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THE IMPACT OF SARBANES-OXLEY ON EARNINGS QUALITY
AND THE CROSS-LISTING DECISION

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MICHAEL F. PRICE COLLEGE OF BUSINESS

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*To my beloved wife,
without your continued support from the beginning,
the following pages would simply not be possible.*

*To my Lord and Savior Jesus Christ,
from whom all things are possible.
“Yes, walking in the way of your laws, I wait for you;
your name and renown are the desire of my heart.”
- Isaiah 26:8*

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ABSTRACT

An expected outcome from the Sarbanes-Oxley Act [SOX, hereafter] was to improve the overall quality of financial reporting in the U.S. However, many believe the increased regulations imposed excessive costs on companies with little improvement in financial reporting quality. SOX may have also imposed costs on U.S. investors by limiting their investment choices in foreign companies listed on U.S. exchanges. SOX applies to all publicly-traded companies, including foreign companies that cross list on U.S. exchanges. Immediately following SOX, the number of companies choosing to cross list in the U.S. declined significantly (Piotroski and Srinivasan 2008), but to the extent that SOX resulted in companies with lower quality earnings choosing to cross list elsewhere, the additional costs to U.S. investors – limiting foreign investment choices – may be worthwhile. Overall, I find SOX had no definitive influence on the earnings quality of cross-listers both in the U.S. and globally. My results indicate that SOX has had a greater influence on domestic U.S. companies' earnings quality compared to cross-listers in the U.S. While I do find earnings quality is higher for cross-listers in the U.S. versus elsewhere, the earnings quality for neither group improved around SOX. Overall, my results suggest the costs from SOX exceed the benefits from improved reporting quality, at least as it relates to cross-listers. Further, my findings are consistent with criticisms of the bonding hypothesis. While some may believe that cross-listed companies are bonding themselves to U.S. regulations and reporting quality, the evidence in this paper suggest that regulations do not equally impact U.S. companies and foreign companies cross listing in the U.S.

1. Introduction

The purpose of this study is to examine whether SOX was beneficial in terms of improving financial reporting quality – a major tenet of the 2002 legislation. The context of my paper focuses directly upon the earnings quality of cross-listers around the enactment of SOX. More specifically, I choose to focus on the earnings quality of a company in the *initial* year of cross listing with the intent that such a focus would more directly assess the influence SOX had on the types of companies (in terms of earnings quality) that decide to cross list in the U.S. An improvement in the quality of listings attracted by the U.S. market post-SOX would provide some indication on the effectiveness of the legislation, but was this expected improvement in earnings quality significant enough to overcome the cost of deterring companies from listing in the U.S.? Nordberg (2008) argues that SOX is ineffective as the remedies of the legislation did not match the ailments of the U.S. markets but at the same time argues the detriments of SOX (e.g., the loss in competitiveness of U.S. markets) are over-stated. Thus, the effectiveness of SOX continues to be an empirical question, and one way to examine SOX is to determine the effectiveness of its provisions on earnings quality for companies in the initial year of cross listing.

As the landscape of international business has changed in the past twenty years, companies worldwide have expanded operations beyond domestic borders in order to increase their investor and consumer bases.¹ To gain additional access to new markets, companies also choose to cross list on foreign exchanges in more developed financial markets. Historically, U.S. exchanges were the most sought after by foreign companies

¹ Meek and Thomas (2004) discuss the growing importance of four international factors: (1) the expansion of equity and bond markets globally, (2) an increased number of cross-listing companies, (3) the influence of the IASB and IFRS, and (4) the influence of multinationals and foreign direct investment.

given the attractiveness of the U.S. economy. Listing on U.S. exchanges resulted in increased visibility and reputation, greater liquidity, and the ability to raise capital at a lower cost (Licht 2003). However, recent changes in the U.S. regulatory environment may influence the cross-listing decision. The more rigorous requirements from Sarbanes-Oxley, which applies to any publicly traded company in the U.S., may have shifted the cross-listing trend towards non-U.S. exchanges. Prior to SOX, nine out of every ten cross-listers did so in the U.S., but that ratio shifted to one out of ten by 2005 (Karmin and Lucchetti 2006). While recent evidence suggests that the cross-listing trend away from U.S. markets has partially subsided, the form of U.S. cross listings which companies now utilize suggests the documented decline shortly after SOX is indicative of foreign companies avoiding the U.S. markets.²

Recent research indicates that companies have adopted avoidance strategies to evade increased costs associated with SOX by going private and/or delisting from U.S. exchanges (Engel et al. 2007; Hotsak et al. 2007; and Witmer 2005). An additional strategy for U.S. and non-U.S. companies is choosing to cross list on non-U.S. exchanges. Not only are the actual dollar costs to implement SOX significant, but the increased level of financial reporting and accountability is also an additional cost for many foreign companies. Therefore, foreign companies with lower-quality earnings (e.g., companies with greater earnings management) may find it less beneficial to cross list in the U.S. To examine this supposition, I compare the earnings quality of foreign companies that decide to cross list in the U.S. via American Depository Receipts [ADRs, hereafter] versus those that cross list in non-U.S. markets via a form of global depository

² For further discussion on the cross-listing trends, see Section 2.3.

receipts [GDRs, hereafter] around the enactment of SOX.³ As previously mentioned, I specifically examine ADRs and GDRs in the initial year of cross listing (as opposed to cross-listers who have been on an exchange for many years). While examining the change in earnings quality around SOX for existing cross-listers may provide some insight into the influence of SOX, ultimately these ADRs have little choice but comply with the new legislation because the choice to de-list in the face of increased regulations may be too costly. However, foreign companies attempting to make a decision on where to cross list may view the significant costs associated with SOX as a deterrent. Therefore, testing the impact of SOX on earnings quality in the initial year of cross listing provides unique and direct insight into the impact of the new regulations on the cross-listing decision as companies weigh the benefits of a U.S. listing versus the dollar costs and increased reporting scrutiny and transparency associated with SOX.

The enactment of SOX in 2002 came with much controversy. The regulation was triggered by a series of market events, including the failures of Enron and Worldcom. The result was legislation pertaining to any company under the purview of the Securities Acts of 1933 and 1934, specifically including any foreign company that lists on public exchanges in the U.S.⁴ Many believe these failures prior to SOX resulted from a lack of enforcement of existing laws and regulations, and proponents also claim the legislation was necessary to restore investor confidence and would prove to be beneficial in the long-term, despite the initial compliance costs. The biggest complaint regarding SOX focused on this last point, as costs have proven to be substantial, allegedly damaging the

³ As discussed in Section 2, I use the term GDR to include all cross listings on non-U.S. exchanges.

⁴ Few exceptions exist for foreign filers under SOX. SEC exemptions include audit committee independence and a delay in the effective dates for some components of the legislation (see Section 2.3 for further discussion).

competitiveness of U.S. markets. Further, many believe that the remedies prescribed by SOX did not match the ailments as it relates to valuation and corporate governance (Brown and Caylor 2006; Bebcuk et al. 2009).

As the debate regarding the effectiveness of SOX continues, I attempt to provide some evidence about the influence the legislation had on financial reporting. A main function of SOX, in light of past corporate scandals, is to improve quality and transparency in financial reporting through enhanced rules and regulations (U.S. Congress 2002). The focus of my first two hypotheses is on SOX and the direct impact of the regulations on earnings quality for ADRs. This is appropriate given the direct influence SOX (as well as the SEC) has on any company listed in the U.S., including ADRs. The first hypothesis addresses the predicted improvement in earnings quality for ADRs, while the second hypothesis compares the improvement for ADRs with a matched sample of U.S. companies that are also subject to SOX's provisions. In one respect, because ADRs originate from local reporting environments where reporting standards are more lax, ADRs' earnings quality has more room for improvement. Alternatively, ADRs may be less sensitive to regulatory requirements,⁵ and thus, U.S. companies' earnings quality may improve while ADRs' earnings quality is unchanged.

I also want to compare how earnings quality has improved for ADRs versus other foreign companies, but what is less apparent is the influence SOX has on other foreign companies. Thus, my third hypothesis compares the earnings quality of ADRs and GDRs in the post-SOX period. I predict that the increased regulation and enforcement from SOX discourages foreign companies with lower-quality earnings from cross listing in the

⁵ An ADR's response to regulatory requirements like SOX is dependent upon how a cross-lister "bonds" with their new reporting regime. A discussion of bonding is included further in the Introduction as well as a more thorough description in Section 3.1.

U.S.; therefore, foreign companies choosing to cross list in the U.S. have higher earnings quality than companies choosing to cross list elsewhere. I also predict SOX deters lower-quality companies from cross listing in the U.S., so I examine changes in earnings quality for GDRs. The first question addresses whether earnings quality has improved for GDRs post-SOX. The possibility exists that lower-quality would-be-ADRs are choosing to cross list on non-U.S. exchanges, thus decreasing the earnings quality of GDRs overall. Alternatively, if ADRs generally have higher-quality earnings than other cross-listers, then would-be-ADRs that instead list elsewhere might still increase the overall earnings quality of GDRs. The second research question compares GDRs to a sample of foreign companies that choose not to cross list. SOX should have limited influence on those companies that decide not to cross list; however, the same may not be true for foreign companies that desire a dual listing (i.e., GDRs).

To test the earnings quality around SOX of foreign companies that choose to cross list in the U.S. versus other countries, I employ a similar methodology as used by Leuz et al. (2003) and Lang et al. (2003b). The former examines the quality of earnings across 31 countries, and the latter compares the earnings quality of cross-listed companies in the U.S. versus non-cross-listed companies in their home country. The term “earnings quality” can take on various related meanings, but in the context of these papers (as well as mine) earnings quality is best defined as how well a company’s reported earnings closely resembles earnings that are not manipulated by managers for private gain. To compare particular elements of earnings quality, these papers compare measures for earnings management, earnings smoothing, timely loss recognition, and value relevance. A multitude of statistics across these categories exist, and I use seven

statistics that are the most appropriate for my sample of cross-listers and would also provide a better indication of higher quality earnings. My sample period covers initial cross-listers from 1998 through 2006 with a final sample consisting of 287 ADRs and 393 GDRs from eight non-U.S. exchanges.

My first set of results provides evidence that SOX has had limited impact on the quality of cross-listers' earnings. ADRs' earnings quality around SOX actually declined, while earnings quality for a matched sample of U.S. companies increased. Further, I find no evidence of an increase in earning quality for ADRs in the post-SOX period when comparing earnings quality prior to listing to the initial year of listing, nor does earnings quality improve for ADRs as they become more accustomed to SOX's regulations. These combined results suggest SOX is not influencing the earnings quality of ADRs – a finding consistent with opponents of the bonding hypothesis. As proposed by Coffee (1999, 2002), the bonding hypothesis states that cross-listers “bond” themselves to another market via increased voluntary disclosures as well as compliance with laws and regulations of the new market. Siegel (2005) argues that reputational bonding can exist as foreign companies may benefit from cross listing based upon reputational factors that come with an increased following; however, the latter component of the bonding hypothesis which he labels “legal bonding” does not hold for cross-listers. The evidence from Siegel (2005) suggests that the risk of SEC enforcement against cross-listers in the U.S. is very low, and hence, he raises doubts about the amount of legal bonding that occurs for cross-listers. If the maintained assumption of SOX is that earnings quality should improve for all U.S.-listed companies, the lack of improvement by ADRs is consistent with ADRs not legally bonding to U.S. markets, especially post-SOX.

My second set of results then focuses on how the earnings quality of those companies choosing to cross list on non-U.S. exchanges relates to my findings for ADRs. While ADRs did not improve in earnings quality around SOX, I provide evidence they have higher earnings quality than GDRs both before and after SOX. Yet, for cross-listers in general, I find the change in earnings quality for ADRs around SOX is not significantly different from the change in earnings quality for GDRs. Finally, the change in earnings quality around SOX is greater for GDRs than for a matched sample of foreign companies that choose not to cross list. In total, I find that SOX had a significant impact on U.S. domestic companies but no impact on ADRs, GDRs, or those foreign non-cross-listers.

The effectiveness of SOX can be evaluated in many respects, but ultimately the legislation was enacted to increase the confidence of investors in U.S. markets. In this paper, I make three contributions related to the impact of SOX. The many components of SOX including auditor oversight, executive responsibility, and internal control documentation all point to an outcome of improved financial reporting via greater financial transparency and enhanced financial disclosures. Public companies in the U.S. have few strategies available to them to evade compliance with SOX (besides de-listing), but foreign companies have alternatives. As foreign exchanges and the world economy have continued to develop, companies can raise additional capital outside their home country and increase overall reputation by cross listing on non-U.S. exchanges. Changes in cross-listing trends post-SOX suggest non-U.S. exchanges are obtaining a greater number of foreign cross-listers. Given the U.S. market has always been associated with higher-quality financial reporting (especially post-SOX), one outcome from the enhanced

financial reporting associated with SOX is to deter foreign companies that are unwilling to comply with increased levels of transparency and disclosure. Therefore, the first contribution of my paper is to understand the impact of SOX on the cross-listing decision by examining companies' earnings quality immediately after cross listing, and my findings suggest that SOX had limited influence. Consistent with the claim by Doidge et al. (2008) that SOX did not affect foreign filers more than other companies, I find SOX did not have a greater differential impact on foreign companies compared with U.S. companies (and actually had the opposite effect).

An outcome of the first contribution is that my results also provide further evidence that the bonding hypothesis may hold in terms of reputation by providing a sense of improved investor protection, but legally, foreign companies cross listing in the U.S. are not concerned with SOX compliance, consistent with suggestions by Siegel (2005). Given the supposed increase in enforcement accompanying SOX, a reasonable expectation would be that ADRs that generally originate from environments with weaker corporate governance would have shown improved earnings quality if compliance was a significant concern. Contrary to this conjecture, the earnings quality of ADRs remained unchanged.

Finally, as the Financial Accounting Standards Board (FASB), International Accounting Standards Board (IASB), and other organizations work towards one global set of generally accepted accounting principles, evidence from this paper corroborates with existing evidence that the quality of earnings for foreign companies (cross-listers and non-cross-listers) is less than that of U.S. companies. Further, SOX has increased the disparity given its significantly greater incremental impact on U.S. companies versus all

other samples examined in this paper. As a result, the recent decision by the SEC allowing foreign companies with U.S. listed securities to report results under IFRS without reconciling to U.S. GAAP is of concern. Undoubtedly, the transition to one set of global standards, including U.S. companies, would reduce the complexity as well as costs for reporting; however, as the IASB attempts to make financial reporting more consistent and reliable, more stringent enforcement may be necessary to make foreign companies' earnings quality more comparable to that of U.S. companies.

Section 2 of the paper discusses the institutional background with respect to the cross-listing process and SOX. Section 3 examines previous literature that leads to my hypotheses. Section 4 explains the methodology, test statistics, and sample construction of the paper, as well as a brief discussion on existing cross-listing trends specific to my sample and their relation to the hypotheses. Section 5 discusses the main results. Section 6 provides some sensitivity analyses. Section 7 concludes.

2. Institutional Background

This paper compares the earnings quality of companies that cross list in the U.S. versus non-U.S. exchanges around the enactment of SOX, and in this section I highlight the two key components of related literature. First, I discuss the cross-listing process via depository receipts both in the U.S. and globally. Second, I highlight the impact of SOX on the U.S. reporting environment.

2.1. ADRs and GDRs⁶

The majority of cross-listings by foreign companies have historically occurred in the U.S. via ADRs. ADRs are negotiable instruments issued by a depository bank in the U.S. at the request of a foreign company – outlined in Figure 1.⁷ The cross-listing company exclusively negotiates an agreement with a depository bank in the U.S. and provides existing domestic shares to the depository who then issues depository receipts to investors on the selected U.S. exchange based upon a specified ADR ratio.⁸ ADRs are like U.S. stocks in that they are traded, quoted, and pay dividends in U.S. dollars. In the U.S., companies can choose between three levels of public offerings – Level I, Level II, and Level III – or a private offering under SEC Rule 144A Depository Receipts (RADRs). The four types vary in degree of compliance with SEC registration and GAAP requirements with Levels II and III receiving the most scrutiny.

