreign private issuers. Event E3C is a two-day window beginning with Senator Dorgan's July 12 submission of an amendment to clarify that SOX's financial statement certification requirements would apply to foreign issuers. Finally, event E6 is a two-day window beginning with Senator Enzi's July 25 comment (after Congress's passage of the Conference Report) on the applicability of SOX to foreign private issuers.

The main Table 2 specification, presented in the first column, assigns indicator variables to all of the events summarized in Appendix A and uses a single window (E3) to capture the three SOX events that occurred during July 8 – 15 (see Appendix A), including E3A and E3C. We emphasize the column one approach as we feel it is difficult to cleanly separate three events occurring over six consecutive trading days into three separate two-day event windows. The alternative specification in column two splits these three events into the three windows, E3A, E3B, and E3C. Columns three and four repeat the column one and two specifications on the sample of Level-I cross-listed firms.

The results in columns 1 and 2 show that the portfolio of Level-II and Level-III foreign private issuers had a marginally more positive stock price reaction than the value-weighted U.S. market to event E3A, but a significantly more negative reaction for E6. In contrast, the column 3 and 4 results indicate that the stock price reactions for the portfolio of Level-I companies are not different from zero at conventional levels of statistical significance on any of the event days on which discussion about SOX potentially affecting foreign private issuers occurs. Because E6 represents the first clear indication that SOX would apply to foreign private issuers and does not combine multiple events within one window (as E3A and E3C do), we focus on that event and use the E6 event reaction as the dependent variable for the cross-sectional tests. With regard to the SOX event dates that do not include discussion related to foreign private issuers, only E5 and E8 are significant for the Level-II and Level-III cross-listed sample. The negative coefficient estimate on E5 is consistent with issuance of the conference report being a negative event for the average cross-listed firm relative to the U.S. market. The marginally negative coefficient estimate on E8 for this sample indicates that the event of requiring the first CEO/CFO financial certifications to be received at the SEC was associated with a slightly negative reaction for the average cross-listed firm relative to the value-weighted U.S. market. As discussed below, however, both the E5 and E8 coefficient estimates become statistically insignificant when we estimate the market reactions using a value-weighted, instead of equal-weighted, portfolio of the Level-II and Level-III cross-listed firms.

For the Level-I cross listed firms, the only SOX event with a significant coefficient estimate is E1, the event window in which the introduction of the Senate version of the SOX bill occurred as well as the announcement of the WorldCom accounting fraud. For reasons that are unclear to us, there is an extremely large, positive stock price reaction of the average Level-I cross-listed firm to this event, relative to the value-weighted U.S. market (which has a negative return at this event window).

The E6 indicator is significant at better than the .01 level in both the column 1 and 2 estimations (on the Level-II and Level-III firms). Moreover, the coefficient estimates in both columns 1 and 2 are -1.583 (note that all coefficient estimates in Table 2 have been multiplied by 100 for expositional convenience). Thus, these estimations provide robust evidence that the (equal-weighted) average Level-II and Level-III foreign private issuer suffered a 1.6% stock price loss (after controlling for the U.S. market) during the two-day window in which Congress enacted SOX and Senator Enzi commented on its applicability to foreign issuers. Note that Li et al. (2004) find that the market reactions for events 3 and 6 are -6.0% (t=-1.69) and 1.0% (t=0.46) for 850 of the Standard & Poor's 1,500 U.S. companies with available data.

Our interpretation of the negative reaction to SOX by the equal-weighted portfolio of foreign private issuers is that, for the average foreign issuer, the incremental bonding benefit provided by SOX was exceeded by SOX's incremental costs (direct and indirect). Our current cross-sectional stock price reaction tests focus on whether the bonding benefits can explain a portion of the variation in foreign private issuers' reaction to SOX. In future tests, we plan to also examine the extent to which incremental costs aid in explaining the cross-sectional variation in the stock market reaction of cross-listed firms to enactment of SOX.

We assess the robustness of the Table 2 results, and of the Table 3 results discussed below, in the following ways. First, we include additional event indicator variables to capture other related events that occurred before June 25, 2002 (event E1) and after August 14-15 (event E8). Second, we use a longer (395 trading day) window from December 1, 2002 through June 30, 2003 to estimate equation (1), with and without the additional event indicator variables. The untabulated results for these two tests are similar to those reported in Tables 2 and 3. Third, we replace the CRSP U.S. market index with the MSCI all country index and find the inferences are unchanged. Fourth, instead of using U.S. ADR prices and controlling for the CRSP U.S. market index we use Datastream to obtain the home-country stock prices of our foreign private issuers and use them while controlling for the weighted average of the home country market indexes. In this sensitivity test, the coefficient estimates on the E6 indicator in Table 2 become significantly negative even for the Level-I sample, but other inferences in Tables 2 and 3 are unchanged.

Fifth, we restrict estimation of equation (1) to the 22 trading days in July of 2002 in order to address the possibility that we are finding significant Table 2 coefficient estimates on some of the July, 2002 event dates because of increased return volatility during July, 2002. In other words, by using the standard deviation of the residuals from the entire sample period, we could be understating the standard errors of the coefficients for the July events if return volatility is unusually high in that month for reasons unrelated to SOX. When we restrict estimation of

equation (1) to July of 2002, we find that the estimated coefficients on event E6 become insignificant (t-values of -1.60 and -1.64, respectively, under columns 1 and 2 of Table 2), while those on event E3A remain statistically positive. These weaker results could be due to an increase in return volatility during the month of July 2002 or to the short estimation window.

Sixth, we exclude the 160 Canadian and 74 British cross-listed companies from the portfolio of Level-II and Level-III cross-listed companies. The key results remain unchanged. Seventh, we estimate the market reactions using a value-weighted, instead of equal-weighted, portfolio of the Level-II and Level-III cross-listed firms. The estimated coefficients on events E5 and E8 become statistically insignificant and those on events E1 and E3B become significantly different from zero. However, the estimated market reaction on event E6 and its cross-sectional variation are quantitatively similar in both magnitude and significance to the estimates reported in Tables 2 and 3.

Table 3 presents the cross-sectional results. The dependent variable is the estimated stock price reaction on event E6 (July 25-26, 2002), in which Senator Enzi commented on the applicability of SOX to foreign issuers. The explanatory variables consist of measures of home country investor protection, growth opportunities, and controls for firm size and leverage. Overall, the results provide mixed support for the notion that the stock market reaction of foreign issuers to SOX is increasing in the bonding benefits provided by SOX.

Table 3 shows six regression specifications, which differ in the investor protection variables that are included. Note that we generally use only one investor protection variable at a time among the explanatory variables because of the considerable correlations among these variables (other than Anti-director rights). The exception is that we include Anti-director rights and Accounting standards together in the last specification. The results show that the coefficient estimates on Anti-director rights and Private enforcement are significantly negative. The estimate on Judicial efficiency is significantly positive, and the remaining coefficient estimates

on the country-level investor protection variables and the firm-specific control variables are not significantly different from zero at better than the .10 significance level.

The positive relation between Judicial efficiency and the foreign issuers' stock price reaction to SOX is consistent with judicial efficiency measuring the relaxation of a barrier to effective bonding, rather than being simply another indicator of investor protection. In other words, this finding is consistent with the judicial system being required to enforce investor rights obtained from bonding to the U.S. legal system via cross-listing and SOX. This interpretation is consistent with the empirical finding and interpretation placed on Judicial efficiency by Doidge et al. (2004) in their analysis of the cross-listing premium.