Level I ADRs are the easiest and least costly listing for foreign companies to gain access to U.S. markets, but they cannot be used to raise new capital. These ADRs trade on the OTC market and have limited SEC requirements as they are exempt from filing periodic reports or reconciling to U.S. GAAP under SEC reporting rule 12g 3-2(b). The only SEC filing requirement is an F-6 SEC form to announce the ADR program. Level II and Level III ADRs are listed on major U.S. exchanges and have stringent reporting

⁶ Both Desai (2004), *Cross-Border Listings and Depository Receipts*, and an overview of depository receipts by the Bank of New York at http://www.adrbny.com/dr_edu_basics_and_benefits.jsp provide more in-depth discussion pertaining to ADRs and the various forms of GDRs.

⁷ The ADR defined here is specifically identified as a *Sponsored* ADR, where an agreement exists between a foreign company and a depository bank. Intermediary banks distribute *Unsponsored* ADRs, generally as a response to investor demand and not from the foreign company itself. Unsponsored ADRs can only be traded via pink sheets (over-the-counter). However, after the SEC introduced further disclosures for these unsponsored listings beginning in 1982, the number of Unsponsored ADRs has declined and the amount is now negligible (Desai, 2004).

⁸ Intermediary banks use these ratios to best align the price of the ADR with an appropriate price in the cross-listed market. For example, one depository receipt would consist of five depository shares if the ratio were 1:5.

requirements similar to that of domestic companies. These two ADR types are very similar with the main distinguishing factor being Level IIs are tied to previously issued shares abroad while Level IIIs are used to raise capital through the issuance of new shares. In addition, both must file F-6 forms to announce the program and reconcile their financial reports to U.S. GAAP on an annual basis.⁹ Finally, RADRs are another way in which foreign companies can issue new equity to raise cash in the U.S. but with fewer reporting requirements. These ADRs utilize the PORTAL market to attract qualified institutional buyers (QIBs) for private placement. In this market, QIBs can buy and sell RADRs to one another. This type of depository receipt does not require registration with the SEC or any reconciliation of their financial reports to U.S. GAAP.

Each type of ADR listing brings particular costs and benefits to the cross-listing company. Level I and 144a ADRs avoid the scrutiny of the SEC, and thus are less costly and easy to complete. The downside for these ADRs is that they do not necessarily provide a signal to investors that the company is willing to comply with regulations that provide greater investor protection. Companies choosing to cross list via Level II and Level III ADRs do provide such a signal, but complying with the stringent SEC reporting requirements can be costly and time-consuming. In this paper, I focus on the Level II and III ADRs because they provide a direct examination of the benefits that a listing in the U.S. can bring, including increased visibility and prestige and a larger shareholder base.

Turning to cross-listings on non-U.S. exchanges, I categorize all non-U.S. cross-listings as GDRs for simplicity, although my GDR sample actually includes three major types of foreign cross-listings – GDRs, European Depository Receipts (EDRs), and

⁹ My sample period ends in 2006, thus the new SEC rule waiving the reconciliation to U.S. GAAP by foreign companies using IFRS would not influence the results of my study.

International Depository Receipts (IDRs). GDRs are specifically cross-listings on non-U.S. exchanges that are denominated in U.S. dollars. EDRs are the same as GDRs except they are denominated in Euros, and IDRs are issued by non-European companies in Brussels. Various levels of GDRs do not exist like ADRs in the U.S, and the listing requirements and scrutiny imposed upon cross-listers may vary by country and exchange. The process of issuing GDRs is operationally similar to ADRs as the depository receipts are held by a foreign branch of an international bank who issues the receipts in their respective country. Other branches of the bank can make their GDRs available globally as well.

2.2. Sarbanes-Oxley

President George W. Bush signed The Public Company Accounting Reform and Investor Protection Act of 2002, more familiarly known as the Sarbanes-Oxley Act, on July 30, 2002. At the time, the President described the Act as “the most far reaching reform of American business practices since Franklin D. Roosevelt.” Some label the Act as a “one size fits all” regulation which proposes sweeping changes but whose implications are still being determined. The intent of the new regulation is to restore investor confidence in the U.S. capital market through increased investor protection by enhancing financial reporting disclosures. Some of the key components to SOX include the establishment of the Public Company Accounting Oversight Board (PCAOB), enhanced auditor independence, greater corporate responsibility including audit committee guidelines and CEO and CFO certification of all periodic financial statements, and enhanced financial disclosure. Other sections address analysts’ conflicts of interest as well as the accountability of management and auditors for fraud and the related

punishment for SOX violations. Ultimately, the SEC is responsible for implementing all rulings on the compliance of SOX by each company.

SOX introduced many changes to financial reporting in the U.S., and the debate continues regarding the benefits the regulation has brought to the U.S. economy. The speed with which Congress put the Act together raised concerns regarding its effectiveness and the impact it would have on companies, most particularly the extra costs incurred to remain compliant with the new rules. Still, many believed SOX was necessary and useful to ease concerns regarding the reliability of financial reporting, and many commentaries on SOX cite obvious inadequacies in financial reporting that existed prior to 2002. Holmstrom and Kaplan (2003) argue that the new regulation addresses some of the deficiencies that existed in corporate governance, and Coates (2007) claims that while many of the rules of corporate governance addressed in SOX existed prior to the malfeasance by Tyco, WorldCom, and Enron, the enforcement of these rules was obviously missing.¹⁰ Trends such as a rise in accounting restatements, an increase in earnings management from 1987 to 2001, a decline in investor confidence, an increase in audit failures, and a rise in securities frauds are indicative of the need for enhanced regulation (Coates, 2007). These studies conclude that SOX will bring net benefits that will make the U.S. reporting system better. With that said, Holmstrom and Kaplan (2003) conclude that the biggest risk remaining in the post-SOX era is the possibility of over-regulation.

Critics of SOX claim the new regulation is excessive and results in unnecessary costs. Romano (2005) is very blunt in her commentary on SOX calling the “quack”

¹⁰ SOX picks up many tenets of the Foreign Corrupt Practices Act of 1977 (FCPA), thus large portions of the legislation are not new. The failure of the FCPA was related more to lack of enforcement.

corporate governance provisions having more to do with recycled ideas and less about addressing inefficiencies. She states, “Simply put, the corporate governance provisions were not a focus of careful deliberations by Congress. SOX was emergency legislation, enacted under conditions of limited legislative debate, during a media frenzy involving several high-profile corporate fraud and insolvency cases” (pg. 1528). Engel et al. (2006) discuss the potential drivers of compliance costs from SOX that companies consider when making listing decisions: internal control reports, documentation and legal requirements, external assistance to prepare financial statements, executive certifications requiring more of their time, and greater civil and criminal penalties resulting in a demand for higher wages. Many generally consider SOX Section 404 addressing improved internal controls as the primary cause of increased costs. For companies to maintain compliance, they have had to consume more internal resources as well as rely on the assistance of external parties (like auditors), both of which substantially increase costs to companies. A 2006 survey of 247 executives by the FEI showed that total 2005 costs for compliance with Section 404 averaged \$3.8 million per company and was directly proportional to the size of the company. Further, 85.1% of the respondents believe the costs for internal control compliance exceed the benefits (FEI, 2006).

2.3. Combining the Cross-listing Decision with SOX

Of particular interest to this paper is the influence of SOX on foreign companies. The international reaction to the new reporting requirements was not positive, given the “heavy-handed, extra-territorial nature” of the legislation on foreign companies (Nordberg, 2008). Some companies sought exemptions from SOX provisions via the SEC but such calls were resisted. Ultimately, some exemptions were provided to foreign

companies listed in the U.S., such as the audit committee independence requirements. Also, the deadline for the costly compliance with Section 404 was extended to fiscal years ending on or after December 15, 2007. Still, cross-listing trends around the enactment of SOX suggest a change in where foreign companies decide to cross list.

The globalization of markets and the growth of exchanges in Europe, accompanied with increased costs incurred by companies to comply with SEC standards at the turn of the century, were already raising doubts about the necessity of a listing in the U.S. (Bancel and Mittoo 2001); however, organizations like the Committee on Capital Market Regulation and the Financial Executives International (FEI), amongst others, point to the enactment of SOX in 2002 as the ultimate culprit. A significant reason for the shift in recent cross listing trends away from the U.S. is the increase in costs for issuing shares in the U.S. in the post SOX era (Karmin and Lucchetti, 2006). The Committee is specifically concerned that “excessive regulation, problematic implementation and unwarranted litigation – particularly when occurring simultaneously – make U.S. capital markets less attractive and, therefore, less competitive with other financial centers around the world” (Committee 2006, 2007).¹¹ They provide evidence that in 2005, 5% of the value of global initial public offerings was raised in the U.S., down from 50% in 2000. Further, the U.S. share of global market capitalization was at a seventeen-year low of 35.2% in 2007 (37.9% in 2006 and 52% in 2001). Foreign exchanges have taken advantage of this opportunity to attract companies to their market by promoting cheaper listings, as well as lower regulatory and disclosure requirements.

¹¹ The Committee on Capital Market Regulation is comprised of 22 individuals from the investor, finance, accounting, law and academic communities who describe themselves as a group “dedicated to improving the competitiveness of the U.S. capital markets by reducing regulation and litigation while enhancing the rights of shareholders.” They issued their first report in 2006, and a follow-up in 2007. The Committee intends to follow the competitiveness of the capital markets for at least the next two years.

The AIM market in London, a newer exchange designed to attract mostly smaller, less-profitable companies from developed countries, is doing exactly that. McLachlan (2006) argues that “the burden of red tape is forcing publicly traded companies to abandon Wall Street in favour of the London Stock Exchange.” U.S. cross-listings have *declined* 63% in the post-SOX era, while listings on the London Stock Exchange (LSE) have *increased* over 100% due to a seven-fold increase in AIM listings (Piotroski and Srinivasan 2008). At the same time, foreign delistings in the U.S. have increased (Hotsak et al. 2007 and Smith 2008). A U.S. listing can still bring companies credibility, but given the increased regulatory and legal costs, the debate continues regarding the true net benefits from cross listing.¹²

Overall, the effectiveness of SOX remains an empirical question and one that must be addressed in parts. Nordberg (2008) argues that SOX is ineffective as the remedies of the legislation did not match the ailments of the U.S. markets; however, he also argues that the loss in competitiveness is over-stated. One way to examine SOX is to determine the effectiveness of its provisions on earnings quality. In the following section, I develop testable hypotheses that specifically examine the earnings quality of those cross-listers around SOX. An improvement in the quality of listings would provide some indication on the effectiveness of the legislation. The increased costs from SOX for listing in the U.S. can certainly deter foreign companies, but increased investor protection

¹² Recent evidence from Thomson Financial suggests the cross-listing trend has partially shifted back to the U.S. as foreign companies familiarize themselves with corporate governance rules under SOX. The percentage of foreign-based IPOs in the U.S. increased in early 2007, but most IPOs were fairly small and usually file via private placement (Rule 144A) which is not subject to SOX’s provisions. I do not attempt to address the validity of this trend, but I do believe the decline in the competitiveness of the U.S. market as it relates to global cross-listings does suggest foreign companies had some concern regarding the provisions of SOX.

from SOX can also lead to net benefits if lower-quality companies are no longer desirous of a U.S. listing.

3. Hypothesis Development and Research Questions

3.1. Discussion of the Cross-Listing Decision

In choosing where to cross list, companies opt into corporate governance, disclosure standards, and accounting rules that are generally more rigorous than their own country's. One of the predominant arguments as to why companies cross list in the U.S. is their willingness to subject themselves to increased disclosure and stronger enforcement authorities, thus "bonding" themselves with a more regulated and litigious market (Coffee 2002). The belief is that cross listing provides a signal to investors that a company desires to compensate for the lack of investor protection in its home country (Coffee 1999; Stulz 2001). Companies from poorer investor protection environments or weaker disclosure environments are more likely to cross list (Reese and Weisbach 2002; Hope et al. 2007). The empirical evidence further suggests that cross-listed companies are valued more than their domestic counterparts and have a decreased cost of capital due to a decline in perceived market risk (Doidge et al. 2004; Errunza and Miller 2000; Karolyi 1998; and Hail and Leuz 2009).

The bonding hypothesis (at least as it relates to U.S. markets) has its critics, and alternative theories exist as to why companies cross list. Licht (2003) finds that U.S. authorities generally take a hands off approach to foreign filers with respect to enforcing corporate governance standards, and Siegel (2005) argues that while the "reputational bonding" of cross listing may be somewhat true, the "legal bonding" from cross listing does not hold due to the lack of SEC enforcement against cross-listing companies. Lang

et al. (2006) find that the reconciled earnings of cross-listers are of lower-quality than that of U.S. domestic companies. Further, earnings quality is lower for countries from weaker investor protection environments, suggesting that SEC regulation does not necessarily overcome the influence of the local environment. Licht (2003) argues the bonding effect has been largely overstated. As opposed to improving the scope of investor protection, cross-listers are more often motivated by ease of access to financing and increased visibility. The result is a global pattern of cross listing associated with informational distance – geographically or culturally.

Regardless of motivation, research has shown that companies generally benefit from cross listing in the U.S. When companies make the commitment to cross list in the U.S., they generate positive abnormal returns, raise more capital, lower their cost of capital, and receive higher valuations (Doidge et al. 2009). For an eleven-year period from 1985-1995, Miller (1999) documents positive abnormal returns in the company's domestic market around the announcement to cross list. Foerster and Karolyi (1999) find similar results around both the announcement and listing dates for companies cross listing between 1976 and 1992. These advantages illustrate that cross listing gives a foreign company access to more developed financial markets, resulting in increased visibility and reputation, greater liquidity, and the ability to raise capital at a lower cost (Licht, 2003). Evidence from Errunza and Miller (2000) speak directly to this assertion, as they document a 42.2% decline in cost of capital for cross-listers.

While the cross-listing literatures suggest that foreign companies benefit from listing in the U.S., the U.S. market also benefits from attracting companies from around the world. The question remains - what influence did SOX have on the foreign

companies' decision on where to cross list? As previously discussed, SOX has been blamed by many as a leading disincentive to foreign companies desiring to cross list in the U.S. A 2006 survey by Mazars (a Paris-based audit firm) shows 43% of European companies believe the costs of SOX will outweigh the benefits and 17% would consider delisting to escape the law; however, 72% of Asian and 81% South American companies believe benefits will exceed costs. A majority of these costs related to SOX originate from compliance with Section 404 related to internal controls (as discussed previously). While Section 404 compliance was not required until the end of 2007, the evidence from this survey suggests foreign companies were anticipating these large costs and thus considered them in their cross-listing decision. Further, Ling (2008) finds evidence suggesting costs to comply with disclosure and accounting standards is a significant component in the cross-listing decision for companies. Some U.S. companies have adopted strategies such as going private to get around SOX costs (Engel et al., 2006).

To further address the impact of SOX, I first examine whether earnings quality improved for foreign companies choosing to cross list in the U.S., as would be expected if SOX was effective in improving the quality of financial reporting for all U.S.-listed companies. The subsequent hypotheses then address the types of companies SOX may have deterred from cross listing in the U.S. While the previously mentioned loss of U.S. listings by foreign companies may be of some concern, the fact remains that SOX may be effectively keeping lower-quality companies from cross listing in the U.S., which would be considered a benefit of the regulation.