The negative relation between Private enforcement and the foreign issuers' stock price reaction to SOX is consistent with Private enforcement capturing a dimension of investor protection for foreign private issuers that is significantly improved by SOX. In other words, this result is consistent with SOX being more beneficial (or less harmful) to foreign private issuers from countries whose investor protections are weak along the dimensions of the costs of private contracting and enforceability of those contracts. In contrast, the insignificant coefficient estimate on Public enforcement indicates the impact of SOX is not associated with the strength of investor protections related to the ability of public enforcement agencies to implement securities law. These results are reflective of the evidence in La Porta et al. (2006), although their context is quite different from ours. They find that Private, rather than Public, enforcement plays an important role in financial market development around the world, with financial market development being measured by stock market size and liquidity.

The significantly negative estimate on Anti-director rights is consistent with the stock price reaction to SOX being less negative when the home country has lower strength of corporate law

in protecting the rights of minority shareholders against management and majority shareholders with respect to the decision-making and voting processes.<sup>3</sup>

The insignificant estimate on Accounting standards is inconsistent with the level of home country accounting standards being associated with the stock market reaction of cross-listers to the passage of SOX. In addition, the insignificant estimate on Sales growth is inconsistent with the incremental bonding hypothesis's prediction of a positive association between the stock price reaction to SOX and the firm's growth opportunities.

With regard to the control variables, the insignificant estimates on Leverage are inconsistent with debt financing either facilitating or impeding bonding. The insignificant estimates on Log of market value are inconsistent with the frequently espoused view that the effects of SOX are more negative for smaller firms because some of the additional costs of complying with SOX are fixed rather than variable (see, e.g., Holmstrom and Kaplan (2003)).

Our event study results are most closely related to the findings of Litvak (2007), who also examines the market reactions of cross-listed firms to events related to SOX. She, like us, finds that the stock prices of foreign firms subject to SOX declined significantly during key announcement windows in which SOX became more likely to apply to cross-listed firms. She also performs cross-sectional analysis of her event study results and concludes that the negative impact of SOX on cross-listed firms was more severe for high-disclosing and low-growth companies, for companies already in a highly regulated industry, and for firms from well

<sup>&</sup>lt;sup>3</sup> In untabulated tests, we explore the different aspects of Private enforcement and Public enforcement to shed light on what might lead to the results for these variables documented in Table 3. Specifically, the Private enforcement variable from Table 3 is replaced by each of its two components. The untabulated results indicate that the estimated coefficients on the Disclosure requirement and Burden of proof components of Private enforcement are statistically negative. These findings are consistent with SOX being more beneficial to foreign issuers from countries with lax disclosure requirements on governance and ownership issues and with a high burden of proof on investors seeking to recover damages in a civil liability case for losses due to misleading prospectus statements. We also replace the Public enforcement variable in Table 3 by each of its four components. The untabulated results indicate that Supervisor's characteristics (independence, tenure, focus, and power), Investigative power (supervisor's ability to command documents and to subpoena witnesses), Orders (supervisor's power to issue orders to stop and do), and Criminal sanctions (against issuers, underwriters, and accountants) have no significance in explaining the crosssectional variation in the stock price reactions.

governed countries.<sup>4</sup> Her results, like ours, thus indicate that the net cost of SOX on cross-listed firms was greater when the firm was less likely to benefit from incremental legal bonding.

## 4.2 Tests of post-SOX changes in the actions of monitors and firm managers

We examine the changes around SOX in audit fees, percentage of shares held by institutional blockholders, and firm investment (in capital expenditures plus R&D). The audit fee data are from Worldscope. The institutional holding data are from the CDA/Spectrum Institutional (13F) Holdings database provided by Thomson Financial. We define institutional blockholders as those institutional investors that hold five percent or more of the foreign issuers' outstanding shares. Data on capital expenditures and R&D are from Compustat.

Our general approach in these tests is to estimate cross-sectional regressions for the variables of interest over the period from 1997 to 2007, with 2002 excluded. Hence, we compare the five year period preceding SOX to that following SOX. Our approach is slightly different for the audit fee tests, as explained in detail below. The dependent variables are measures of audit fees, industry-adjusted institutional blockholder ownership, and industry-adjusted firm investment for the foreign private issuer. The explanatory variables include appropriate control variables for the given dependent variable, the indicator variable *Post SOX* which takes the value of zero in the pre-SOX period (1997 – 2001) and the value of one in the post-SOX period (2003 – 2007), various singlets or pairings of investor protection variables that we generically label *IP1* and *IP2*, and the interactions of *Post SOX* with *IP1* and *IP2*. The goal of these regressions is to assess whether cross-sectional variation in the extent of the pre- versus post-SOX change in audit fees, institutional blockholder ownership, or firm investment is associated with variation in the home country investor protection and disclosure standards of our cross-listed firms.

<sup>&</sup>lt;sup>4</sup> Some of Litvak's inferences have, however, been questioned (e.g., Doidge et al. (2010) note that her table 6 *t*-statistics are likely overstated because they are based on OLS estimations that do not account for the cross-correlation of the error terms across firms even though all event dates are clustered in calendar time).

Because the *Post SOX* indicator is set based on calendar time, the interaction coefficients of *Post SOX* with *IP1* and *IP2* might be affected by macro- or industry-related shifts. Hence, we adjust for the industry trend by subtracting the industry mean changes in the dependent variables from the corresponding firm-level numbers. We define industry at the two digit level according to the industrial classifications in the Spectrum and Compustat databases, respectively, for the blockholder analyses and the audit fee and investment analyses. All *t*-statistics are computed using standard errors adjusted for clustering by firm and year (Petersen 2009).

## Results

Table 4 presents descriptive data on the variables used in these regressions.<sup>5</sup> While some of the Table 4 variables are the same as those described in Panel A of Table 1, the tests reported in Tables 1 - 3 are conducted at the firm level based on up to 510 unique firm-level observations. In contrast, the tests reported in tables 4 - 7 are at the firm-year level based on up to 3,011 observations. Thus, statistics for the same variable can differ between Table 1 and Table 4.

Table 4 shows that audit fee data are available for a much smaller number of observations (523 in Panel A) than are the institutional blockholder data (2,382 in Panel B) or the firm investment data (3,011 in Panel C). The Logarithm of audit fee (in thousands of dollars) variable in Panel A has a median value of about nine, representing a median audit fee of \$8.2 million. Panel B shows that percentage institutional ownership by blockholders for the average cross-listed firm is below the corresponding U.S. industry average and Panel C indicates that investment in capital expenditures plus R&D is also lower for cross-listed firms than for their corresponding U.S. industry averages.

<sup>&</sup>lt;sup>5</sup> Note from Appendix C that Anti-director rights is the only investor protection variable for which we are able to obtain separate measures for the pre-SOX and post-SOX periods. We use the 1997 index value from Spamann (2010) for years from 1997 through 2002 and the 2005 index value for the period 2003 through 2007. The Anti-director rights variable is thus dynamically measured to reflect the change in home country investor protection along this dimension between the pre-SOX and post-SOX period. We currently do not have data available to us to allow the remaining investor protection variables to be dynamically measured, so the remaining variables are static measures from the pre-SOX period.