3.2. Hypotheses for SOX and U.S.-listed Companies

In this section, I primarily focus on SOX and the earnings quality of ADRs given the direct influence SOX has on companies listed in the U.S. I first examine the change in earnings quality for ADRs around SOX. Companies desiring to cross list in the U.S. are willing to incur greater financial costs as well as accept more transparent financial reporting in order to access a more restrictive market, increase their investor base, raise more capital, and obtain access to a liquid secondary market. Due to SOX, these costs and disclosure requirements increased. Further, Cohen et al. (2008) show that earnings management by U.S. companies (not exclusive to cross-listers) increased steadily prior to SOX, especially the period immediately before SOX; however, earnings management trends show an abrupt reversal in the post-SOX period. Lobo and Zhou (2006) also find that income-increasing earnings management declined after the SOX requirement for CEO/CFO certification of the financial statements. Given a primary purpose of SOX was to improve financial reporting quality in the U.S. and some research suggests earnings quality has improved in the U.S. post-SOX, I propose the following hypothesis:

H1: Earnings quality increases in the post-SOX period for initial ADRs.

Next, I compare the influence of SOX on ADRs versus a matched sample of U.S. companies. Given SOX is applicable to all U.S.-listed companies, I would expect an improvement in earnings quality for U.S. companies, similar to what is proposed in H1 for ADRs. However, ADRs originate from different reporting environments than existing U.S. companies, so the question addressed in my second hypothesis is whether SOX increased earnings quality differentially for these two sets of companies. One expectation is that the increased regulations from SOX should have a greater incremental

effect on those companies with weaker corporate governance (or investor protection) like ADRs whose home countries governance statutes are not as strong as those in the U.S. Companies that cross list in the U.S. tend to increase protection of minority shareholders and improve corporate governance (Reese and Weisbach 2002; Fresard and Salva 2008; Hope et al. 2007). This argument assumes the bonding of ADRs to the U.S. market is a legitimate signal, as these companies respond to the expected increase in financial reporting quality from SOX; thus, ADRs' earnings quality may improve more than that of U.S. companies. Because U.S. companies are associated with higher earnings quality, ADRs may also have more "room" for improvement in terms of earnings quality in response to SOX.

An alternative expectation follows from the lack of legal bonding argument mentioned previously. If ADRs are cross listing in the U.S. only to benefit from the reputational gains and not legally bonding to the regulations in the U.S., then SOX should have limited influence on the earnings quality of ADRs, while at the same time U.S. companies' earnings quality improves. Depending upon whether ADRs are sending a true signal regarding bonding with the U.S. market will dictate how SOX has differentially impacted earnings quality for ADRs and U.S. companies. I therefore predict the following non-directional hypothesis:

H2: The change in earnings quality around SOX is different for initial ADRs than for U.S. companies.

3.3. Hypothesis Comparing ADRs to GDRs

Following upon the hypothesized improvement in earnings quality for ADRs, I also want to compare the quality of earnings for foreign companies cross listing in the U.S. versus those cross listing in non-U.S. markets. Given the changing trend in where

companies cross list, I propose that characteristics of earnings between ADRs and GDRs differ. Therefore, I want to examine the comparability of the quality of earnings for ADRs and GDRs in the post-SOX period when, as suggested by listing trends, foreign companies began to more strongly consider listing on non-U.S. markets. SOX increased costs for all U.S. companies, including ADRs which must meet essentially the same requirements as U.S. companies. If the barriers truly have increased, then only those companies that believe cross listing benefits will outweigh higher costs will list in the U.S.

Extant research has examined the quality of earnings for ADRs but only pre-SOX, while limited research exists for GDRs. Lang et al. (2003b) shows that ADRs have higher quality earnings – more conservative, less earnings management, and increased value relevance - compared to companies from the same country that do not cross list. Thus, some evidence exists indicating that ADRs have higher-quality earnings than other foreign companies. Further, Leuz et al. (2003) support this conclusion as companies in the U.S. have less earnings management than any other country based upon their aggregate earnings management score. These findings suggest the U.S. capital market is associated with higher-quality earnings, a conjecture supported by the size and historical attractiveness of the U.S. market. Therefore, I propose the following:

H3: Earnings quality is higher in the post-SOX period for initial ADRs than for initial GDRs.

3.4. Additional Research Questions Addressing the Earnings Quality for GDRs

The influence of SOX on GDRs is more tenuous as compared to ADRs given SOX has no direct implications outside the U.S. At the same time, the influence SOX has on the cross-listing decision may indirectly impact the earnings quality of GDRs.

While I expect the earnings quality of ADRs has improved post-SOX, several developments suggest GDRs earnings quality has declined over the same time period. Karolyi (1998) suggests that stringent disclosure requirements are the largest impediment to cross-listers. With the enhanced disclosure requirements applicable to all U.S.-listed companies, those foreign companies with lower earnings quality that still desire to cross list (and might have done so in the U.S. prior to SOX) now may decide list outside the U.S., lowering the overall earnings quality of GDRs. Similarly, foreign companies that de-list from a U.S. exchange to avoid more transparent financial reporting under SOX that subsequently cross list elsewhere may also lower the overall earnings quality of GDRs.

The unstated assumption above is GDRs' average earnings quality is *declining* due to lower-quality would-be-ADRs (or pre-existing ADRs) deciding to cross list outside the U.S. An alternative explanation is that average earnings quality of GDRs is *increasing* based upon the fact that ADRs generally have higher earnings quality than do GDRs (Lang et al., 2003a). The possibility exists that lower-quality ADRs (or again, would-be-ADRs) could possess higher-quality earnings than GDRs on average; thus, the hypothesized shift in cross listing results in an increase in average earnings quality for GDRs. To determine what influence SOX may have on the initial cross-listing decision for companies, I propose the following non-directional research question:

RQ1: Does earnings quality change in the post-SOX period for initial GDRs?

Second, I examine the earnings quality of GDRs versus that of foreign companies that decide not to cross list. SOX most likely has limited influence on the level of regulation, litigation, and enforcement in other countries; therefore, I expect the earnings

quality of foreign non-cross-listers to remain unchanged.¹³ However, in discussing RQ1, I indicate how certain cross-listers and ADR de-listers that choose to cross list elsewhere can lead to either a decline or improvement in the earnings quality of GDRs. Lang et al. (2003b) briefly discuss some alternative analyses comparing non-U.S. cross-listers and non-cross-listers, although they provide little explanation and their tests are in the pre-SOX period. To provide a more thorough examination of this comparison, I propose a second non-directional research question:

RQ2: Does earnings quality change more around SOX for initial GDRs than for foreign non-cross-listers?

4. Sample, Research Design, and Methodology

4.1. Sample Selection

I examine the earnings quality in the initial year of cross listing both before and after SOX. The sample period covers nine years from 1998 – 2006. SOX was enacted at the end of July 2002, with most provisions effective after 30 days. Following Piotroski and Srinivasan (2008) who examine cross-listing trends around SOX, I exclude initial cross-listings between May 2002 and August 2002, during the legislative timeframe of the regulation. Any company that initially cross lists via either an ADR or GDR prior to May 2002, I consider pre-SOX, and any initial cross listing after August 2002, I consider post-SOX. Thus, both sub-samples include four years and four months of initial cross-listers.

¹³ One potential confounding effect may come from the implementation of “international” SOX in many countries. For example, Japan enacted J-SOX in June 2006 and is a modification of U.S. SOX with a particular focus on internal controls over financial reporting. The timing of similar international SOX regulations most likely has occurred at the end of my sample period or afterwards, but if companies (cross-listers or non-cross-listers) anticipate new regulations, some changes to earnings quality may occur that are unrelated to U.S. my research question.

I obtain the sample of cross-listing companies for ADRs and GDRs separately. The Bank of New York, Citibank, and JP Morgan Chase sponsor over 90% of all ADRs, so I use the databases from each bank's website to collect an initial set of ADRs. The banks' databases include the cross-listers' names, ticker, depository receipt type (Levels I, II, or III), country of origin, DR ratio, effective date, and appropriate U.S. exchange on which the ADRs are traded. In most cases, the banks' lists include active companies only, so I capture other ADRs that have delisted or for some other reason are not in the banks' lists directly from the U.S. exchanges' (NYSE, AMEX, and NASDAQ) historical data on cross-listers.¹⁴ My primary tests include only Level II and Level III ADRs because Level I and privately placed ADRs are not required to meet the same level of financial reporting standards as domestic U.S. companies.

The process of identifying GDRs is more manually intensive. No central banks dominate the sponsorship of cross-listers globally, so I rely upon data from multiple foreign exchanges. The compilation of GDRs comes from eight of the largest non-U.S. exchanges in the world covering nine different countries: London Stock Exchange (LSE) Main, LSE AIM, Toronto, NYSE Euronext (Amsterdam, Brussels and Paris), Luxembourg, Tokyo, Frankfurt, and Zurich. The available data for cross-listers varies by exchange; however, I was able to collect 894 total GDRs prior to gathering the financial related data.

Taking the list of cross-listers, I then merge the companies with financial and price data from Compustat Global to construct the various earnings quality measures discussed in detail in the following sections. Table 1, Panel A shows the final sample of

¹⁴ The most comprehensive list amongst the exchanges came from the NYSE's Listed Company Directory (<http://www.nyse.com/about/listed/1997.html?ListedComp=NONUS&start=1&startlist=1&item=1&firsttime=done>) from which I focused on the Non-U.S. Listed Companies list.

cross-listers by year and exchange, as well as the sample totals prior to removing companies with missing financial variables. The four key sub-samples are the pre and post-SOX totals for ADRs and GDRs, and the sizes of each sub-sample speak directly to the global cross-listing trends. Figure 2A compares total ADRs and GDRs over the sample period. In total, initial ADRs have declined post-SOX while initial GDRs have increased. ADRs specifically decline in 2002 after an increase in the previous two years. GDRs follow a similar pattern during the SOX release, suggesting some level of uncertainty for cross-listers; however, the post-SOX era shows a dramatic increase, mostly attributable to the LSE AIM exchange, as shown in Figure 2B. Karmin and Lucchetti (2006) suggest that nine out of ten cross-listers do so in London or Luxembourg, and my sample supports their conjecture, as the three exchanges in London and Luxembourg all increase significantly post-SOX.

In addition to where foreign companies choose to cross list, Panels B and C of Table 1 provide additional information regarding some demographics of my ADR and GDR samples. Panel B shows the home countries for each of the sample ADR and GDR companies. Both ADRs and GDRs are spread across companies from many countries. Pre-SOX, the largest number of ADRs originated from companies in Germany, Great Britain, France, and Netherlands, but on a relative basis, France and Great Britain show the largest decline in ADRs pre to post-SOX. Pre-SOX GDRs were not dominated by a specific country, but post-SOX a large amount of initial GDRs originate from Australia, India, Taiwan, Great Britain and Ireland. Only GDRs from Austria and the Netherlands showed a significant decline. Besides possibly Great Britain and India, no direct indication of companies from a particular country leaving U.S. markets for other markets

exists. Finally, Panel C shows the composition of ADR and GDR samples across industries is not dramatically different. On a relative basis, ADRs are slightly more concentrated in the Finance and Transportation industries, and pre to post-SOX, the only significant change was an increase in Mining companies. Overall, the demographics in Table 1 Would not suggest a significant influence from a particular country or industry on my results.¹⁵

4.2. Test Statistics and Methodology

The research design used to examine the hypotheses and research questions is a series of comparisons (e.g., ADRs vs. GDRs) of earnings quality statistics similar to that employed by Lang et al. (2003, 2006), Leuz et al. (2003), and others. Table 2 summarizes the seven earnings quality statistics used for the comparisons and their calculation. For all statistics, with the exception of the measures of small loss avoidance, a higher number signifies higher earnings quality. I categorize these statistics into earnings management, timely loss recognition, or value relevance statistics. Each statistic measures an element of earnings quality with the expectation that the set of measures as a whole would provide some indication of higher quality when comparing two separate sub-samples of companies. For some of the hypotheses I compare the levels of the earnings quality statistics (e.g. Post-SOX ADRs vs. Post-SOX GDRs), while for others I compare the changes in earnings quality statistics around SOX.¹⁶ The comparability

¹⁵ Where applicable, I ran regressions for the earnings quality statistics (discussed in Section 4.2) using country and industry fixed effects in order to control for any significant influence from either of these two factors, and my results remain unchanged.

¹⁶ Note the changes analyses I run are not a within company change over time as is traditional in many studies. My focus is on earnings quality in the first year of cross listing; therefore, I compare the change between initial cross-listers in the pre-SOX period to initial cross-listers in the post-SOX period.

between earnings measures and across countries could be an issue; thus, the changes analyses are helpful to hold differences in characteristics between sub-samples constant.

The first set of earnings quality statistics addresses the proclivity of cross-listers to manage earnings. The first statistic (EQ1) examines earnings smoothing where managers use their discretion via accruals to reduce the variability of reported earnings. I measure the variability of earnings using the standard deviation of operating income (OI), scaled by the standard deviation of operating cash flows (OCF).¹⁷ Scaling by operating cash flows will provide some control for the variability in economic performance. A lower EQ1 implies greater discretion by managers to smooth operating performance; therefore, a higher ratio signifies less earnings smoothing.

The previous measure indirectly assumes the influence of accruals to manipulate performance. My second statistic (EQ2), the correlation of operating accruals with operating cash flows, more directly measures the use of accruals by managers as a means of earnings management. Managers can use accruals to smooth cash flow fluctuations reflected in earnings, and companies that use larger amounts of accruals are more likely to have earnings that are manipulated by managers. Following Dechow et al. (1995), I calculate the accruals portion of earnings (ACCR) as:

$$ACCR_{it} = (\Delta CA_{it} - \Delta Cash_{it}) - (\Delta CL_{it} - \Delta STD_{it} - \Delta TP_{it}) - Dep_{it},$$

where ΔCA is the change in current assets, $\Delta Cash$ is the change in cash and equivalents, ΔCL is the change in current liabilities, ΔSTD is the change in short-term debt in current liabilities, ΔTP is the change in taxes payable, and Dep is depreciation and amortization

¹⁷ Most companies in Compustat Global have reported OCF; however, for company-years where OCF is missing, I calculate the variable as the difference between net income and accruals.

expense. I calculate EQ2 as the correlation in the residuals of accruals (ACCR) and the residuals of operating cash flows (OCF) from the following regression:

$$\text{ACCR}_{it} \text{ or } \text{OCF}_{it} = \alpha + \beta_1 \text{ CONTROLS}_{it} + \varepsilon_{it},$$

where CONTROLS are those documented by Pagano et al. (2002) that influence the cross-listing decision: size (SIZE), growth (SGROW), leverage (LVG), capital intensity (AST_TURN), and equity and debt issuances (EQISS and DEBTISS). These measures are also included to capture economic differences in the comparative samples. While the nature of accrual accounting results in a negative correlation, a larger negative correlation between the residuals from the accruals and operating cash flows indicates managers use accruals more in order to smooth earnings. Therefore, a higher (or less negative) correlation represents higher earnings quality.

A series of research shows how managers can manipulate earnings to achieve thresholds. Burgstahler and Dichev (1997) provide evidence that management uses discretion to avoid small losses. My third earnings management statistic (EQ3) captures this tendency of small loss avoidance. I classify net income scaled by lagged total assets between $[-0.025, 0)$ as a small loss and those between $[0, 0.025]$ as a small profit.¹⁸ To identify small loss avoidance, I include two versions of EQ3. The first uses the following logistic regression,

$$\text{smallprofit}_{it} = \alpha + \beta_1 \text{ SUB}_{it} + \beta_2 \text{ CONTROLS}_{it} + \varepsilon_{it},$$

¹⁸ Burgstahler and Dichev (1997) amongst others measuring small loss avoidance have used an interval of $(-0.01, 0]$ as opposed to $(-0.025, 0]$ to represent small losses as well as the corresponding small profits. To my knowledge, no specific interval width is more appropriate to measure small losses and small profits. Thus, based upon my analysis of the variability of earnings for my various sub-samples, I use a slightly larger interval. The use of smaller interval widths obviously results in a larger preponderance of small loss avoidance, but the comparisons across sub-samples proposed in the hypotheses remain unchanged.

where companies with small profits (smallprofit_{it}) as defined above are coded as 1 (or 0 otherwise), the indicator variable (SUB) is coded as 1 for the sub-sample of interest depending upon the hypothesis examined (e.g., POST when comparing post-ADRs to pre-ADRs) (or 0 otherwise), and CONTROLS as defined previously. The coefficient on SUB (β_1) represents the tendency of managers to avoid losses for the sub-sample of interest, where a positive (negative) coefficient indicates a greater (lesser) likelihood of loss avoidance and hence lower (higher) earnings quality. For ease of interpretation, I also use the ratio of the number of small profits to small losses as a second measure of small loss avoidance. A smaller ratio represents less loss avoidance and hence higher earnings quality.¹⁹ The inclusion of this ratio is also necessary when comparing the changes in loss avoidance from pre to post-SOX, as the previous measure of loss avoidance cannot be utilized in a difference-in-differences approach. Combined, the two smoothing measures (EQ1 and EQ2) and the two measures of small loss avoidance (EQ3) should provide consistent evidence to determine which sub-samples tend to manage earnings more.

Another measure of earnings quality is the timely recognition of losses which motivates my second category of earnings quality. In the context of my study, the willingness of companies to recognize losses immediately as opposed to spreading them over several years signifies higher earnings quality. Thus, I provide a comparison of reporting large losses as my fourth earnings quality statistic (EQ4). While some of related research has used the recognition of large negative losses and the skewness of earnings to examine timely loss recognition, I choose to focus on only one measure based

¹⁹ Please note for ease of interpretation (and consistency with previous literature) higher values for both versions of EQ3 indicate lower quality earnings, contrary to the other EQ variables where a higher value signifies greater earnings quality.

upon the Basu (1997) regression.²⁰ The regression by Basu (1997) focuses more on the conservatism of financial reporting. The reverse regression is as follows:

$$\text{EPS}_{it} = \alpha + \beta_1 \text{RET}_{it} + \beta_2 \text{DUM}_{it} + \beta_3 \text{RET}_{it} * \text{DUM}_{it} + \varepsilon_{it},$$

where EPS is annual earnings per share deflated by beginning of period price, RET is 15-month return starting at the beginning of the year through three months after the end of the fiscal year, and DUM is an indicator variable equal to 1 if returns are negative (i.e., a proxy for bad news). For EQ4, I use the coefficient on the interaction of the indicator and returns (β_3) to signify the recognition of timely losses, where a higher coefficient represents more conservatism and higher earnings quality.

The last set of statistics relates to the value relevance of companies' earnings with the premise that companies with higher-quality earnings should have a larger association between earnings and returns. The first value relevance statistic (EQ5) is the R^2 from the regression of price on book value and earnings (EPS) as follows:

$$\text{P6}_{it} = \alpha + \beta_1 \text{BVPS}_{it} + \beta_2 \text{NIPS}_{it} + \varepsilon_{it},$$

where P6 is the price six months after the fiscal year-end, BVPS is book value of shareholders' equity per share, and NIPS is net income per share. All variables are scaled by price six months prior to fiscal year t in order to control for the scale factor's influence on conclusions when comparing R^2 between samples (Brown et al., 1999).²¹

The second and third value relevance statistics are also R^2 comparisons utilizing separate Basu (1997) regressions for good news (EQ6) and bad news (EQ7) (i.e., positive

²⁰ I avoid the other measures of timely loss avoidance due to a potential sample bias - smaller sub-sample sizes, greater variability in earnings for foreign cross-listers (see the discussion on descriptive statistics in section 5), and a focus solely on the first year of company performance - which may lead to inappropriate conclusions.

²¹ Since I am examining the initial year of cross-listers, in some cases, the price six months prior to the beginning of the fiscal year is not available. In those cases, I use the first price listed in Compustat Global.

and negative returns, respectively). Companies that report losses in a timelier manner should have a better association between their earnings and returns. Thus, higher-quality companies should have a higher R^2 . This should especially hold true for the bad news cases, but I include the good news cases as a comparison as well. Across all three value relevance statistics, a higher R^2 indicates greater value relevance and hence higher earnings quality.

5. Results

In this section, I present the results for comparisons of earnings quality around SOX and between types of listings as related to my proposed hypotheses. For each comparison, I provide a table with two panels to illustrate the results. Panel A of each table provides descriptive statistics across the two sub-samples, and Panel B compares the earnings quality statistics. Each statistic measures an element of earnings quality with the expectation that the set of statistics as a whole would provide some indication of higher quality for a set of companies. In the tables, the statistics for the particular sub-sample that has higher earnings quality are in bold.²² While some statistics individually have significance statistics (as compared to zero) shown in the table, no known significance statistics exist to compare an earnings quality measure from one sample to the same measure from another sample. Previous studies utilizing this methodology (e.g. Lang et al 2003b and Lang et al. 2006) have made similar admissions; therefore, I attempt to solve this issue by utilizing bootstrapping re-samples which provide critical values to utilize given the actual differences I find in testing my hypotheses. Bootstrapping p-values are included in Panel B for each earnings quality statistic which

²² Significance indicators related to the earnings quality statistics are provided in the tables.

indicates whether the differences between earnings quality statistics for the two sub-samples are statistically significantly different. The appendix at the end of the paper provides additional details on the specific bootstrapping procedures used to calculate the critical p-values. All variable definitions and specific calculations of the earnings quality statistics are provided in Table 2.

5.1. Did SOX Improve Earnings Quality in the U.S.?

5.1.1. Main hypothesis – Pre-SOX ADRs vs. Post-SOX ADRs

The first hypothesis posits that earnings quality has improved for ADRs around SOX. Extant research suggests that earnings management has improved post-SOX, and the findings are attributed to the more stringent reporting requirements under SOX. Given the enhanced reporting environment, the premise of H1 is that if SOX influenced ADRs, then initial cross-listers post-SOX should have improved earnings quality as compared to the earnings quality of initial cross-listers prior to SOX. Table 3 provides a comparison of earnings quality before and after SOX.

The descriptive statistics in Panel A suggest that the sub-sample of post-SOX ADRs is significantly different from the pre-SOX ADRs. Again, consistent with cross-listing trends, ADRs in the pre-SOX period are much larger than in the post-SOX period. Post-SOX ADRs are more profitable in terms of OI and EPS and generate greater OCF, although ACCR are not significantly different. On average, pre-SOX ADRs profitability is negative driven by more loss companies as indicated by the negative first quartile. Consistent with profitability, post-SOX ADRs have higher and less variable returns. None of the control variables are significantly different between the two sub-samples.

The statistics in Panel B suggest that SOX had no overall influence on the earnings quality of ADRs. Pre-SOX ADRs manage earnings less, as the variability of operating income is greater indicative of less smoothing (EQ1), the correlation of ACCR and OCF is less negative (EQ2), and both small loss avoidance statistics favor the pre-SOX period (EQ3). However, EQ4 shows that post-SOX ADRs are more conservative in terms of recognizing losses timelier, and two of the three value relevance statistics also favor the post-period. When returns are positive (good news), earnings are more value relevant pre-SOX, but when returns are negative (bad news), earnings are more value relevant post-SOX. In total, four statistics (three of which are significant at $p=0.06$ or less) suggest ADRs' earnings quality is higher pre-SOX and three (only one of which is significant) suggest earnings quality is higher post-SOX. Therefore, I find that SOX had no definitive influence on ADRs' earnings quality, contrary to what was predicted in H1. The implication of this result is either that SOX is not successful in improving earnings quality of ADRs, or ADRs are not concerned with the enhanced financial reporting guidelines (i.e., not legally bonding to U.S. regulations). I will return to the possibility of these implications as the remaining results are discussed.

5.1.2. Additional considerations for ADRs' earnings quality

While the previous results suggest earnings quality did not improve for ADRs around SOX, I want to examine two additional considerations related to ADRs' earnings quality. The first is whether ADRs are generally associated with an increase in earnings quality after listing in the U.S. Lang et al. (2003b) provide evidence that ADRs have greater earnings quality than those companies from their home countries that choose not to cross list. This would imply either companies of greater earnings quality self-select to

cross list, or the act of cross listing in the U.S. leads these companies to want to improve their earnings quality given the increased expectation in earnings quality and investor protection. The “bump” in earnings quality for ADRs might increase relatively more post-SOX given the increase in regulations on financial reporting. To examine this issue, I do a within company comparison of earnings quality before and after cross listing both pre and post-SOX. Table 4 provides the results. Post-SOX I find that earnings quality is higher prior to cross listing for five of the seven measures (three of which are significant at $p=0.10$). The opposite is true pre-SOX as five of the seven measures (four which are significant) favor higher earnings quality after cross listing. Thus, the within company improvement in earnings quality is not greater post-SOX; however, the lack of influence from SOX is consistent with the findings evidence from testing H1.

Another possibility is a “learning” effect for foreign companies as they acclimate themselves to the new reporting regulations in the U.S., especially post-SOX. The implication is that earnings quality should improve as ADRs are more familiar with reporting requirements. In Table 5, I compare the earnings quality of ADRs in year three of cross listing versus the initial year of cross listing (as tested in H1) both pre-SOX and post-SOX. The results in the pre-SOX period show no significant difference in earnings quality between the two years, as four measures favor year 3 and three measures favor year 1 – only two measures are significantly different and both favor year one. Turning to post-SOX ADRs, I find results that more strongly suggest earnings quality is higher in the initial year of cross listing – five directionally favor year 1, two of which are significantly different from year 3. These results show that companies do not improve

their earnings quality as they become more familiar with U.S. regulations and SOX in particular.

The fact that ADRs' earnings quality does not improve after listing in the U.S. post- SOX and that ADRs do not "learn" from SOX provide consistent support with evidence from testing H1 – SOX has had limited impact on the earnings quality of ADRs. These findings suggest that foreign companies are not primarily concerned with the enhanced regulations and enforcement supposedly associated with SOX. The legal bonding by cross-listers to a new reporting environment would imply that foreign companies are subject to the laws and regulations of that country; however, the lack of improved (and even decline in) earnings quality implies such legal bonding is not taking place for ADRs around SOX. Foreign companies continue to bond to the U.S. markets but only in a reputational sense, consistent with suggestions by Siegel (2005). The following result for domestic U.S. companies provides additional support for these conjectures.

5.2. Is the Change in Earnings Quality Different for U.S. Companies than for ADRs?

My second hypothesis compares the change in earnings quality around SOX for ADRs with that of U.S. companies to determine the differential impact SOX had on these companies. Based upon the lack of improved earnings quality for ADRs around SOX, a logical comparison is to examine whether earnings quality has improved for domestic U.S. companies. Previous research suggests that U.S. companies in total have improved in earnings quality (at least as it relates to earnings management); however, my previous results related to ADRs contradict research on the U.S. market in total. Cohen et al. (2008) and Lobo and Zhou (2006) find that earnings management has declined for U.S.

companies post-SOX, but I find that earnings management is actually higher for ADRs post-SOX. As suggested with the results from H1 (including the additional analyses), ADRs appear to be unaffected by SOX's provisions, U.S. companies' earnings quality may improve more around SOX than ADRs.

Table 6 provides results to directly compare ADRs and U.S. companies. The descriptive statistics in Panel A include only those related to U.S. companies, as I previously reported descriptive statistics for ADRs in Table 3. Whereas significant differences existed for ADRs pre and post-SOX, such is not the case for U.S. companies. Across all main and control variables, none are significantly different pre to post. Note that on average U.S. companies generate positive OCF and incur negative ACCR and negative EPS. In untabulated comparisons between ADRs and U.S. companies, U.S. companies pre-SOX have higher OI (but lower EPS) and OCF and have greater returns, while in the post-SOX period ADRs are more profitable (OI and EPS), generate higher OCF, and have greater returns.

Focusing on the earnings quality statistics in Panel B, I display U.S. results pre and post only, but I also show the changes around SOX (post less pre) in the farthest right two columns. By comparing the changes between ADRs and U.S. companies I utilize a difference-in-differences approach which better controls for economic variations between the two sub-samples of companies. For U.S. companies, I find that earnings quality has improved for five of the seven statistics compared with three for ADRs. Both samples improve in timely loss recognition (EQ4) and value relevance in bad news situations (EQ7), but only U.S. companies are improving in earnings management – consistent with findings of less earnings management post-SOX documented by Cohen et al. (2008).

When examining the difference-in-differences, in only one case is the change in earnings quality greater for ADRs – value relevance of accounting data to price (EQ5). Consistent with H2, SOX did have a differential impact on ADRs versus U.S. companies.

While the effect on U.S. companies is consistent with related literature, my focus is more on the implications of SOX on cross-listers. The fact that SOX had a differential impact on U.S. companies and ADRs despite the fact that both are subject to most of the same reporting requirements, suggests that foreign companies choosing to cross list on U.S. exchanges were not necessarily influenced by the increased stringency in financial reporting under SOX. These results provide further evidence that the bonding hypothesis may hold in terms of reputation by providing a sense of improved investor protection, but legally, foreign companies cross listing in the U.S. appear to have little fear of litigation risk for noncompliance. Given the supposed increase in enforcement accompanying SOX, a reasonable expectation would be that ADRs that generally originate from environments with weaker corporate governance would have shown some evidence of improved earnings quality if compliance was a significant concern, but my results are contrary to this conjecture.

5.3. Did Earnings Quality Improve More for ADRs than Other Foreign Companies?

5.3.1 ADRs vs. GDRs (Post-SOX)

My next hypothesis compares the earnings quality of ADRs versus GDRs in the post-SOX period. While I discovered no positive temporal impact from SOX on ADRs, a comparison of earnings quality with foreign companies choosing to cross list on non-U.S. exchanges may provide some insights into the types of companies cross listing on these exchanges. I anticipate that SOX will have a differential impact on the two sets of

companies given the enhanced financial reporting standards and supposed increased enforcement of rules under SOX. As a result, the barriers to cross list on U.S. exchanges increased, and I hypothesize that only those companies of higher reporting quality will list in the U.S. Further, U.S. markets are generally associated with higher quality earnings (Dye and Sunder, 2001; Bradshaw et al., 2004, and Bradshaw and Miller, 2008); therefore, I expect the earnings quality of ADRs to exceed that of GDRs, especially in the post-SOX period. Table 7, Panels A and B provide the results for this comparison.

On average, the ADRs are more profitable than the GDRs, when comparing both OI and EPS. The mean EPS for GDRs is actually negative and both profitability measures are more volatile (higher standard deviations) than the ADR sample. The negative EPS and smaller positive OCF results in a larger negative ACCR measure compared to ADRs. Despite less profitability, GDRs have significantly higher returns over the initial year of cross listing, but returns also have greater variability. In terms of control variables used in the calculation of some of the earnings quality statistics, ADRs are significantly larger and have significantly greater sales growth, consistent with the profitability measures.

The descriptive statistics correspond with many of the earnings quality statistics in Panel B. Beginning with the earnings management statistics, results are mixed across the three measures. EQ1 significantly favors GDRs implying they smooth earnings less than ADRs; however, the correlation of accruals and operating cash flows (EQ2) is significantly less negative for ADRs. Then for small loss avoidance, the negative coefficient on the ADR indicator variable suggests that ADRs are less likely to manage

earnings to achieve a small profit but, GDRs have a significantly smaller ratio of small profits to small losses.