All panels of Table 4 also show that, as expected, the country-level investor protection variables (Anti-director rights, Judicial efficiency, Private enforcement, Public enforcement, and Accounting Standards) have similar descriptive statistics for the panel of firm-year observations as they do in Table 1, where each foreign private issuer is measured only once. The remaining variables in the three panels of Table 4 represent the control variables specific to each dependent variable. The descriptive statistics for these control variables generally indicate that the mean and median values appear to be reasonable for a sample of cross-listed firms and that there is considerable variation across observations in the values of the control variables.

Table 5 provides results on the cross-sectional determinants of the impact of SOX on audit fees. There are several differences between the approach in Table 5 and that used in the subsequent tables (and described above). First, the dependent variable follows the prior literature by using the natural logarithm of audit fees, and it is thus not industry adjusted to avoid non-positive numbers (for which there is no natural log). Instead, a control variable for industry changes in audit fees is used. Second, the indicator variable for the applicable post-SOX period is Post 404(b) rather than the indicator Post SOX for the whole 2003 - 2007 period used in the other tables. For large accelerated filers (those with public float of common equity of at least \$700 million), the Post 404(b) indicator takes the value of zero for the period 1997 - 2005 and the value of one in 2006 and 2007. For accelerated filers (those with public float of common equity of at least \$75 million and below \$700 million) and non-accelerated filers (those with market value of common equity below \$75 million), the Post 404(b) indicator takes the value of zero for the period 1997 - 2006 and the value of one in 2007. Third, given that the relevant post-SOX period for the audit fee tests does not begin immediately after the passage of SOX, the Table 5 tests do not exclude observations for the year 2002.

Column 1 of Table 5 shows that several of the control variables are significantly related to the level of audit fees, with fees higher when firms have more inventory and receivables, more

complexity in the form of more line-of-business segments, and larger size. In addition, the positive coefficient estimate on *Post* 404(b) in this column indicates that the audit fees of cross-listed firms are higher in the period after they must comply with SOX's requirement for an independent auditor's assessment of internal controls to be included in the annual report.

The results in columns 2 through 7 of Table 5 show that the audit fee increases are not always inversely related to the level of home country investor protection. While the extent of the audit fee increase is negatively related to the extent of Public enforcement and, less robustly, the level of home country Accounting standards, it is positively related to Anti-director rights, Judicial efficiency, and Private enforcement. The positive associations of the audit fee increase with several dimensions of home country investor protection are inconsistent with the fee increase being driven mainly by increased auditor legal liability associated with legal bonding. These results must be interpreted with caution because we have relatively few observations.

Table 6 presents the assessment of the cross-sectional determinants of the industry-adjusted percentage ownership of institutional blockholders (five percent or greater ownership). Column 1 shows an insignificantly positive coefficient estimate for *Post SOX*. This finding indicates that institutional blockholder ownership of cross-listed firms did not change significantly relative to industry trends in the post-SOX period. The interactions between *Post SOX* and Private enforcement, Public enforcement and Accounting standards are positive and significant, whereas the interactions between *Post SOX* and Anti-director rights are significantly negative.

The positive interactions are consistent with incremental legal bonding from passage of SOX affecting institutional blockholder ownership. If incremental legal bonding plays a role, institutional ownership should decrease less when the pre-SOX levels of investor protection and public disclosure in the home country are higher. This is what the results indicate with the exception of the interaction of *Post SOX* with the Anti-director rights variable. The Table 6 results are thus largely consistent with SOX creating incremental legal bonding (beyond the

original cross-listing) that resulted in decreased institutional blockholder ownership. An incremental legal bonding effect does not, however, appear to be the only force affecting institutional blockholder ownership in cross-listed firms in the period surrounding SOX as there is no indication in column 1 of an average decrease in blockholder ownership and the sign of the interaction with Anti-director rights is opposite to that predicted by incremental bonding.

Table 7 examines the impact of SOX on the level of risky investment, as proxied by the level of capital expenditures plus R&D. We set missing values of R&D equal to zero, but treat the observation as missing for missing values of capital expenditures. We measure risky investment using the sum of capital expenditures plus R&D because we have observations from country-years that use different rules with regard to capitalizing versus expensing the development portion of R&D.<sup>6</sup>

The column 1 coefficient estimate on *Post SOX* shows that the industry-adjusted investment of cross-listed firms does not change significantly, on average, in the years following SOX. Given Bargeron et al.'s (2010) evidence that U.S. firms decreased their investment levels following SOX, the column 1 estimate on *Post SOX* indicates that investment cuts by cross-listed firms following SOX were not bigger, on average, than those of their U.S. peers. The results in columns 4 and 5 provide evidence, however, that investment decreased relatively more for cross-listed firms from home countries with stronger Private enforcement and stronger Public enforcement, as shown by the -0.036 and -0.035 coefficients on the *Post SOX* x IP1 interaction term in these columns. On the other hand, none of the remaining interaction terms (in columns 2, 3, 6 and 7) has a coefficient estimate reliably different from zero. Thus, we find mixed

<sup>&</sup>lt;sup>6</sup> Capital expenditures alone are not comparable across cross-listed observations (i.e., for some observations it includes capitalized development costs and for others it does not) and R&D alone is also not comparable (i.e., for some observations R&D is solely an expensing of current year expenditures whereas for others it is a mixture of expensing of current research spending plus amortization of past capitalized development spending). Summing capital expenditures plus R&D overcomes this comparability problem, but at the cost of mixing together two types of investment that may vary considerably in their level of risk.

support for the argument that firms from strong investor protection countries were more sensitive to the cost imposed by SOX in the form of discouraging risk taking.

The control variables in the Table 7 regression models follow the spirit of models estimated by Servaes (1994), Bhagat and Welch (1995), and Coles et al. (2006). The construction of these variables is summarized in Appendix C. The Market-to-book ratio and Surplus cash are used to capture the firm's investment opportunities and financing constraints. We use Log of Sales to proxy for firm size and Leverage for capital structure. Log of Sales and Market-to-book also capture information asymmetries between the firm and its shareholders. In particular, small and high-growth firms are usually considered to exhibit higher information asymmetries.

The control variable results in Table 7 show that investment is positively associated with Market-to-book and Surplus cash, consistent with investment being higher when investment opportunities are higher and financing constraints are lower. The negative estimates on Log of Sales indicate firms invest less if they are large, although the significantly positive estimates on (Log of Sales)<sup>2</sup> show that the relation between size and investment is concave. Leverage shows a consistently positive and sometimes marginally significant association with investment. Overall, the findings for the control variables are consistent with those in prior literature.

We perform sensitivity tests on the results reported in Tables 5 - 7. For all three of these tables, we have estimated additional regressions in which both an IP1 and an IP2 interaction term are included using Anti-director rights for the IP1 variable and each of the investor protection variables other than Accounting standards as the IP2 variable. The untabulated results show that almost all of the signs and significance levels reported in the tables for the non-Anti-director rights interaction terms used in isolation continue to hold when the Anti-director rights interaction term is added to the regression. For Table 6, we have estimated all of the reported regressions using an alternative dependent variable that measures the number of institutional blockholders. The

inferences from these untabulated regressions are very similar to those reported in Table 6. For Table 7, we have estimated the regressions using capital expenditures alone as the dependent variable and also using R&D alone as the dependent variable. The inferences are the same when capital expenditures alone is used as the dependent variable, but are sensitive to using R&D alone as the dependent variable.