While the earnings management statistics provide no conclusive evidence, the remaining four statistics (two significantly) indicate ADRs have higher quality earnings. I find that ADRs recognize losses in a timelier manner and have more value relevant accounting information. Panel A indicates that GDRs were significantly less profitable but had significantly higher returns. These conflicting findings are evident in the fact that the R^2 for GDRs are lower than ADRs across all three value relevance statistics. In total, ADRs possess higher quality earnings for five earnings quality statistics, GDRs one, and conflicting evidence for loss avoidance. Overall, the results suggest that ADRs in the post-SOX period have significantly higher earnings quality than GDRs, consistent with H3. These findings are also consistent with Lang et al.'s (2003) examination of ADR earnings quality in the pre-SOX period as it compares to other foreign companies. Further, my evidence is consistent with the suggestion that U.S.-listed companies are of higher quality. While the above results do not directly assess the influence of SOX on cross-listers (as these results combined with the supporting hypotheses allow more direct conclusions), it appears that cross-listers coming to the U.S. in the post-SOX period possess greater earnings quality than cross-listers on non-U.S. exchanges, suggesting only those foreign companies of higher earnings quality are willing to take on the additional costs imposed by SOX to list on U.S. exchanges.

5.3.2. Additional research questions addressing the earnings quality for GDRs

The research questions address the indirect influence SOX may have on GDRs. The expectation, corroborated by the shift in listing trends during my sample period, is

that many foreign companies that might have cross listed in the U.S. chose not to due to the stringent reporting requirements expected under SOX. As explained previously, the shift of foreign companies to non-U.S. exchanges could either improve or worsen the earnings quality of GDRs on average. Following a similar comparison to H1, my first research question compares the post-SOX earnings quality of initial GDRs to that of pre-SOX initial GDRs. Panel A of Table 8 shows the descriptive statistics for these two sub-samples. Pre-SOX GDRs are significantly more profitable (OI and EPS) and generate significantly greater OCF, but ACCR is also significantly more negative. While not significant at conventional levels, returns are higher in the post-SOX period. Finally, the only control variable that is significantly different between the two sub-samples is capital intensity greater in the pre-SOX period.

Panel B of Table 8 shows the results across the seven earnings quality statistics. Like the comparison across SOX for ADRs, I find no definitive results related to the influence of SOX on GDRs. Pre-SOX GDRs have significantly higher earnings quality for three of the statistics – less earnings smoothing (EQ1) and two value relevance statistics (EQ5 and EQ6). Conflicting evidence exists for the two measures of small loss avoidance, and post-SOX GDRs have significantly higher earnings quality across the remaining three statistics. Based upon these results, I conclude that SOX had no definitive influence on earnings quality for GDRs. Further, the lack of change in earnings quality for GDRs would also refute any suggestion that some “international” SOX legislation that has been enacted in various countries has influenced earnings quality (at least as it pertains to my sample).

The second research question addresses the differential impact SOX had on GDRs and a matched sample of foreign companies that have not cross listed (NCLs). The maintained assumption here is that companies choosing to cross list more likely have improved earnings quality as compared to those that do not. Further, if SOX has any influence on foreign companies, its influence is more likely to be associated to those deciding to cross list. Table 9 provides the results for RQ2. Panel A shows only the descriptive statistics for NCLs, as those for GDRs were reported in Table 7. The only significant differences of note for NCLs pre to post are that ACCR are smaller in the post-SOX period but returns are higher. Panel B first compares NCLs post and pre-SOX and then the changes around SOX (post – pre) for GDRs and NCLs. Both sub-samples improved in four earnings quality statistics, but in comparing the difference-in-differences, changes in GDRs were greater than changes in NCLs across five of the seven earnings quality statistics. Overall these results pertaining to foreign companies addressed in RQ1 and RQ2 suggest that SOX had limited influence on the earnings quality of these companies. While the differential impact on GDRs exceeded that of NCLs, I find no overall improvement in earnings quality for GDRs – four statistics improved while three declined from pre to post-SOX.

6. Sensitivity Analyses

In this section, I examine some issues that may provide additional insight into my main set of results. The first set of sensitivity analyses examines the influence investor protection may have on the earnings quality of cross-listers around SOX. The second set of analyses focuses on the influence of the London AIM market on the earnings quality

of my GDR sample. The largest portion of my post-SOX GDR sub-sample is from the AIM market which to some degree was specifically targeted towards potential cross-listers that were hesitant to list on U.S. exchanges after the enactment of SOX.

6.1. Investor Protection and Earnings Quality around SOX

My second hypothesis posits that earnings quality will increase more around SOX for ADRs than U.S. companies because ADRs originate from a financial reporting environment that, as research has shown, has lower corporate governance standards (or weaker investor protection). Given the increased financial reporting scrutiny and perceived enhancement in reporting quality associated with SOX, I would expect to see an incrementally greater improvement for ADRs than U.S. companies given the reporting environment from which ADRs originate. Contrary to my expectations, my results indicate that U.S. companies improved earnings quality around SOX more than ADRs. Despite this finding, I cannot explicitly conclude that the investor protection environment from which foreign companies originate has no influence on earnings quality around SOX within the sample of ADRs. Therefore, I examine the change in earnings quality around SOX for ADRs originating from weaker investor protection countries compared to those from stronger investor protection countries.

Research has shown the differential impact investor protection has on the cross-listing decision. ADRs generally find a significant reduction in cost of capital after their listing, and the effect is larger for companies from countries with weaker corporate governance (Hail and Leuz, 2009). Incorporating the influence of SOX, Berger et al. (2006) find the stock market reaction to SOX is larger for cross-listers from countries with weak private enforcement of investor rights. What follows is an expectation of a

greater incremental impact on the earnings quality of ADRs originating from countries with weaker corporate governance compared to ADRs from countries with stronger corporate governance. Table 10 shows that contrary to this expectation, the differential impact from SOX on ADRs is actually greater for companies originating from high investor protection companies. For low investor protection companies, earnings quality declined for all statistics except for the value relevance of accounting information with price (EQ5). The decline in earnings quality is not as prevalent for high investor protection companies, as three of the seven statistics actually improved for pre to post. Relying upon the difference-in-differences approach in comparing changes for these two sub-samples, the differential impact is greater for high investor protection companies in five of the seven statistics.

Hope et al. (2007) find that companies from weaker disclosure environments are more likely to cross list in the U.S. but are less likely to list on exchanges where compliance with U.S. GAAP is required. This finding is consistent with recent cross-listing trends where more U.S. cross-listers are using private placements to gain exposure to U.S. markets. Thus, the possibility exists that many companies of high-quality earnings are choosing to avoid the improved U.S. disclosure environment in the post-SOX period. Such a possibility contributes to the fact that I find no indication that companies from countries with weaker investor protection environments have improved earnings quality.

6.2. The Earnings Quality of GDRs from the AIM Market

The two research questions attempt to address the influence SOX had on the earnings quality of GDRs across several non-U.S. exchanges. Admittedly, the influence

of legislation on financial reporting in the U.S. may have only an indirect influence on cross-listers outside the U.S. As my results indicate, I find no change in earnings quality for GDRs around SOX. One confounding issue that could drive my results is the predominant role that the London AIM market plays in my sample of GDRs compared with other non-U.S. exchanges.

Non-U.S. exchanges, and in particular London's AIM market, have taken advantage of the more stringent reporting requirements under SOX by attempting to attract foreign companies to their market by promoting cheaper listings, as well as lower regulatory and disclosure requirements. The AIM market is a newer exchange designed to appeal to mostly smaller, less-profitable companies from developing countries. Through the end of the fiscal year-end for the London Stock Exchange (March 31, 2007), of the 323 new listing, 243 were on the AIM exchange as compared to the LSE Main exchange. Figure 2B corroborates this evidence through the end of 2006. The issue with the AIM is that its benefits – lower dollar listing costs and less stringent regulation – also lend itself to attracting companies with lower quality earnings (Nordberg, 2008). Given 69 of my 156 post-SOX GDRs are from the AIM exchange, the lax reporting requirements from this exchange may be driving my results; however, little evidence also exists concerning the earnings quality of cross-listers on these other exchanges as well. To examine the influence specifically of the AIM exchange, I conduct additional analyses on the earnings quality of post-SOX GDRs, comparing AIM exchange cross-listers with non-AIM exchange cross-listers.

From the results provided in Table 11, I first find no consistent evidence of improved earnings quality around SOX for non-AIM GDRs – consistent with results

discussed for RQ1 inclusive of all GDRs (comparing the first two columns of EQ data). Further, when I compare AIM-listed GDRs in the post period to non-AIM GDRs, I find no evidence suggesting AIM-listed companies possess lower earnings quality. This suggests that while the AIM market has more lax reporting standards than in the U.S., this smaller London market still attracts cross-listers of at least comparable earnings quality to those on other non-U.S. exchanges. Overall, I conclude that AIM-listed GDRs did not influence my results when comparing the full sample of GDRs to ADRs in my main hypothesis, but rather, I find their earnings quality is actually higher than other GDRs.

7. Conclusion

In this paper, I examine the impact of SOX on the earnings quality of cross-listers both in the U.S. and globally. The intent of SOX was to improve the overall quality of financial reporting in the U.S. However, an important concern is the possibility that increased regulation came with significant costs but little improvement in financial reporting quality. One result of these costs is the possible limitation in investment choices for U.S. investors, as trends subsequent to SOX suggest many foreign companies chose to cross list on non-U.S. exchanges. However, to the extent that SOX resulted in companies with lower quality earnings choosing to cross list elsewhere, the additional costs may have been worthwhile. To examine the influence of SOX on earnings quality, I use a sample of 680 cross-listers from 1998-2006 to provide a series of comparisons of earnings quality statistics that cover earnings management, timely recognition of losses, and the value relevance of accounting information of cross-listers.

I begin my examination of cross-listers' earnings quality with a focus on the direct link between SOX and ADRs who are required to comply with the new legislation. My first test examines the change in earnings quality around SOX, and I find that earnings quality did not improve for ADRs. Additional tests indicate that ADRs also do not achieve a "bump" in earnings quality pre-listing to post-listing even after SOX, nor do ADRs' earnings quality improve as they familiarize themselves with or "learn" about SOX's regulations. Combined, my findings suggest ADRs are unaffected by SOX despite being within the scope of the legislation, and this fact is even more surprising given that I find the earnings quality of a matched sample of domestic U.S. companies has improved around SOX.

Given my research question is focused on the outcome of earnings quality based upon the cross-listing decision, my next set of tests examines the earnings quality of GDRs in relation to ADRs. In this set of tests, I first compare ADRs to GDRs in the post-SOX period and find that those foreign companies cross listing on U.S. exchanges have higher earnings quality, consistent with previous research (Lang et al. 2003; Leuz et al. 2003) that has found U.S. listings are typically associated with higher quality earnings. Similar to ADRs, I also find that SOX did not have a positive impact on earnings quality for GDRs. An additional research question focusing on GDRs suggests that those foreign companies choosing to cross list did have a greater improvement in earnings quality around SOX than those choosing to not cross list. Therefore, across the sub-sample of companies whose earnings quality I examine, SOX had a significant incremental impact on U.S. domestic companies but no impact on ADRs, GDRs, or those non-cross-listers.

As described above, some of these results would be anticipated and others are contrary to the expected outcome from SOX.

A recent paper by Piotroski and Srinivasan (2008) also examining the influence of SOX on listing cross-listing preferences finds that the adverse effects of SOX (increased reporting, regulatory and litigation costs) influenced only the decision of smaller (as opposed to larger) foreign companies desiring a cross listing. Such a finding is consistent with the inability of smaller companies to absorb the incremental costs associated with SOX. While the authors claim these results will enhance the bonding-related benefits of a U.S. listing (as smaller companies with weaker corporate governance are deterred from cross listing in the U.S.), I find evidence consistent with criticisms of the bonding hypothesis. The bonding hypothesis suggests that foreign companies cross list in the U.S. to provide a signal to investors that they desire to compensate for the lack of investor protection in their home country. Given the supposed increase in enforcement accompanying SOX, a reasonable expectation would be that ADRs that generally originate from environments with weaker corporate governance would have shown some evidence of improved earnings quality if compliance was a significant concern. However, as stated previously, the findings relating ADRs to SOX provides additional support to the findings by Siegel (2005) which suggests that cross-listers to the U.S. reputationally bond with U.S. markets but do not legally bond – they are unconcerned with the enforcement from non-compliance due to the inability of regulatory agencies like the SEC to punish foreign registrants through legal proceedings.

REFERENCES

- Bancel, F. and U.R. Mittoo. 2001. European Managerial Perceptions of the Net Benefits of Foreign Stock Listings. *European Financial Management* 7 (2): 213-326.
- Basu, Sudipta. 1997. The Conservatism Principle and the Asymmetric Timeliness of Earnings. *Journal of Accounting and Economics* 24 (1): 3-37.
- Bebchuk, L.A., A. Cohen, and A. Ferrell. 2009. What Matters in Corporate Governance? *The Review of Financial Studies* 22 (2): 783-847.
- Berger, P.G., F. Li, and M.H.F. Wong. 2006. The Impact of Sarbanes-Oxley on Cross-listed Companies. *Working paper*. University of Chicago.
- Bradshaw, M.T., B.J. Bushee and G.S. Miller. 2004. Accounting Choice, Home Bias, and U.S. Investment in Non-U.S. Firms. *Journal of Accounting Research* 42 (5): 795.
- Bradshaw, M.T. and G.S. Miller. 2004. Will Harmonizing Accounting Standards Really Harmonize Accounting? Evidence from Non-U.S. Firms Adopting U.S. GAAP. *Journal of Accounting, Auditing, and Finance* 23 (2): 233.
- Brown, S., K. Lo, and T. Lys. 1999. Use of R2 in Accounting Research: Measuring Changes in Value Relevance over the Last Four Decades. *Journal of Accounting and Economics* 28 (1): 83-115.
- Brown, L.D. and M.L. Caylor. 2006. Corporate Governance and Firm Valuation. *Journal of Accounting and Public Policy* 25 (4): pg 409.
- Burgstahler, D. C., and I. Dichev. 1997. Earnings Management to Avoid Earnings Decreases and Losses. *Journal of Accounting and Economics* 24 (1): 99-126.
- Coates, John C. 2007. The Goals and Promise of the Sarbanes-Oxley Act. *Journal of Economic Perspectives* 21 (1): pg 3.
- Coffee, John C. 1999. The Future as History: the Prospects for Global Convergence I Corporate governance and its Implications. *Northwestern University Law Review* 93 (3): 641-708.
- Coffee, John C. 2002. Racing Towards the Top?: The Impact of Cross-Listings and Stock Market Competition on International Corporate Governance. *Columbia Law Review* 102 (7): 1757-1831.
- Cohen, D.C., A. Dey, and T.Z. Lys. 2008. Real and Accrual-Based Earnings Management in the Pre- and Post-Sarbanes Oxley Periods. *The Accounting Review* 83 (3): 757-787.

- Committee on Capital Markets Regulation. 2006 and 2007. Reducing Regulation and Litigation While Enhancing Shareholder Rights Will Improve the Competitiveness of U.S. Capital Markets. <http://www.capmktreg.org/>.
- Dechow, P.M, R.G. Sloan, and A.P. Sweeney. 1995. Detecting Earnings Management. *The Accounting Review* 70 (2): 193-225.
- Desai, Mihir. January 24, 2004. Cross-Border Listings and Depository Receipts. *Harvard Business School*.
- Doidge, C., G.A. Karolyi, and R.M. Stulz. 2004. Why Are Foreign Firms Listed in the U.S. Worth More? *Journal of Financial Economics* 71: 205-238.
- Doidge, C., G.A. Karolyi, K.V. Lins, D.P. Miller, and R.M. Stulz. 2009. Private Benefits of Control, Ownership, and the Cross-Listing Decision. *The Journal of Finance* 64 (1): 425.
- Doidge, C., G.A. Karolyi, R.M. Stulz. 2008. Why Do Foreign Firms Leave U.S. Equity Markets? An Analysis of Deregistrations Under SEC Exchange Act Rule 12h-6. *Working paper*. University of Toronto and The Ohio State University.
- Dye, R.A. and S. Sunder. 2001. Why Not Allow FASB and IASB Standards to Compete in the U.S.? *Accounting Horizons* 15 (3): 257-271.
- Engel, E., R.M. Hayes, and X. Wang. 2006. The Sarbanes-Oxley Act and Firms' Going-Private Decisions. *Journal of Accounting and Economics* 44: 116-145.
- Errunza, V.R. and D.P. Miller. 2000. Market Segmentation and the Cost of Capital in International Equity Markets. *Journal of Financial and Quantitative Analysis* 35 (4): 577-600.
- Financial Executive International (FEI). March 2006. FEI Survey on Sarbanes-Oxley Section 404 Implementation. www.fei.org.
- Foerster, S.R. and G.A. Karolyi. 1999. The Effects of Market Segmentation and Investor Recognition on Asset Prices: Evidence from Foreign Stocks Listing in the United States. *The Journal of Finance* 54 (3): 981-1013.
- Fresard, L. and C. Salva. 2008. The Value of Excess Cash and Corporate Governance: Evidence from U.S. Cross-listings. *Working paper*. HEC Paris.
- Hail, L. and C. Leuz. 2009. Cost of Capital Effects and Changes in Growth Expectations around U.S. Cross-Listings. *Journal of Financial Economics: forthcoming*.
- Holmstrom, B. and S.N. Kaplan. 2003. The State of U.S. Corporate Governance: What's Right and What's Wrong? *Journal of Applied Corporate Finance* 15 (3): 7-20.

- Hope, O., T. Kang and Y. Zang. 2007. Bonding to the Improved Disclosure Environment in the United States: Firms' Listing Choices and their Capital Market Consequences. *Working paper*.
- Hotsak, P., E. Karaoglu, T. Lys, and Y. Yong. 2007. An Examination of the Impact of the Sarbanes-Oxley Act on the Attractiveness of U.S. Capital Markets for Foreign Firms. *Working paper*. Northwestern University.
- Karmin, C. and A. Lucchetti. 2006. New York Loses Edge in Snagging Foreign Listings. *Wall Street Journal* January 26: C1.
- Karolyi, G. Andrew. 1998. Why Do Companies List Shares Abroad?: A Survey of the Evidence and Its Managerial Implications. *Financial Markets, Institutions and Instruments* 7 (1).
- Lang, M., K. Miller, and D. Miller. 2003a. ADRs, Analysts, and Accuracy: Do ADRs Improve a Firm's Information Environment and Lower its Cost of Capital? *Journal of Accounting Research* 41 (2): 317-345.
- Lang, M., J.S. Smith Raedy, and M.H. Yetman. 2003b. How Representative Are Firms that Are Cross-Listed in the United States? An Analysis of Accounting Quality. *Journal of Accounting Research* 41 (2): 363-386.
- Lang, M., J.S. Smith Raedy, and W. Wilson. 2006. Earnings Management and Cross-Listing: Are Reconciled Earnings Comparable to US Earnings? *Journal of Accounting Research* 42 (2): 255-283.
- Leuz, C., D. Nanda, and P. Wysocki. 2003. Earnings Management and Investor Protection: an International Comparison. *Journal of Financial Economics* 69: 505-527.
- Licht, Amir N. 2003. Cross-Listing and Corporate Governance: Bonding or Avoiding? *Chicago Journal of International Law* 4 (1): 141-163.
- Ling, Jing. 2008. The Effect of U.S. GAAP Compliance on Non-U.S. Firms' Cross-Listing Decisions, Listing Choices and Their Valuations. *Working paper*.
- Lobo, G.J. and J. Zhou. 2006. Did Conservatism in Financial Reporting Increase after the Sarbanes-Oxley Act? Initial Evidence. *Accounting Horizons* 20(1): 57-73.
- McLachlan, Miranda. August 20, 2006. Sarbanes Refugees Heading for AIM. *The Independent on Sunday*.
- Meek, G.K. and W.B. Thomas. 2004. A Review of Markets-Based International Accounting Research. *Journal of International Accounting Research* 3 (1): 21 pgs.

- Miller, Darius P. 1999. The Market Reaction to International Cross-Listings: Evidence from Depository Receipts. *Journal of Financial Economics* 51: 103-123.
- Nordberg, Donald. 2008. Waste Makes Haste: Sarbanes-Oxley, Competitiveness and the Subprime Crisis. *Journal of Financial Regulation and Compliance* 16(4): 365.
- Pagano, M., A.A. Roell, and J. Zechner. 2002. The Geography of Equity Listing: Why Do Companies List Abroad? *The Journal of Finance* 57 (6): 2651-2694.
- Piotroski, J.D. and S. Srinivasan. 2008. Regulation and Bonding: The Sarbanes-Oxley Act and the Flow of International Listings. *Journal of Accounting Research* 46 (2): pg. 383.
- Reese, W.A. and M.S. Weisbach. 2002. Protection of Minority Shareholder Interests, Cross-listings in the United States, and Subsequent Equity Offerings. *Journal of Financial Economics* 66: 65-104.
- Romano, Roberta. 2005. The Sarbanes-Oxley Act and the Making of Quack Corporate Governance. *The Yale Law Journal* 114 (7): 1521-1611.
- Siegel, J. 2005. Can Foreign Firms Bond Themselves Effectively by Renting U.S. Securities Laws? *Journal of Financial Economics* 75: 319-359.
- Smith, Geoffrey Peter. 2008. What are the Effects of Sarbanes-Oxley on Cross-Listed Firms? *Working paper*. University of Illinois-Champaign.
- Stulz, Renè M. 2001. Globalization, Corporate Finance, and the Cost of Capital. *Journal of Applied Corporate Finance* 12 (3): 7-25.
- U.S. Congress. 2002. *The Sarbanes-Oxley Act of 2002*. 107th Congress of the United States of America. H.R. 3763. Washington, D.C.: Government Printing Office.
- Witmer, Jon. 2006. Why Do Firms Cross-(de)list? An Examination of the Determinants and Effects of Cross-delisting. *Working paper*. Bank of Canada.

APPENDIX A - Bootstrapping Procedures for Comparing Earnings Quality Statistics

One of the challenges to utilizing a methodology of comparing various earnings quality statistics between two samples is the lack of significance statistics to determine whether one sample has *significantly* greater earnings quality for a particular statistic than the other sample. Lang et al. (2003b) and Lang et al. (2006) use this methodology and make admissions that no comparative statistics exist for some of their earnings quality measures, thus comparisons in earnings quality are directional (higher or lower) in nature. In an attempt to provide some significance to my comparisons of earnings quality, I use bootstrapping procedures to create confidence limits on the differences in each earnings quality statistic across sub-samples. I run the following bootstrapping procedures for each comparison of earnings quality between sub-samples across each of the seven earnings quality statistics:

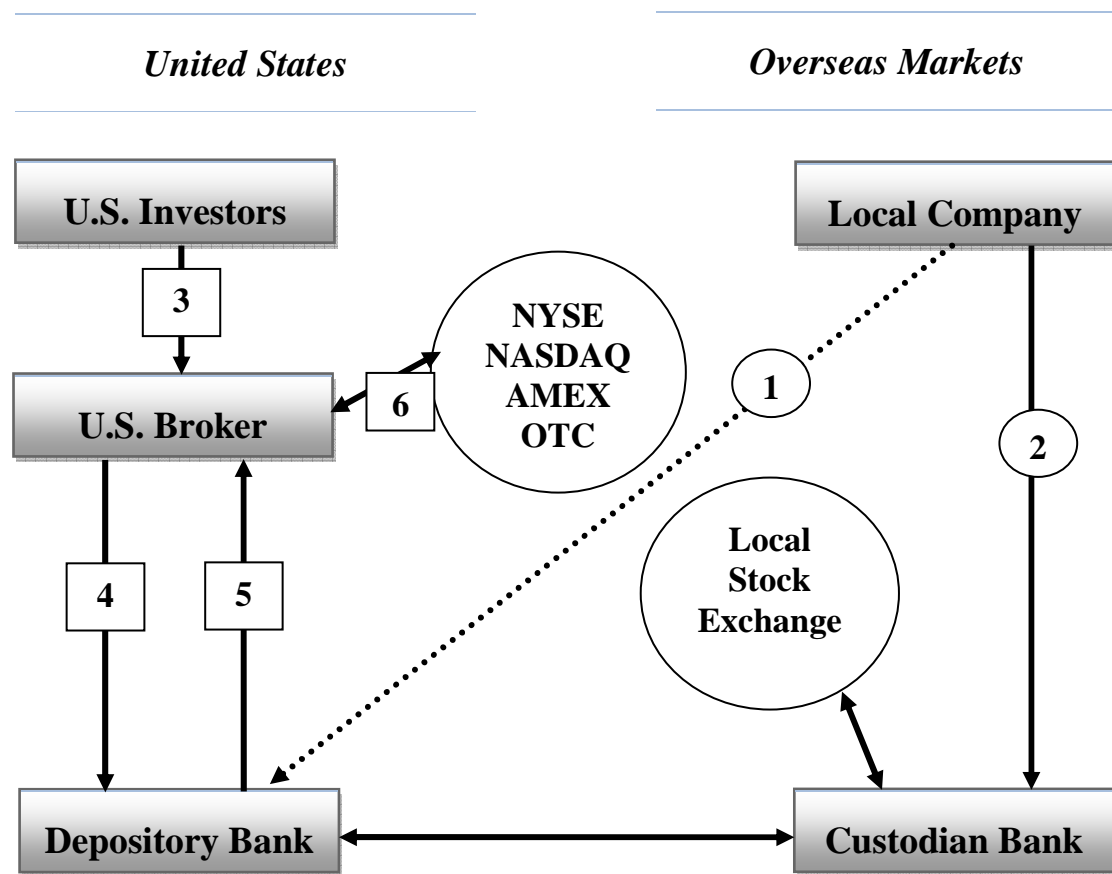
1. Merge the two sub-samples of interest into one “combined” sample.
2. Draw 1,000 re-samples with replacement from the combined sample, where the number of observations for each re-sample is equal to the size of the combined sample.
3. For each observation in the re-samples, randomly assign the observation to one of the two separate groups of interest.
4. Calculate each of the earnings quality statistics separately for the two randomly assigned groups
5. For each earnings quality statistic, calculate the difference in statistics between the two groups.
6. [Difference in changes analyses only] For each change in earnings quality statistics across temporal sub-groups (pre to post) within a particular group (i.e., ADRs or U.S. companies), calculate the difference in the differences across the two comparison groups (i.e., ADRs vs. U.S. companies).
7. From the resulting 1,000 difference (or difference in changes) calculations for each earnings quality statistic, determine the critical p-value for the actual difference between the test statistics shown in the tables.

To illustrate the above procedures, the following provides a walkthrough for calculating the bootstrapped p-values that appear in Table 3, Panel B. The first

hypothesis compares the earnings quality of post-SOX ADRs to pre-SOX ADRs, so to begin the bootstrapping process I combined the two samples, creating a new combined sample of 393 observations (262 pre-SOX and 131 post-SOX). Then to develop each re-sample I draw one observation from the combined sample and repeat this process, with replacement (which implies a particular observation could be drawn multiple times), to develop a full re-sample of 393 observations. Each of the observations in the re-sample is then randomly assigned either to the pre-SOX or post-SOX group, and I then use these separate groups to calculate the seven earnings quality statistics. Finally, I calculate the difference between EQ1 from the randomly assigned pre-SOX group to EQ1 from the randomly assigned post-SOX group and repeat that process for EQ2 through EQ7. In total, I draw 1,000 re-samples and repeat these processes, resulting in a distribution of 1,000 difference calculations between the two randomly assigned groups for each of the seven statistics. Sorting the difference calculations from lowest to highest, I can then compare the actual statistics from Table 3, Panel B to determine the appropriate p-value. The actual difference for EQ1 is -0.177 (0.961 – 1.138) which based upon my bootstrapped differences results in a critical value of 0.03. The reason for this procedure is the difficulty in determining whether -0.177 is significantly greater than a random difference. The bootstrapping procedures generate a random distribution of differences for each earnings quality statistic which I can use to determine the significance of the actual differences related to my hypotheses and research questions.

APPENDIX B – Figures and Tables

Figure 1 – Cross-Listing Procedure (ADRs)



Prior to the initial selling of ADRs in the U.S.:

- 1) The Local Company establishes an exclusive legal arrangement between itself, the Depository Bank and the Custodian Bank.
- 2) The Local Company issues stock to the Custodian Bank and the stock serves as underlying shares for ADRs that are provided to the Depository Bank.

Steps for U.S. Investor to obtain new ADRs:

- 3) U.S. Investors request the purchase of ADRs through the Broker.
- 4) The Broker requests ADRs from the Depository Bank who has exclusive agreement with Local Company and also maintains ADRs.
- 5) The Depository Bank issues new ADRs to the Broker via the Depository Trust Corporation (not shown) which handles all the trading of depository receipts in the U.S.
- 6) The buying and selling of existing ADRs continues on U.S. exchanges after the initial ADRs are requested and issued.

Note: The above figure is a modification of Figure 3b – Volume Mechanics of a Sponsored ADR Program from Desai (2004), page 16.

Figure 2A – Total Initial Cross-listers on U.S. and Non-U.S. Exchanges

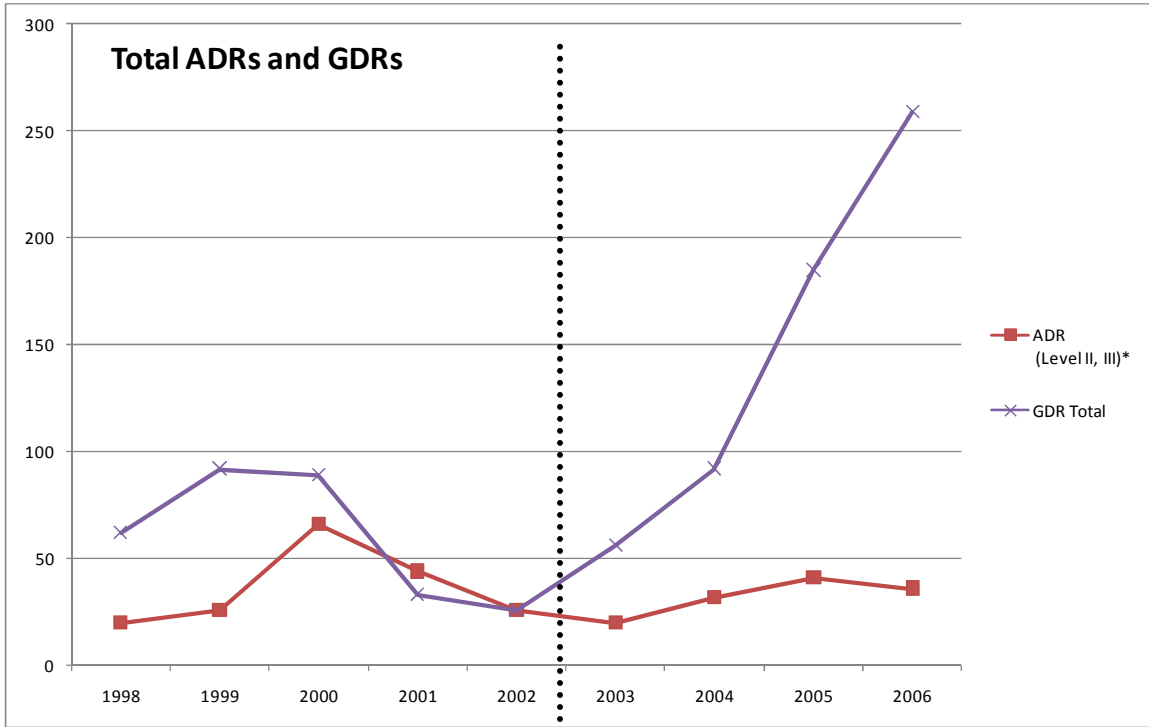
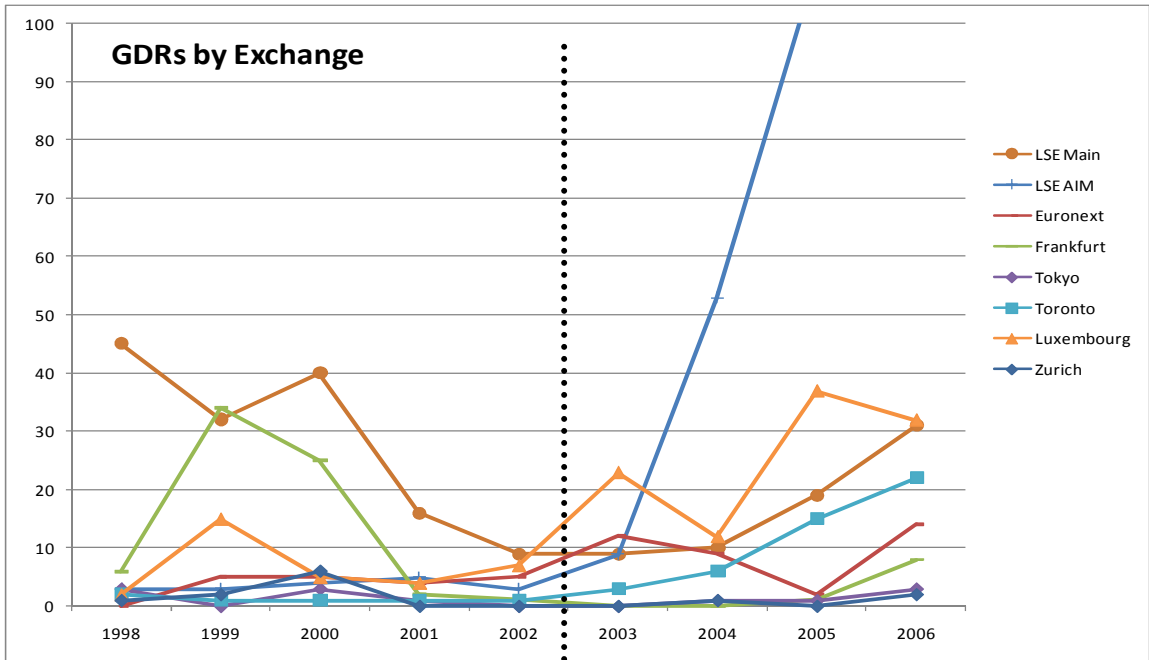