## 4.3 Additional tests of changes in information and monitoring following SOX

In untabulated tests, we also examine cross-sectional variation in the post-SOX changes in analyst following, return and volume reactions to earnings announcements, earnings management towards a target, and timely loss recognition. We find a significant decrease in industry-adjusted analyst following after SOX related to improved post-SOX disclosure substituting for analysts' monitoring role. We also find modest support for an incremental bonding impact of SOX that resulted in an increase in timely loss recognition, but this inference is fragile. The results for the return and volume reactions around earnings announcements, and earnings management towards a target are inconsistent with SOX creating incremental legal bonding that affected the information environment or disclosure practices.

## 5. Conclusion and possible extensions

This paper uses the sudden and unexpected decision to apply SOX to foreign private issuers to examine how an exogenous improvement in investor protection affects shareholder wealth and the firm's monitoring and disclosure environment.

A major motivation for our paper and its research approach is to try to provide improved identification, relative to early SOX studies, about the costs and benefits of SOX by overcoming the benchmarking problem that there is no completely unaffected group of publicly traded U.S. firms with respect to the passage of SOX. Our improved identification approach exploits the impact of SOX on foreign private issuers. Thus, any improvements in identification that we achieve come with the price that our inferences are about SOX's impact on non-U.S. firms and cannot speak directly to the effects of SOX on U.S. companies.

It is also important to note that our improved identification strategy essentially boils down to comparing a "more affected" set of firms against "less affected" firms. We are not unique in attempting to use that general approach in trying to better identify the impact of SOX. Other studies that have done so include the following papers. Chhaochharia and Grinstein (2007) use pre-SOX compliance with the (subsequent) SOX rules to identify a set of most affected U.S. firms. Wang (2010) argues that the mandated internal control disclosures of SOX are more informative about CFO quality than about that of other executive officers and thus uses a within-firm control group that she argues is less affected by SOX's internal control disclosure mandate. Hochberg, Sapienza and Vissing-Jorgensen (2009) use lobbying against SOX to identify a set of most affected U.S. firms. Similar to the event study portion of our approach, Litvak (2007) uses cross-listed firms affected by SOX to allow for comparison to non-cross-listed foreign firms.

Our event study evidence indicates that SOX's costs exceed its benefits for cross-listed firms, but that incremental legal bonding does provide a benefit. Our real changes evidence supports the existence of an incremental legal bonding benefit of SOX that substitutes for external monitoring by parties such as institutional blockholders. One cost of SOX for cross-listed firms is an increase in audit fees that can be only partially attributed to the increased legal liability faced by auditors. An additional cost of SOX is a decrease in risky investment that is stronger for firms from high investor protection home countries.

Our empirical work to date is preliminary and we are thus in the process of developing additional tests. I will aim to discuss these plans during the workshop presentation, including (if possible) tying our work into papers we have only recently become aware of by Iliev (2010) and Li (2011).

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Variable	Date	Event	Event Window
E1	June 25	Intro. of S. 2673 in Senate; WorldCom fraud announced.	June 25 (Tue)
E2	June 26	SEC files suit against WorldCom	June 26 (Wed)
E3	July 8-12	Senate considers S. 2673	July 8-12 (Mon-Fri)
	July 9	Bush's Wall Street speech	
	July 10	Senate passes amendment to strengthen criminal penalties	
<i>E4</i>	July 15	Senate passes S. 2673	July 15-17 (Mon- Wed)
		Introduction of H.R. 5118	
	July 16	Passage of H.R. 5118	
		Senate Appropriations Committee increases S.E.C. budget	
		Bush wants bill before August break	
<i>E5</i>	July 24	Issuance of Conference Report	July 24 (Wed)
<i>E6</i>	July 25	House and Senate pass Conference Report; Bush reportedly will sign bill	July 25-26 (Thu and Fri)
<i>E</i> 7	July 29	S.E.C. to post names of CEOs and CFOs who fail to certify their firms' financial reports	July 29-30 (Mon-Tue)
	July 30	Bush signs bill into law the Sarbanes-Oxley Act of 2002. Final rules to implement section 304 (Forfeiture of compensation and securities-related profits) and section 402 (Prohibition on personal loans) became effectively immediately	
<i>E8</i>	August 14-15	CEO/CFO certifications due at the SEC	August 14-15 (Wed-Thu)

Appendix A	
Critical events in the legislative process leading to the enactment of Sarbanes-Oxley Act of 2002	

Source: Li et al. (2008), Table 1.

# Appendix B List of events related to cross-listed companies

Variable	Date	Event	Event Window
E3A	July 8	Senator Sarbanes (D-MD) submitted an amendment to clarify the definition of "issuers" in the bill. Amendment No. 4173 was agreed to. "As used in this section, the term 'issuer' means an issuer (as defined in section 3), the securities of which are registered under section 12, or that is required to file reports pursuant to section 15(d), or that will be required to file such reports at the end of a fiscal year of the issuer in which a registration statement filed by such issuer has become effective pursuant to the Securities Act of 1933 (15 U.S.C. 77a et. seq.), unless its securities are registered under section 12 of this title on or before the end of such fiscal year." Source: 148 Congressional Record S6327 (July 8, 2002)	July 8-9 (Mon- Tue); overlapped with event <i>E3</i> in Li et al. (2008).
E3C	July 12	Senator Dorgan (D-ND) submitted Amendment No. 4215 to clarify the requirement that certain officers certify financial reports applies to domestic and foreign issuers. The amendment is agreed upon in the senate by unanimous consent. Source: 148 Congressional Record S6687 (July 12, 2002)	July 12 and 15 (Fri and Mon); overlapped with event <i>E3</i> in Li et al. (2008).
<i>E</i> 6	July 25	Senator Enzi (R-WY) commented on the finalized bill on the last day of the debate: "In addition, I believe we need to be clear with respect to the area of foreign issuers and their coverage under the bill's broad definitions. While foreign issuers can be listed and traded in the U.S. if they agree to conform to GAAP and New York Stock Exchange rules, the SEC historically has permitted the home country of the issuer to implement corporate governance standards. Foreign issuers are not part of the current problems being seen in the U.S. capital markets, and I do not believe it was the intent of the conferees to export U.S. standards disregarding the sovereignty of other countries as well as their regulators" Source: 148 Congressional Record S7356 (July 25, 2002)	July 25-26 (Thu- Fri); Event <i>E6</i> in Li et al. (2008).

Appendix C Variable description Unless stated otherwise, the data used to construct the following variables are retrieved from *Compustat*.

Variable	Description
Anti-director rights	This index of Anti-director rights is formed by adding one when: (1) the country allows shareholders to mail their proxy vote; (2) shareholders are not required to deposit their shares prior to the General Shareholders' Meeting; (3) cumulative voting or proportional representation of minorities on the board of directors is allowed; (4) an oppressed minorities mechanism is in place; (5) the minimum percentage of share capital that entitles a shareholder to call for an Extraordinary Shareholders' Meeting is less than or equal to ten percent (the sample median); or (6) when shareholders have preemptive rights that can only be waived by a shareholders meeting. We use the 1997 index value for the sample period from 1997 through 2002 and the 2005 index value for the period from 2003 through 2007. <i>Source: Spamann (2010)</i> .
Judicial efficiency	Assessment of the "efficiency and integrity of the legal environment as it affects business, particularly foreign firms" produced by the country risk rating agency International Country Risk (ICR). It may be "taken to represent investors' assessment of conditions in the country in question." Average between 1980 and 1983. Scale from 0 to 10, with lower scores representing lower efficiency levels. <i>Source: La Porta et al. (1998)</i> .
Private enforcement	The index of private enforcement equals the arithmetic mean of: (1) Disclosure Index; and (2) Burden of proof index. <i>Source: La Porta et al.</i> (2006).
Public enforcement	The index of public enforcement equals the arithmetic mean of: (1) Supervisor characteristics index; (2) Investigative powers index; (3) Orders index; and (4) Criminal index. <i>Source: La Porta et al. (2006).</i>
Accounting standards	The index of accounting standards produced by the Center for International Financial Analysis and Research. <i>Source: La Porta et al. (1998)</i>
Sales growth	Two-year sales growth rate at the most recent fiscal year.
Leverage	Ratio of long-term debt to total assets for the most recent fiscal year.
Log of market equity	Logarithm of the market value of equity, at the end of the most recent fiscal year.
Audit fee	Logarithm of audit fee. Source: Worldscope.
Percentage owned by institutional blockholders (industry-adjusted)	The percentage of shares owned by institutional investors that held at least five percent of the outstanding shares, minus the corresponding industry average. Industry membership is based on the industrial classification in the Spectrum database. <i>Source: Thomson Spectrum</i> .
Investments (industry- adjusted)	The sum of research and development expense and capital expenditures, scaled by the book value of total assets, minus the corresponding industry average. Industry membership is based on the two-digit SIC code in <i>Compustat</i> .
Post SOX	An indicator variable that takes the value of 0 for the period from 1997 through 2001 and the value of 1 for the period from 2003 through 2007.
Post 404(b)	For large accelerated filers (firms with a market value larger than \$700 million), Post 404(b) takes the value of 0 for the period from 1997 through 2005 and the value of 1 in 2006 and 2007. For accelerated filers (firms with a market value between \$75and \$700 million) and non-accelerated filers (firms with a market value less than \$75 million), Post 404(b) takes the value of 0 for the period from 1997 through 2006 and the value of 1 in 2007.
$\Delta$ industry audit fee	Median change in the audit fee of companies in the same 2-digit SIC code. <i>Source: Worldscope</i> .
Inventory & receivables	Sum of inventories and receivables, scaled by total assets.

Loss	An indicator that takes the value of 1 if the company reports a net loss and 0 otherwise.
Business segments	Logarithm of 1 plus the number of business segments.
Geographical segments	Logarithm of 1 plus the number of geographical segments.
Big 4 auditor	An indicator variable that takes the value of 1 if the company uses on of the big 5 (4 after 2002) auditors and 0 otherwise.
New capital issuance	Dollar amount of new equity issued during the most recent fiscal year, scaled by the market value of equity.
Market-to-book	The market value of equity, divided by the book value of shareholders' equity.
ROA	Return on assets, which is the ratio of annual net income to total assets at year's end.
Industry ROA	Average ROA for the two-digit SIC industry of the firm.
Herfindahl index	A revenue-based Herfindahl index, which is calculated across a firm's business segments as the sum of the squares of each segment's sales, divided by the square of total sales. The closer it is to one, the more the firm's sales are concentrated within a few of its segments.
Log of Sales	Logarithm of net sales, at the end of the most recent fiscal year.
Surplus cash	Net cash flow from operating activities minus depreciation and amortization expense plus research and development expense, scaled by total assets.

## **Descriptive statistics on sample firms**

The sample has 510 cross-listed companies from 34 countries. Sample firms have daily stock returns on CRSP, selected data on Compustat, and country-level investor protection data. Panels A and B report firm-level statistics and panel C presents country-level data. The anti-director rights index captures the quality of corporate law in protecting investor rights. The judicial efficiency index captures the quality of law enforcement. The private and public enforcement indices capture the quality of securities law. The accounting standards index reflects the quality of a country's accounting rules. Sales growth is the two-year growth rate in sales, leverage is long-term debt to total assets, and market equity is market value of equity; all three variables are computed at the most recent fiscal year ended before January 1, 2002. Appendix C describes the constructions of these variables.

Variable	Ν	Mean	S.D.	Min.	50%	Max.
Anti-director rights	510	3.998	0.727	2.000	4.000	5.000
Judicial efficiency	510	8.793	1.409	4.000	9.250	10.000
Private enforcement	510	0.700	0.228	0.180	0.747	0.958
Public enforcement	510	0.608	0.265	0.000	0.667	0.896
Accounting standards	498	68.978	8.870	36.000	74.000	83.000
Sales growth	510	0.450	0.862	-0.717	0.180	3.126
Leverage	510	0.172	0.163	0.000	0.143	0.741
Log of market equity	510	7.066	2.337	0.588	7.162	12.081

Panel A: Summary statistics for the explanatory variables used in the stock market reaction tests

Panel B: Pearson correlation matrix for the explanatory variables (*p*-value in parentheses)

	Anti-director	Judicial	Private	Public	Accounting	Sales	
	rights	efficiency	enforcement	enforcement	standards	growth	Leverage
Judicial efficiency	0.175 (0.00)						
Private enforcement	0.156 (0.00)	0.501 (0.00)					
Public enforcement	0.094 (0.03)	0.230 (0.00)	0.635 (0.00)				
Accounting standards	0.138 (0.00)	0.708 (0.00)	0.617 (0.00)	0.460 (0.00)			
Sales growth	0.040 (0.36)	0.048 (0.27)	0.188 (0.00)	0.158 (0.00)	0.120 (0.00)		
Leverage	0.018 (0.67)	-0.044 (0.31)	0.013 (0.75)	0.028 (0.52)	0.011 (0.79)	-0.087 (0.04)	
Log market equity	0.081 (0.06)	0.002 (0.96)	-0.225 (0.00)	-0.331 (0.00)	-0.057 (0.19)	-0.088 (0.04)	0.146 (0.00)

(continued...)