Figure 2B – Initial Cross-listers on Non-U.S. Exchanges



Note: To show the complete listing trends, the above figures include all applicable listings; however, my sample, as shown in Table 1, includes a subset of these cross-listers for which financial data is available.

Table 1 – Sample Selection

Panel A – Initial Cross-listings by Exchange and Year

Final sample

Year	ADR (Level II, III)	GDR Total	GDRs							
			LSE Main	LSE AIM	Euronext	Frankfurt	Tokyo	Toronto	Luxembourg	Zurich
1998	31	23	17	0	NA	3	1	1	1	0
1999	80	49	12	2	2	22	0	0	10	1
2000	95	37	15	3	2	12	0	0	4	1
2001	42	16	8	4	2	0	0	0	2	0
Apr-02	14	6	2	2	1	0	0	0	1	0
Sep-02	19	9	3	1	2	0	0	0	3	0
2003	18	27	6	5	3	0	0	0	13	0
2004	28	31	2	21	3	0	0	1	4	0
2005	34	51	5	27	0	0	1	6	12	0
2006	32	38	9	15	1	1	0	4	8	0
Total	393	287	79	80	16	38	2	12	58	2
Pre (98 - 04/2002)	262	131	54	11	7	37	1	1	18	2
Post (09/2002 - 2006)	131	156	25	69	9	1	1	11	40	0

Sample prior to removing companies with missing financial variables

Total	402	894	211	337	56	77	12	52	137	12
Pre (98 - 04/2002)	267	287	137	17	16	67	7	5	29	9
Post (09/2002 - 2006)	135	607	74	320	40	10	5	47	108	3

Panel B – Initial Cross-listings by Home Country

	<u>GDR</u>		<u>ADR</u>	
	PRE	POST	PRE	POST
Argentina			4	2
Australia	4	40	8	9
Austria	10		1	
Belgium	1		2	
Bangladesh		1		
Belize	1			
Bermuda	1	2	6	
Brazil			2	1
Canada	2	11		
Switzerland	7	1	9	1
Chile			3	3
China	2	1	4	4
Caymans			4	26
Czech Republic	2			
Germany	3	1	18	6
Denmark			2	
Dominican Rep.			1	
Egypt	1			
Spain	1	1	5	
Finland			4	1
France	7		19	2
Great Britain	4	16	54	19
Gibraltar		2		
Greece	5	1	4	1
Hong Kong			6	3
Hungary	2			
Indonesia		1		
India	6	19	11	2
Ireland	13	15	7	3
Israel	5		5	2
Italy	2	1	2	5
Japan	3		13	3
Korea	5	8	5	9
Luxembourg	6	1	4	4
Martinique		1		
Mexico			7	6
Netherlands	10		18	5
Norway	1		3	1
New Zealand		1	3	1
Pakistan		1		
Philippines	1		1	1
Papua New Guinea				1
Poland	6		1	
Russia		2	3	2
Singapore			2	
Sweden		2	8	2
Turkey	1		1	
Taiwan	12	18	3	2
USA	6	6		
Venezuela			2	
Virgin Islands			4	
South Africa	1	3	3	4
	131	156	262	131

Panel C – Initial Cross-listings by Industry

	<u>GDR</u>		<u>ADR</u>	
	PRE	POST	PRE	POST
Construction	1	2	3	0
Finance, Insurance & Real Estate	1	4	24	12
Manufacturing	53	53	101	53
Mining	8	48	9	9
Services	36	24	49	22
Transportation, Communications, Electric, Gas & Sanitary Services	25	15	67	31
Wholesale/Retail Trade	6	7	7	4
Other	1	3	2	0
	131	156	262	131

Table 2 – Earnings Quality Statistics by Category

Statistic	Calculation ¹
Earnings Management Statistics	
EQ1	Variability of OI and OCF standard deviation of operating income scaled by the standard deviation of operating cash flows, both deflated by total assets
EQ2	Correlation of ACCR and OCF Spearman correlation coefficient between the residuals of accruals and the residuals of cash flows after regressing each on the control variables ²
EQ3	Small loss avoidance ³ coefficient on indicator variable (SUB) for sample of interest from a regression of a dummy variable = 1 for small positive earnings on control variables and SUB = 1 for the sample of interest ² ratio of small profits to small losses
Timely Loss Recognition Statistic	
EQ4	Conservatism coefficient on RET*DUM for Basu (1997) regression, where DUM=1 for negative returns ⁴
Value Relevance Statistics	
EQ5	Price and accounting data R^2 from regression of price six months after the end of the fiscal year on an intercept, book value per share, and earnings per share ⁵
EQ6	Good News R^2 from Basu regression for positive returns ⁴
EQ7	Bad News R^2 from Basu regression for negative returns ⁴

Notes: Variable definitions: OI = operating income after depreciation, OCF = operating cash flows, ACCR = accruals calculated as $(\Delta \text{current assets} - \Delta \text{cash}) - (\Delta \text{current liabilities} - \Delta \text{short-term debt in current liabilities} - \Delta \text{taxes payable}) - \text{depreciation}$. Variables are deflated by beginning of period total assets. All variables used to calculate earnings quality statistics are winsorized at both tails at 5%.

- All statistics are oriented where a higher number signifies greater earnings quality. The one exception is EQ3 for small loss avoidance. By design, a negative coefficient on the Post variable signifies a smaller likelihood that companies are avoiding losses in the post-period, hence a signal of greater earnings quality.
- Control variables include those variables identified by Pagano et al. (2002) that influences the cross-listing decisions. Specifically, I control for size (SIZE) = natural log of assets, equity issuances (EQISS) = the % change in common stock, debt issuances (DEBTISS) = the % change in liabilities, leverage (LVG) = liabilities divided by stockholders' equity, capital intensity (AST_TURN) = sales divided by assets, cash flows to assets (PI) = OCF divided by assets, and sales growth (SGROW) = the % change in sales.
- For both small loss avoidance measures, I classify any company-year's net income deflated by lagged total assets in the following range $[-0.025, 0)$ as a small profit and in the following range $[0, 0.025]$ as a small profit.
- The Basu (1997) regression is as follows: $\text{EPS} = a + B_1 \text{RET} + B_2 \text{DUM} + B_3 \text{RET} * \text{DUM} + \epsilon$, where EPS is earnings per share deflated by price at the beginning of the period, RET is the 15-month return from the beginning of year t through the first three months of year t+1, and DUM=1 if returns are negative and 0 otherwise.
- The price regression is as follows: $P_6 = a + B_1 \text{BVPS} + B_2 \text{NIPS} + \epsilon$, where P6 is the price six months after the end of the fiscal year, BVPS is book value per share, and NIPS is net income per share. All variables are deflated by price 6 months prior to the fiscal year.

Table 3 – Comparison of Earnings Quality for ADRs before and after SOX (H1)

Panel A – Descriptive Statistics Comparison

	Post-SOX ADRs (N = 131)					Pre-SOX ADRs (N = 262)					<i>t-stat</i>
	Mean	Median	Std	Q1	Q3	Mean	Median	Std	Q1	Q3	
OI	0.124	0.096	0.210	0.029	0.198	-0.133	0.038	0.509	-0.078	0.117	7.08 *
OCF	0.078	0.098	0.116	0.051	0.143	0.025	0.052	0.132	-0.035	0.107	4.10 *
ACCR	-0.050	-0.049	0.075	-0.099	-0.003	-0.056	-0.045	0.078	-0.095	-0.004	0.71
EPS	0.041	0.044	0.094	0.013	0.095	-0.003	0.014	0.099	-0.036	0.048	4.40 *
RET	0.219	0.145	0.472	-0.110	0.415	0.037	-0.126	0.782	-0.458	0.205	2.87 *
<i>Control Variables</i>											
SIZE	7.478	7.747	2.388	5.258	9.202	7.211	6.998	2.285	5.349	9.092	1.05
EQISS	0.202	0.086	0.386	0.000	0.300	0.236	0.034	0.405	0.000	0.428	-0.83
DEBTISS	0.212	0.121	0.423	-0.056	0.475	0.263	0.131	0.475	-0.051	0.608	-1.13
LVG	0.457	0.449	0.254	0.243	0.666	0.504	0.534	0.259	0.248	0.693	-1.73
AST_TURN	0.589	0.540	0.362	0.311	0.842	0.544	0.462	0.412	0.193	0.792	1.12
SGROW	0.325	0.200	0.373	0.062	0.572	0.335	0.218	0.432	0.028	0.652	-0.24

Panel B – Earnings Quality Comparison

Earnings Quality Statistic		Post ADRs	Pre ADRs	<i>Bootstrap p-value</i>
<i>Earnings Management Statistics</i>				
EQ1	Variability of Operating Income to Operating Cash Flows	0.961	1.138	0.03
EQ2	Correlation of Operating Accruals to Operating Cash Flows	-0.351 #	-0.243 #	0.25
EQ3	Small Loss Avoidance (coefficient on Post ADR indicator)		0.604	
	Small Loss Avoidance (ratio of small profits to small losses)	5.750	2.625	0.06
<i>Timely Loss Recognition Statistic</i>				
EQ4	Conservatism (Basu regression R*DUM coefficient)	0.255 ##	0.206 ##	0.20
<i>Value Relevance Statistics (R²)</i>				
EQ5	Price to Accounting Data	0.264	0.147	0.08
EQ6	Good News (Basu regression)	0.080	0.146	0.04
EQ7	Bad News (Basu regression)	0.226	0.216	0.20

*, ** t-test of differences in means significantly different from zero at 0.01 and 0.05 levels (two-tailed); #, ## significantly different from zero at 0.01 and 0.05 levels (two-tailed). For procedures to calculate bootstrapped p-values, see the Appendix. Bolded statistics indicate higher earnings quality. Variable definitions and calculation of earnings quality statistics are available in Table 2.

Table 4 – Comparison of Earnings Quality for ADRs Before and After Cross Listing

Earnings Quality Statistic	Post-SOX			Pre-SOX		
	ADRs	Pre CL	Bootstrap p-value	ADRs	Pre CL	Bootstrap p-value
<i>Earnings Management Statistics</i>						
EQ1 Variability of Operating Income to Operating Cash Flows	0.961	1.099	0.02	1.138	1.027	0.01
EQ2 Correlation of Operating Accruals to Operating Cash Flows	-0.351 #	0.396	0.00	-0.243 #	-0.150 ###	0.12
EQ3 Small Loss Avoidance (ratio of small profits to small losses)	5.750	5.667	0.43	2.625	1.571	0.18
<i>Timely Loss Recognition Statistic</i>						
EQ4 Conservatism (Basu regression R*DUM coefficient)	0.255 ###	0.381 #	0.17	0.206 #	-0.066	0.00
<i>Value Relevance Statistics (R²)</i>						
EQ5 Price to Accounting Data	0.264	0.038	0.00	0.147	0.119	0.27
EQ6 Good News (Basu regression)	0.080	0.175	0.10	0.146	0.000	0.00
EQ7 Bad News (Basu regression)	0.226	0.175	0.34	0.216	0.008	0.00

*, ** t-test of differences in means significantly different from zero at 0.01 and 0.05 levels (two-tailed); #, ### significantly different from zero at 0.01 and 0.05 levels (two-tailed). For procedures to calculate bootstrapped p-values, see the Appendix. Bolded statistics indicate higher earnings quality. Variable definitions and calculation of earnings quality statistics are available in Table 2.

Table 5 – Comparison of Earnings Quality for ADRs Before and After SOX – Year 3 “Learning” Effect

<i>Comparison of Earnings Quality for ADRs before and after SOX - YEAR 3</i>						
Earnings Quality Statistic	<i>Post ADRs</i>			<i>Pre ADRs</i>		
	Year 3	Year 1	<i>Bootstrap p-value</i>	Year 3	Year 1	<i>Bootstrap p-value</i>
<i>Earnings Management Statistics</i>						
EQ1 Variability of Operating Income to Operating Cash Flows	0.868	0.961	0.17	1.193	1.138	0.28
EQ2 Correlation of Operating Accruals to Operating Cash Flows	-0.350 ^{##}	-0.351 [#]	0.42	-0.211[#]	-0.243 [#]	0.42
EQ3 Small Loss Avoidance (ratio of small profits to small losses)	2.333	5.750	0.22	4.300	2.625	0.20
<i>Timely Loss Recognition Statistic</i>						
EQ4 Conservatism (Basu regression R*DUM coefficient)	0.016	0.255^{##}	0.02	0.325[#]	0.206 [#]	0.11
<i>Value Relevance Statistics (R²)</i>						
EQ5 Price to Accounting Data	0.142	0.264	0.22	0.161	0.147	0.39
EQ6 Good News (Basu regression)	0.001	0.080	0.15	0.033	0.146	0.07
EQ7 Bad News (Basu regression)	0.003	0.226	0.00	0.046	0.216	0.00

*, ** t-test of differences in means significantly different from zero at 0.01 and 0.05 levels (two-tailed); #, ## significantly different from zero at 0.01 and 0.05 levels (two-tailed). For procedures to calculate bootstrapped p-values, see the Appendix. Bolded statistics indicate higher earnings quality. Variable definitions and calculation of earnings quality statistics are available in Table 2.