## Table 1 (continued)

Panel C: Country-level measures of the qualities of investor protection

	No. of	Anti-director	Judicial	Private Enforcement	Public Enforcement	Accounting
English legal origin:	111115	rights	Efficiency	Emoreement	Emoreement	Standards
Australia	12	4	10.00	0.71	0.90	75
Canada	160	4	9.25	0.96	0.96	73 74
Hong Kong	7	4	10.00	0.79	0.88	69
India	8	4	8.00	0.79	0.72	57
Ireland	12	4	8.00	0.61	0.27	na
Israel	8	3	10.00	0.66	0.75	64
New Zealand	2	5	10.00	0.55	0.40	70
Singapore	2	4	10.00	0.83	0.48	78
South Africa	2 7	5	6.00	0.75	0.29	70
United Kingdom	, 74	4	10.00	0.75	0.67	78
French legal origin:	7-1	7	10.00	0.75	0.07	70
Argentina	8	3	6.00	0.36	0.50	45
Brazil	11	5	5.75	0.29	0.52	54
Chile	17	5	7.25	0.46	0.54	52
France	28	5	8.00	0.49	0.80	69
Greece	4	3	7.00	0.39	0.35	55
Italv	12	2	6.75	0.44	0.38	62
Mexico	20	2	6.00	0.35	0.25	60
Netherlands	16	4	10.00	0.75	0.38	64
Peru	2	4	6.75	0.50	0.75	38
Philippines	2	4	4.75	0.92	0.81	65
Portugal	3	3	5.50	0.54	0.50	36
Spain	7	5	6.25	0.58	0.38	64
Turkey	1	4	4.00	0.36	0.56	51
Venezuela	2	2	6.50	0.19	0.48	40
German legal origin:						
Austria	1	4	9.50	0.18	0.19	54
Germany	17	4	9.00	0.21	0.25	62
Japan	24	5	10.00	0.71	0.00	65
Korea	6	4	6.00	0.71	0.29	62
Switzerland	10	3	10.00	0.55	0.21	68
Taiwan	4	5	6.75	0.71	0.44	65
Scandinavian origin:						
Denmark	3	4	10.00	0.68	0.27	62
Finland	5	4	10.00	0.58	0.35	77
Norway	5	4	10.00	0.51	0.40	74
Sweden	10	4	10.00	0.46	0.44	83

## Stock price reactions at events associated with the Sarbanes-Oxley Act of 2002

The table reports market reactions of cross-listed companies at key event days related to the Sarbanes-Oxley Act of 2002. The stock price reactions are estimated using an augmented market model over the period from January 1, 2002 to December 31, 2002 (T=252). Daily portfolio returns are computed by equal weighting the daily returns of the cross-listed companies. Daily market returns are taken from the CRSP value-weighted market index, which excludes American Depository Receipts. Columns (1) and (2) are based on 510 level–II and level–III cross-listed companies that are traded on AMEX, NYSE, or NASDAQ; their stock return data are retrieved from CRSP. Columns (3) and (4) are based on 177 level-I cross-listed companies that are traded over-the-counter as Pink Sheet issues; their stock prices are retrieved from Datastream. Appendices A and B describe the key events and the corresponding event windows. The estimated coefficients are multiplied by 100 and *t*-statistics are reported in parentheses. \*, \*\*, \*\*\* denote statistical significance at the 10%, 5%, and 1% levels, respectively, based on a two-sided test.

	Level-II and	d Level–III	Level–I		
	(1)	(2)	(3)	(4)	
Constant	0.058	0.058	0.142**	0.142**	
	(1.42)	(1.43)	(2.19)	(2.18)	
Value-weighted market return	61.410***	61.493***	18.138***	18.083***	
C C	(22.55)	(22.73)	(4.22)	(4.19)	
El	0.427	0.428	8.780***	8.779***	
	(0.68)	(0.68)	(8.83)	(8.81)	
<i>E2</i>	-0.547	-0.548	-0.625	-0.624	
	(-1.23)	(-1.24)	(-0.89)	(-0.88)	
E3 (July 8-12)	0.142		-0.018	. ,	
	(0.50)		(-0.04)		
E3A (July 8-9)	. ,	0.821*	. ,	0.152	
· •		(1.85)		(0.22)	
E3B (July 10-11)		-0.638		-0.521	
		(-1.44)		(-0.74)	
E3C (July 12)		0.350		0.642	
		(0.56)		(0.65)	
<i>E4</i>	-0.178	-0.178	-0.533	-0.533	
	(-0.49)	(-0.49)	(-0.93)	(-0.92)	
<i>E5</i>	-2.200***	-2.204***	-1.470	-1.468	
	(-3.41)	(-3.44)	(-1.44)	(-1.44)	
<i>E6</i>	-1.583***	-1.583***	-0.477	-0.477	
	(-3.55)	(-3.58)	(-0.68)	(-0.68)	
<i>E</i> 7	0.305	0.302	0.420	0.422	
	(0.67)	(0.67)	(0.59)	(0.59)	
E8	-0.783*	-0.785*	-0.289	-0.287	
	(-1.74)	(-1.76)	(-0.41)	(-0.40)	
Adjusted R <sup>2</sup>	68.4%	68.8%	25.7%	25.4%	

**Cross-sectional results of regressing the stock price reactions on investor protection and growth opportunity** The table reports cross-sectional regression results for 510 cross-listed companies. The dependent variable is the estimated stock-price reaction on event *E6* (July 25-26, 2002), in which Senator Enzi commented on the applicability of the Sarbanes-Oxley Act to foreign issuers (see Appendix B). Investor protection at the home countries of the foreign issuers are captured by Anti-directors rights, Judicial efficiency, Private enforcement, Public enforcement, and Accounting standards. Sales growth, Leverage, and Market value are measured at the most recent fiscal year ended before January 1, 2002. Appendix C describes the construction of the explanatory variables in detail. The estimated coefficients are multiplied by 100. The standard errors and *t*-statistics (in parentheses) are computed using the portfolio time-series regression approach of Sefick and Thompson (1986) over the sample period from January 1, 2002 to December 31, 2002. \*, \*\*, \*\*\* denote statistical significance at the 10%, 5%, and 1% levels, respectively, based on a two-sided test.

	(1)	(2)	(3)	(4)	(5)	(6)
Constant	0.559	-3.122**	0.134	-0.678	-0.267	1.117
	(0.50)	(-2.26)	(0.12)	(-0.68)	(-0.16)	(0.64)
Anti-director rights	-0.480**					-0.465**
-	(-2.40)					(-2.31)
Judicial efficiency		0.212*				
-		(1.68)				
Private enforcement			-1.709*			
			(-1.79)			
Public enforcement				-0.699		
				(-1.07)		
Accounting standards					0.014	0.009
C					(-0.68)	(-0.43)
Sales growth	0.253	0.217	0.312	0.263	0.252	0.265
C .	(1.10)	(0.94)	(1.30)	(1.13)	(1.12)	(1.18)
Leverage	1.423	1.478	1.546	1.501	1.468	1.481
C C	(1.41)	(1.47)	(1.53)	(1.48)	(1.44)	(1.46)
Log of market equity	-0.082	-0.096	-0.131	-0.121	-0.100	-0.087
	(-0.85)	(-0.99)	(-1.37)	(-1.21)	(-1.02)	(-0.89)
Ν	510	510	510	510	498	498
Adjusted R <sup>2</sup>	1.7%	1.5%	1.9%	1.1%	1.0%	1.9%

**Descriptive statistics on audit fees, percentage owned by institutional blockholders, and investment** The table reports descriptive statistics for 139 (panel A), 465 (panel B), and 500 (panel C) cross-listed companies over the period from 1997 through 2007. Appendix C describes the construction of these variables in details.

Variable	Ν	Mean	S.D.	Minimum	Median	Maximum
Panel A: Audit fees						
Logarithm of audit fees (in thousands)	523	9.184	1.944	3.135	9.012	15.931
Post 404(b)	523	0.346	0.476	0.000	0.000	1.000
Anti-director rights	475	4.364	0.633	3.000	4.000	6.000
Judicial efficiency	475	9.383	1.113	5.500	10.000	10.000
Private enforcement	475	0.639	0.145	0.180	0.705	0.788
Public enforcement	475	0.522	0.236	0.000	0.667	0.896
Accounting Standards	437	71.844	8.367	36.000	75.000	83.000
$\Delta$ industry audit fees (percentage)	523	0.127	0.140	-0.113	0.082	0.477
Inventory & receivables	523	0.217	0.142	0.007	0.192	0.719
Loss	523	0.159	0.366	0.000	0.000	1.000
Business segments	523	1.293	0.551	0.693	1.386	2.398
Geographical segments	523	1.549	0.513	0.693	1.609	3.296
Big four auditor	523	0.967	0.178	0.000	1.000	1.000
New capital issuance	523	0.014	0.047	0.000	0.001	0.353
Leverage	523	0.172	0.139	0.000	0.159	0.574
Log of market equity (in millions)	523	9.035	1.700	3.945	9.197	11.812
Panel B: Institutional blockholders						
Percentage owned by institutional blockhoders (industry-adjusted)	2382	-14.651	10.302	-30.041	-18.412	23.843
Post SOX	2382	0.484	0.500	0.000	0.000	1.000
Anti-director rights	2285	4.083	0.734	2.000	4.000	6.000
Judicial efficiency	2290	8.850	1.343	2.500	9.250	10.000
Private enforcement	2290	0.720	0.229	0.180	0.747	0.958
Public enforcement	2290	0.624	0.273	0.000	0.719	0.896
Accounting standards	2227	69.444	8.337	36.000	74.000	83.000
ROA	2382	0.027	0.121	-0.696	0.041	0.256
Industry ROA	2382	-2.359	8.678	-57.181	-0.460	0.076
Herfindahl Index	2382	0.820	0.272	0.175	1.000	1.000
Log of market equity (in millions)	2382	7.986	1.973	3.335	8.099	11.812
Market-to-book	2382	3.497	4.061	0.364	2.344	31.215

(continued...)

## Table 4 (continued)

	Ν	Mean	S.D.	Minimum	Median	Maximum
Panel C: Investment						
Investment (industry-adjusted)	3011	-0.0060	0.0872	-0.2145	-0.0144	1.3246
Post SOX	3011	0.4929	0.5000	0.0000	0.0000	1.0000
Anti-director rights	2889	4.0824	0.7430	2.0000	4.0000	6.0000
Judicial efficiency	2899	8.8269	1.4071	2.5000	9.2500	10.0000
Private enforcement	2899	0.7190	0.2251	0.1800	0.7467	0.9583
Public enforcement	2899	0.6164	0.2728	0.0000	0.6667	0.8958
Accounting standards	2815	69.4238	8.4570	36.0000	74.0000	83.0000
Market-to-book	2951	1.6979	1.6232	0.1274	1.1677	9.8665
Surplus cash	2905	0.0607	0.1021	-0.3179	0.0543	0.3721
Log of sales (in millions)	2990	7.3878	2.2291	1.7265	7.5370	11.5228
$(Log of sales)^2$	2990	59.5468	31.9427	2.9808	56.8059	132.7744
Leverage	2951	0.1766	0.1457	0.0000	0.1629	0.5739

## Cross-sectional determinants of the impact of SOX 404(b) on audit fees

The table summarizes cross-sectional regression results for 139 cross-listed companies over the period from 1997 through 2007. The dependent variable is the logarithm of audit fees. For large accelerated filers, Post 404(b) takes the value of 0 for the period from 1997 through 2005 and the value of 1 in 2006 and 2007. For accelerated and non-accelerated filers, Post 404(b) takes the value of 0 for the period from 1997 through 2005 and the value of 1 in 2006 and 2007. For accelerated and non-accelerated filers, Post 404(b) takes the value of 0 for the period from 1997 through 2005 and the value of 1 in 2006 and 2007. For accelerated and non-accelerated filers, Post 404(b) takes the value of 0 for the period from 1997 through 2006 and the value of 1 in 2007. IP1 and IP2 denote the variables used to proxy for the level of investor protection at the home countries of the cross-listed companies. Appendix C describes the construction of these variables in detail. *t*-statistics (in parentheses) are calculated using standard errors adjusted for clustering by firm and year (Peterson 2009). \*, \*\*, \*\*\* denote statistical significance at the 10%, 5%, and 1% levels, respectively, based on a two-sided test.

		(1)	(2)	(3)	(4)	(5)	(6)	(7)
Ι	P1:		Anti-director	Judicial	Private	Public	Accounting	Anti-director
Т	D٦.	_	rights	efficiency	enforcement	enforcement	standards	rights
1	12.	_	_	_	_	_	_	standards
Intercept		2.934***	3.423***	4.241***	4.162***	4.234***	5.249***	5.761***
		(4.97)	(3.21)	(3.56)	(5.51)	(4.91)	(4.03)	(4.80)
Post 404(b)		0.424***	-1.949**	-4.201***	-2.334***	0.836***	0.296	-1.489
1 000 10 1(0)		(3.03)	(-2.55)	(-15.90)	(-4.70)	(2.84)	(0.60)	(-1.62)
IP1			-0.225	-0.227*	-2.434**	-1.839**	-0.042***	-0.199
			(-1.08)	(-1.79)	(-2.47)	(-2.41)	(-2.58)	(-0.93)
Post $404(b) \times IP1$			0.525***	0.483***	4.201***	-1.256***	-0.000	0.614***
			(3.17)	(9.90)	(5.26)	(-2.62)	(-0.04)	(5.54)
IP2								-0.038**
								(-2.12)
Post 404(b) $\times$ IP2								-0.014***
								(-4.86)
A industry audit fees		-0.284	-0.420	-0.565	-0.619	-0.641	-0.010	0.059
,	(	-0.53)	(-0.59)	(-0.96)	(-0.96)	(-1.04)	(-0.03)	(0.17)
Inventory & receivables	les	2.377***	2.895***	2.933***	2.606***	1.812*	3.074***	3.051***
5		(2.62)	(2.98)	(3.16)	(2.89)	(1.83)	(3.03)	(2.94)
Loss		0.143	0.192	0.204	0.161	0.130	0.251	0.237
		(0.78)	(1.05)	(1.18)	(1.09)	(0.57)	(1.26)	(1.21)
Business segments		0.869***	0.802***	0.799***	0.804***	0.730***	0.754***	0.731***
		(3.64)	(3.32)	(3.37)	(3.39)	(3.31)	(3.19)	(3.13)
Geographical segmen	ts	0.048	0.307	0.278	0.260	0.313	0.352	0.392
		(0.20)	(1.15)	(1.02)	(0.99)	(1.22)	(1.25)	(1.39)
Big 4 auditor		-0.086	-0.134	0.150	-0.127	-0.216	0.389	0.392
0	(	-0.22)	(-0.28)	(0.31)	(-0.31)	(-0.44)	(0.76)	(0.78)
New capital issuance		-1.825	-2.028	-1.816	-1.840	-1.714	-1.857	-1.677
	(	-1.36)	(-1.32)	(-1.12)	(-1.15)	(-1.11)	(-0.96)	(-0.94)
Leverage		1.192	1.057	1.037	0.984	0.556	1.317	1.307
U		(1.44)	(1.26)	(1.39)	(1.28)	(0.68)	(1.52)	(1.44)
Log of market equity		0.477***	0.484***	0.499***	0.489***	0.455***	0.447***	0.448***
		(7.10)	(6.86)	(7.86)	(7.10)	(6.31)	(6.03)	(6.13)
Observations		523	475	475	475	475	437	437
Adjusted R <sup>2</sup>	3	37.4%	39.2%	40.2%	41.0%	46.2%	36.3%	36.9%