Table 6 – Comparison of the Change in Earnings Quality around SOX (Post - Pre) for ADRs and US Companies (H2)

Panel A – Descriptive Statistics Comparison

	Post-SOX U.S. Companies (N = 131)					Pre-SOX U.S. Companies (N = 262)					<i>t-stat</i>
	Mean	Median	Std	Q1	Q3	Mean	Median	Std	Q1	Q3	
OI	0.017	0.059	0.192	-0.001	0.106	0.029	0.045	0.176	-0.048	0.131	-0.58
OCF	0.043	0.067	0.128	0.010	0.123	0.043	0.062	0.114	-0.023	0.122	-0.02
ACCR	-0.072	-0.055	0.099	-0.095	-0.019	-0.076	-0.062	0.094	-0.095	-0.017	0.38
EPS	-0.032	0.039	0.182	-0.083	0.078	-0.033	0.012	0.159	-0.047	0.058	0.07
RET	0.177	0.121	0.514	-0.103	0.398	0.081	-0.104	0.806	-0.423	0.273	1.43
<i>Control Variables</i>											
SIZE	7.248	7.581	2.158	5.253	8.782	6.876	6.869	1.995	5.315	8.323	1.61
EQISS	0.103	0.010	0.252	0.000	0.091	0.138	0.019	0.437	0.000	0.219	-1.01
DEBTISS	0.128	0.027	0.356	-0.074	0.215	0.210	0.098	0.503	-0.050	0.500	-1.86
LVG	0.557	0.581	0.251	0.348	0.744	0.570	0.572	0.260	0.375	0.785	-0.48
AST_TURN	0.714	0.588	0.525	0.314	0.921	0.714	0.630	0.482	0.321	1.029	0.00
SGROW	0.155	0.110	0.349	-0.041	0.247	0.212	0.138	0.492	-0.045	0.490	-1.32

Panel B – Earnings Quality Comparison

Comparison of the Change in Earnings Quality around SOX (Post - Pre) for ADRs and US Companies

Earnings Quality Statistic		Post US	Pre US	Δ in ADR	Δ in US	<i>Bootstrap p-value</i>
<i>Earnings Management Statistics</i>						
EQ1	Variability of Operating Income to Operating Cash Flows	1.147	1.139	-0.177	0.008	0.01
EQ2	Correlation of Operating Accruals to Operating Cash Flows	-0.134	-0.221 #	-0.107	0.087	0.11
EQ3	Small Loss Avoidance (coefficient on Post US indicator)	-0.694 ###				
	Small Loss Avoidance (ratio of small profits to small losses)	1.750	2.316	3.125	-0.566	0.05
<i>Timely Loss Recognition Statistic</i>						
EQ4	Conservatism (Basu regression R*DUM coefficient)	0.273 #	0.202 #	0.048	0.071	0.40
<i>Value Relevance Statistics (R²)</i>						
EQ5	Price to Accounting Data	0.155	0.206	0.117	-0.051	0.11
EQ6	Good News (Basu regression)	0.002	0.031	-0.067	-0.029	0.33
EQ7	Bad News (Basu regression)	0.125	0.077	0.010	0.047	0.30

*, ** t-test of differences in means significantly different from zero at 0.01 and 0.05 levels (two-tailed); #, ### significantly different from zero at 0.01 and 0.05 levels (two-tailed). For procedures to calculate bootstrapped p-values, see the Appendix. Bolded statistics indicate higher earnings quality. Variable definitions and calculation of earnings quality statistics are available in Table 2.

Table 7 – Comparison of Earnings Quality post-SOX for ADRs and GDRs (H3)

Panel A – Descriptive Statistics Comparison

	Post-SOX ADRs (N = 131)					Post-SOX GDRs (N = 156)					<i>t-stat</i>
	Mean	Median	Std	Q1	Q3	Mean	Median	Std	Q1	Q3	
OI	0.124	0.096	0.210	0.029	0.198	0.041	0.020	0.516	-0.125	0.112	1.83
OCF	0.078	0.098	0.116	0.051	0.143	0.033	0.020	0.322	-0.096	0.103	1.64
ACCR	-0.050	-0.049	0.075	-0.099	-0.003	-0.074	-0.021	0.228	-0.100	0.020	1.22
EPS	0.041	0.044	0.094	0.013	0.095	-0.006	0.003	0.127	-0.077	0.081	3.60 *
RET	0.219	0.145	0.472	-0.110	0.415	0.411	0.267	0.713	-0.101	0.749	-2.72 *
<i>Control Variables</i>											
SIZE	7.478	7.747	2.388	5.258	9.202	4.616	4.693	2.859	3.042	6.742	9.24 *
EQISS	0.202	0.086	0.386	0.000	0.300	0.311	0.312	0.644	-0.010	1.000	-1.77
DEBTISS	0.212	0.121	0.423	-0.056	0.475	0.177	0.124	0.664	-0.233	1.000	0.54
LVG	0.457	0.449	0.254	0.243	0.666	0.398	0.398	0.249	0.155	0.613	1.97
AST_TURN	0.589	0.540	0.362	0.311	0.842	0.492	0.397	0.505	0.060	0.645	1.90
SGROW	0.325	0.200	0.373	0.062	0.572	0.169	0.159	0.655	-0.243	0.821	2.53 **

Panel B – Earnings Quality Comparison

Earnings Quality Statistic		Post ADRs	Post GDRs	<i>Bootstrap p-value</i>
<i>Earnings Management Statistics</i>				
EQ1	Variability of Operating Income to Operating Cash Flows	0.961	1.191	0.08
EQ2	Correlation of Operating Accruals to Operating Cash Flows	-0.351 #	-0.753 #	0.00
EQ3	Small Loss Avoidance (coefficient on ADR indicator)	-0.233		
	Small Loss Avoidance (ratio of small profits to small losses)	5.750	3.000	0.06
<i>Timely Loss Recognition Statistic</i>				
EQ4	Conservatism (Basu regression R*DUM coefficient)	0.255 ##	0.224 ##	0.46
<i>Value Relevance Statistics (R²)</i>				
EQ5	Price to Accounting Data	0.264	0.081	0.00
EQ6	Good News (Basu regression)	0.080	0.017	0.04
EQ7	Bad News (Basu regression)	0.226	0.099	0.20

*, ** t-test of differences in means significantly different from zero at 0.01 and 0.05 levels (two-tailed); #, ## significantly different from zero at 0.01 and 0.05 levels (two-tailed). For procedures to calculate bootstrapped p-values, see the Appendix. Bolded statistics indicate higher earnings quality. Variable definitions and calculation of earnings quality statistics are available in Table 2.

Table 8 – Comparison of Earnings Quality for GDRs before and after SOX (RQ1)

Panel A – Descriptive Statistics Comparison

	Post-SOX GDRs (N = 156)					Pre-SOX GDRs (N = 131)					<i>t-stat</i>
	Mean	Median	Std	Q1	Q3	Mean	Median	Std	Q1	Q3	
OI	0.041	0.020	0.516	-0.125	0.112	0.331	0.056	0.959	0.000	0.188	-3.10 *
OCF	0.033	0.020	0.322	-0.096	0.103	0.540	0.081	1.507	-0.034	0.187	-3.78 *
ACCR	-0.074	-0.021	0.228	-0.100	0.020	-0.589	-0.051	1.717	-0.149	0.018	3.41 *
EPS	-0.006	0.003	0.127	-0.077	0.081	0.028	0.019	0.141	0.000	0.074	-2.24 **
RET	0.411	0.267	0.713	-0.101	0.749	0.273	-0.016	0.942	-0.342	0.625	1.38
<i>Control Variables</i>											
SIZE	4.616	4.693	2.859	3.042	6.742	4.842	5.613	3.690	3.591	7.474	-0.57
EQISS	0.311	0.312	0.644	-0.010	1.000	0.229	0.234	0.761	-0.592	1.000	0.97
DEBTISS	0.177	0.124	0.664	-0.233	1.000	0.175	0.181	0.698	-0.300	1.000	0.03
LVG	0.398	0.398	0.249	0.155	0.613	0.432	0.410	0.228	0.231	0.626	-1.15
AST_TURN	0.492	0.397	0.505	0.060	0.645	0.693	0.614	0.475	0.284	0.978	-3.37 *
SGROW	0.169	0.159	0.655	-0.243	0.821	0.199	0.252	0.711	-0.316	1.000	-0.39

Panel B – Earnings Quality Comparison

Earnings Quality Statistic		Post GDRs	Pre GDRs	Bootstrap p-value
<i>Earnings Management Statistics</i>				
EQ1	Variability of Operating Income to Operating Cash Flows	1.191	2.049	0.00
EQ2	Correlation of Operating Accruals to Operating Cash Flows	-0.753 #	-0.981 #	0.00
EQ3	Small Loss Avoidance (coefficient on Post GDR indicator)	0.107		
	Small Loss Avoidance (ratio of small profits to small losses)	3.000	6.333	0.19
<i>Timely Loss Recognition Statistic</i>				
EQ4	Conservatism (Basu regression R*DUM coefficient)	0.224 ##	0.003	0.02
<i>Value Relevance Statistics (R^2)</i>				
EQ5	Price to Accounting Data	0.081	0.177	0.09
EQ6	Good News (Basu regression)	0.017	0.023	0.04
EQ7	Bad News (Basu regression)	0.099	0.004	0.07

*, ** t-test of differences in means significantly different from zero at 0.01 and 0.05 levels (two-tailed); #, ## significantly different from zero at 0.01 and 0.05 levels (two-tailed). For procedures to calculate bootstrapped p-values, see the Appendix. Bolded statistics indicate higher earnings quality. Variable definitions and calculation of earnings quality statistics are available in Table 2.

Table 9 – Comparison of the Change in Earnings Quality around SOX (Post - Pre) for GDRs and Non-Cross-listers (RQ2)

Panel A – Descriptive Statistics Comparison

	Post-SOX NCLs (N = 156)					Pre-SOX NCLs (N = 131)					<i>t-stat</i>
	Mean	Median	Std	Q1	Q3	Mean	Median	Std	Q1	Q3	
OI	0.015	0.042	0.175	-0.038	0.107	0.015	0.029	0.206	-0.044	0.101	0.00
OCF	0.026	0.066	0.205	-0.057	0.139	0.061	0.072	0.373	-0.075	0.169	-0.96
ACCR	-0.059	-0.040	0.129	-0.104	0.013	-0.135	-0.060	0.305	-0.153	0.013	2.64 *
EPS	0.008	0.012	0.137	-0.046	0.074	-0.008	0.008	0.152	-0.021	0.052	0.98
RET	0.415	0.209	0.763	-0.145	0.739	0.117	-0.150	0.928	-0.503	0.300	2.93 *
<i>Control Variables</i>											
SIZE	3.543	3.862	2.916	2.517	5.409	3.597	4.372	3.614	2.933	5.536	-0.14
EQISS	0.111	0.072	0.507	-0.055	0.372	-0.010	0.000	0.600	-0.465	0.213	1.83
DEBTISS	0.124	0.022	0.492	-0.123	0.376	-0.014	0.000	0.588	-0.459	0.309	2.14 **
LVG	0.426	0.449	0.237	0.244	0.600	0.497	0.545	0.230	0.317	0.686	-2.54 **
AST_TURN	0.679	0.609	0.549	0.177	1.037	0.912	0.737	0.677	0.360	1.316	-3.17 *
SGROW	0.126	0.079	0.492	-0.092	0.324	0.023	0.022	0.604	-0.439	0.337	1.57

Panel B – Earnings Quality Comparison

Comparison of the Change in Earnings Quality around SOX (Post - Pre) for GDRs and Non-Cross-listers

Earnings Quality Statistic		Post NCL	Pre NCL	Δ in GDR	Δ in NCL	<i>Bootstrap p-value</i>
<i>Earnings Management Statistics</i>						
EQ1	Variability of Operating Income to Operating Cash Flows	0.881	0.426	-0.857	0.455	0.00
EQ2	Correlation of Operating Accruals to Operating Cash Flows	-0.601 [#]	-0.678 [#]	0.228	0.077	0.13
EQ3	Small Loss Avoidance (coefficient on Post NCL indicator)		0.478			
	Small Loss Avoidance (ratio of small profits to small losses)	2.667	2.250	-3.333	0.417	0.15
<i>Timely Loss Recognition Statistic</i>						
EQ4	Conservatism (Basu regression R*DUM coefficient)	0.097	0.080	0.221	0.017	0.06
<i>Value Relevance Statistics (R²)</i>						
EQ5	Price to Accounting Data	0.054	0.080	-0.096	-0.026	0.24
EQ6	Good News (Basu regression)	0.006	0.020	-0.006	-0.014	0.37
EQ7	Bad News (Basu regression)	0.025	0.023	0.095	0.002	0.08

*, ** t-test of differences in means significantly different from zero at 0.01 and 0.05 levels (two-tailed); [#], ^{##} significantly different from zero at 0.01 and 0.05 levels (two-tailed). For procedures to calculate bootstrapped p-values, see the Appendix. Bolded statistics indicate higher earnings quality. Variable definitions and calculation of earnings quality statistics are available in Table 2.

Table 10 – Comparison of the Change in Earnings Quality around SOX (Post - Pre) for ADRs from High and Low Investor Protection Environments

Comparison of the Change in Earnings Quality around SOX (Post - Pre) for ADRs

Earnings Quality Statistic		ADRs		<i>Bootstrap</i>
		Δ in Low	Δ in High	<i>p-value</i>
<i>Earnings Management Statistics</i>				
EQ1	Variability of Operating Income to Operating Cash Flows	-0.501	-0.127	0.01
EQ2	Correlation of Operating Accruals to Operating Cash Flows	-0.222	-0.179	0.43
EQ3	Small Loss Avoidance (coefficient on Post ADR indicator)			
	Small Loss Avoidance (ratio of small profits to small losses)	2.300	5.500	0.25
<i>Timely Loss Recognition Statistic</i>				
EQ4	Conservatism (Basu regression R*DUM coefficient)	-0.062	0.125	0.03
<i>Value Relevance Statistics (R^2)</i>				
EQ5	Price to Accounting Data	0.183	0.091	0.24
EQ6	Good News (Basu regression)	-0.141	0.102	0.10
EQ7	Bad News (Basu regression)	-0.134	0.186	0.03

*, ** t-test of differences in means significantly different from zero at 0.01 and 0.05 levels (two-tailed); #, ## significantly different from zero at 0.01 and 0.05 levels (two-tailed). For procedures to calculate bootstrapped p-values, see the Appendix. Bolded statistics indicate higher earnings quality. Variable definitions and calculation of earnings quality statistics are available in Table 2. The assignment of high and low investor protection for each country follows the assessments by Lang et al. (2006). I made individual assessments on the following countries that were not included in the Lang et al. study: Low – Austria, Belgium, Finland, Poland, Russia, and Turkey; High – India and New Zealand.

Table 11 – Comparison of the Change in Earnings Quality for GDRs – AIM Listed Companies Analysis

Earnings Quality Statistic		Pre-GDR non-AIM Pre-Sox	Post-GDR non-AIM Post-Sox	Post-GDR AIM Post-Sox	<i>Bootstrap p-value</i>
<i>Earnings Management Statistics</i>					
EQ1	Variability of Operating Income to Operating Cash Flows	1.763	0.675	1.138	0.06
EQ2	Correlation of Operating Accruals to Operating Cash Flows	-0.987 #	-0.864 #	-0.627 #	0.02
EQ3	Small Loss Avoidance (ratio of small profits to small losses)	6.333	3.800	2.000	0.20
<i>Timely Loss Recognition Statistic</i>					
EQ4	Conservatism (Basu regression R*DUM coefficient)	0.027	0.292 #	-0.223	0.00
<i>Value Relevance Statistics (R²)</i>					
EQ5	Price to Accounting Data	0.171	0.121	0.244	0.10
EQ6	Good News (Basu regression)	0.022	0.003	0.087	0.23
EQ7	Bad News (Basu regression)	0.011	0.398	0.135	0.12

*, ** t-test of differences in means significantly different from zero at 0.01 and 0.05 levels (two-tailed); #, ## significantly different from zero at 0.01 and 0.05 levels (two-tailed). For procedures to calculate bootstrapped p-values, see the Appendix. Bolded statistics indicate higher earnings quality. Variable definitions and calculation of earnings quality statistics are available in Table 2.