**Cross-sectional determinants of the impact of SOX on the percentage ownership of institutional blockholders** The table summarizes cross-sectional regression results for 465 cross-listed companies over the period from 1997 through 2007, excluding 2002 in which the Sarbanes-Oxley Act was passed. The dependent variable is the percentage ownership of institutional investors that held at least five percent of a cross-listed company's outstanding shares, adjusted for the corresponding average in the issuer's industry. Post is an indicator variable that takes the value of 0 in the pre-SOX period (1997 – 2001) and the value of 1 in the post-SOX period (2003 – 2007). IP1 and IP2 denote the variables used to proxy for the level of investor protection at the home countries of the cross-listed companies. Appendix C describes the construction of these variables in detail. *t*-statistics (in parentheses) are calculated using standard errors adjusted for clustering by firm and year (Peterson 2009). \*, \*\*, \*\*\* denote statistical significance at the 10%, 5%, and 1% levels, respectively, based on a two-sided test.

		(1)	(2)	(3)	(4)	(5)	(6)	(7)
	IP1:		Anti-director	Judicial	Private	Public	Accounting	Anti-director
	102.	_	rights	efficiency	enforcement	enforcement	standards	rights
	IP2:	_	_	_	_	_	_	standards
								Standards
Intercept		-5.527**	-9.926***	-11.068***	-11.914***	-11.102***	-15.177***	-17.890***
-		(-2.40)	(-4.23)	(-4.04)	(-4.52)	(-4.40)	(-4.21)	(-5.51)
Post SOX		1.466	15.647***	1.530	-8.451***	-3.414*	-9.444*	2.338
		(1.28)	(3.26)	(0.49)	(-3.99)	(-1.84)	(-1.86)	(0.44)
IP1			1.190***	0.706***	7.198***	5.670***	0.141***	0.909**
			(3.43)	(3.39)	(3.64)	(3.65)	(3.32)	(2.42)
Post SOX $\times$ IP1			-3.400***	0.003	12.401***	6.849**	0.152*	-3.483***
			(-3.24)	(0.01)	(4.04)	(2.22)	(1.84)	(-3.13)
IP2								0.123***
								(2.60)
Post SOX $\times$ IP2								0.191**
								(2.34)
ROA		0.980	1.388	1.923	2.268	1.307	3.015	2.936
		(0.36)	(0.50)	(0.68)	(0.82)	(0.48)	(1.06)	(1.05)
Industry ROA		0.054**	0.056***	0.042**	0.006	0.029*	0.025	0.031*
		(2.53)	(3.01)	(2.36)	(0.33)	(1.74)	(1.37)	(1.79)
Herfindahl		1.365	1.214	1.334	0.013	0.419	1.093	1.141
		(1.09)	(0.97)	(1.05)	(0.01)	(0.36)	(0.90)	(0.96)
Log of market equ	uity	-1.394***	-1.403***	-1.462***	-1.025***	-0.962***	-1.330***	-1.280***
5	2	(-5.28)	(-5.54)	(-5.49)	(-4.90)	(-4.23)	(-5.48)	(-5.54)
Market-to-book		0.081	0.068	0.045	-0.003	-0.015	-0.012	-0.011
		(1.45)	(1.25)	(0.80)	(-0.05)	(-0.26)	(-0.18)	(-0.17)
Observations		2382	2285	2290	2290	2290	2227	2227
Adjusted R <sup>2</sup>		6.7%	8.2%	7.8%	16.3%	12.5%	9.9%	11.3%

**Cross-sectional determinants of the impact of SOX on the amount of capital expenditures and R&D** The table summarizes cross-sectional regression results for 461 cross-listed companies over the period from 1997 through 2007, excluding 2002 in which the Sarbanes-Oxley Act was passed. The dependent variable is the amount of capital expenditure plus R&D expenditure scaled by book value of assets and adjusted for the corresponding average in the issuer's industry. Post is an indicator variable that takes the value of 0 in the pre-SOX period (1997 – 2001) and the value of 1 in the post-SOX period (2003 – 2007). IP1 and IP2 denote the variables used to proxy for the level of investor protection at the home countries of the cross-listed companies. Appendix C describes the construction of these variables in detail. *t*-statistics (in parentheses) are calculated using standard errors adjusted for clustering by firm and year (Peterson 2009). \*, \*\*, \*\*\* denote statistical significance at the 10%, 5%, and 1% levels, respectively, based on a two-sided test.

	IP1:	(1)	(2) Anti-director rights	(3) Judicial efficiency	(4) Private enforcement	(5) Public enforcement	(6) Accounting standards	(7) Anti-director rights
	IP2:	-	_	_	_	_	_	Accounting standards
Intercept		0.172***	0.132***	0.192***	0.155***	0.152***	0.183***	0.154***
		(5.21)	(3.44)	(4.97)	(4.48)	(4.63)	(4.74)	(3.89)
Post SOX		0.005	-0.024	0.024	0.029**	0.024***	0.014	-0.015
		(1.47)	(-1.38)	(1.36)	(2.29)	(2.81)	(0.72)	(-0.68)
IP1			0.009***	-0.002	0.019	0.024	-0.000	0.009***
			(2.62)	(-1.03)	(0.99)	(1.44)	(-0.20)	(2.62)
Post SOX $\times$ IP1	l		0.006	-0.002	-0.036*	-0.035**	-0.000	0.006
			(1.41)	(-1.10)	(-1.86)	(-2.32)	(-0.53)	(1.34)
IP2								-0.000
								(-0.81)
Post SOX $\times$ IP2	2							-0.000
								(-0.39)
Market-to-book		0.005*	0.004*	0.005*	0.004*	0.005*	0.005*	0.005*
		(1.93)	(1.80)	(1.90)	(1.87)	(1.87)	(1.82)	(1.85)
Surplus cash		0.132***	0.125***	0.129***	0.127***	0.127***	0.122***	0.121***
		(4.40)	(4.11)	(4.17)	(4.11)	(4.10)	(3.87)	(3.86)
Log of Sales		-0.056***	-0.052***	-0.057***	-0.054***	-0.054***	-0.057***	-0.054***
-		(-5.86)	(-5.29)	(-5.69)	(-5.59)	(-5.57)	(-5.67)	(-5.37)
(Log of Sales) <sup>2</sup>		0.003***	0.003***	0.004***	0.003***	0.003***	0.003***	0.003***
		(5.65)	(4.97)	(5.49)	(5.37)	(5.29)	(5.45)	(5.04)
Leverage		0.066***	0.060***	0.060***	0.060***	0.059***	0.067***	0.066***
-		(3.34)	(3.04)	(3.06)	(3.15)	(3.18)	(3.23)	(3.14)
Observations		2846	2725	2735	2735	2735	2651	2651
Adjusted R <sup>2</sup>		9.8%	10.5%	9.8%	9.8%	9.9%	9.8%	10.8%