

*An Examination of the Impact of the Sarbanes-Oxley Act on the
Attractiveness of US Capital Markets for Foreign Firms*^{*}

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Abstract

We document that the passage of the Sarbanes-Oxley Act (SOX) coincided with an increase in voluntary delistings and significant exits of foreign firms traded as American Depositary Receipts (ADRs) from US stock exchanges. We examine the extent to which these delistings were motivated by firms' costs of complying with SOX or by managers' or controlling shareholders' (MCOs) loss of control rents that resulted from corporate governance mandates of SOX. We show that compared to foreign firms that maintained their ADRs, foreign firms which voluntarily delisted have weaker corporate governance, had a significantly less negative stock market reaction when SOX was passed, and suffered a significant price decline when they announced their intention to delist. Our results are robust to the market and corporate governance attributes of the home countries of the delisting firms. Taken together, our results are consistent with our hypothesis that foreign firms with weaker corporate governance delisted to avoid complying with the corporate governance mandates of SOX. We label this effect as the paradoxical unintended consequence of SOX which intended to strengthen shareholder protection. In contrast, there is scarce evidence supporting the argument that the delistings were motivated by firms' (as opposed to MCOs') compliance costs with SOX.

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1. Introduction

Congress passed the Sarbanes-Oxley Act of 2002 (SOX) with the main objective of restoring investors' confidence (including the accuracy and reliability of corporate disclosures) in US capital markets following the governance failures occurring in the preceding decade. To this end, SOX established more stringent standards for internal controls, auditing, disclosure, and management conduct and accountability. However, while proponents argue that SOX was necessary,¹ the evidence to date suggests that the expected net benefits of SOX are negative purportedly because of large direct and indirect compliance costs (Zhang, 2007; DeFond, Hung, Karaoglu, and Zhang, 2006). We analyze the tradeoff between the cost of compliance with SOX and governance benefits of SOX using a sample of foreign-domiciled firms traded in the US as American Depository Receipts (henceforth, "foreign firms" and "ADRs").

Foreign firms can avoid complying with US listing requirements by exiting US capital markets and thus ceasing to be SEC registrants. To do so, firms have to follow a number of steps that start with delisting and terminating their ADR programs and ultimately deregistering. However, because foreign firms are still publicly traded in their home countries after terminating their ADRs, the associated costs (e.g., loss of liquidity) are likely to be much smaller than those of US firms which must either comply with SOX, go private, or trade on the "pink sheets" (see Engel, Hayes, and Wang, 2007; and Leuz, Triantis, and Wang, 2006). In other words, the costs incurred by foreign firms to avoid compliance with SOX are likely to be orders of magnitude

¹ See, for example, opening statement of Candice Miller, Chairman of Subcommittee on regulatory affairs, April 5, 2006.

smaller than those domestic firms which have large losses due to loss of liquidity.² As a result, voluntary delisting decisions constitute a lower hurdle for foreign firms and thus, can more clearly reflect the trade-off between the costs of compliance with SOX and the benefits of improved governance. Thus, although by delisting foreign firms still forgo the benefits of being listed in the US, the delisting decisions by foreign firms provide a more transparent metric by which to study the impact of SOX because the significant costs of going private that US firms would incur do not confound our analysis of delisting decisions by foreign firms. Thus, these post-SOX choices of foreign firms provide an opportunity to examine the cost-benefit trade-off of SOX requirements with fewer confounding effects than other potential settings examining this trade-off.

Using foreign firms we test two non-mutually exclusive hypotheses: whether the decision to exit from (or to remain traded on) US capital markets³ was motivated by avoiding the costs of complying with SOX when compliance costs exceed the respective governance benefits (compliance cost hypothesis) and/or by managers' and controlling shareholders' (MCOs' hereafter) attempt to protect their control rents (agency conflict hypothesis).

To test these two hypotheses, we model the decision of a foreign MCO to delist from the US exchanges. Our model allows us to examine the probability of delisting based on the costs and benefits of being listed in the US, including the MCOs' control rents. Our results indicate that delisting firms had corporate governance characteristics that are generally deemed to be poor compared to those of foreign firms that decided not to delist (e.g., lower percentage of

² Reese and Weisbach (1999) make the argument that the bonding benefit of a U.S. cross-listing enhances a foreign firm's ability to raise capital even in its home country capital market. Yet, ultimately any decrease in liquidity due to a delisting cannot be as significant as going private.

³ Typically, delisting comes first and conveys to investors the foreign firm's intention to cease to be a registrant ("deregister"). A detailed discussion of these issues follows in Section 2. All but two firms in our study who made a delisting announcement have already deregistered. We use "delisting" and "deregistration" interchangeably when the distinction is not consequential.

independent directors, smaller boards, higher ownership concentration, and frequency of separation between control and cash-flow rights). Moreover, our cross-sectional analyses are generally consistent with the agency conflict hypothesis while we find only weak evidence that delisting decisions were motivated by avoiding the costs of compliance.

Further, we document that relative to the stock prices of foreign firms that remained traded in the US (those with stronger governance characteristics), the share prices of firms which decided to exit US Capital markets (i.e., those with weaker governance characteristics) fell less when SOX was passed, consistent with investors' beliefs that SOX is likely to reduce MCOs' exploitation of non-controlling investors. This is consistent with the findings of Berger, Li, and Wong (2004) who find a more positive reaction to SOX for companies from countries with weak private enforcement of investor rights. Moreover, our analysis of the stock price reaction at the delisting announcement date documents a negative stock-price response by those firms. Jointly, these results are consistent with investors being disappointed that these firms avoided the corporate governance improvements required by SOX (agency conflict hypothesis) and are not consistent with the compliance cost hypothesis.

What emerges is the evidence of paradoxical unintended consequences of SOX: Firms, whose shareholders (both foreign and domestic) would have benefited the most from the superior US governance model (relative to their domestic model) prior to SOX avoided complying with SOX by exiting US capital markets. Thus, SOX intended governance improvements resulted in exits by those firms which benefited the most from superiority of the US governance model relative to their home country even in the pre-SOX period.

Our results contribute to and are consistent with the growing literature (that uses different setting and/or different research methods) on the impact of SOX on US capital markets in five

areas: First, we document a significant increase in delistings following the passage of SOX. This result is consistent with the results of Engel et al. (2007) and Leuz et al. (2006) who document a significant increase in SEC deregistrations and going-private decisions by (predominantly) US firms after the passage of SOX. Similar to our analysis, Leuz et al. (2006) attribute the increase in the going dark activity to controlling insiders' motivation to protect their private control benefits and decrease outside scrutiny, particularly when corporate governance is weak and outside investors are less protected. Our results are also consistent with those of Piotroski and Srinivasan (2007) who document a decrease in the new listings by foreign firms in the US following SOX by modeling the location choice of a foreign firm for its cross-listing.

Second, we extend the results of Zhang (2007) and DeFond et al. (2006) who find that the aggregate stock and bond market responded negatively to the events that led to passage of SOX by documenting that the market reaction is a function of the perceived benefits from SOX. In contrast to those studies, however, we find a non-negative market reaction for firms whose investors face a higher risk of managerial expropriation. This is similar to the findings of Hochberg, Sapienza, and Vissing-Jorgensen (2006) who find that firms that wrote comment letters regarding SOX experienced higher returns on the SOX event dates compared to other firms. Assuming that managers who wrote comments against SOX were aiming to protect their private benefits, the evidence in Hochberg et al. (2006) indicates that some managers expected SOX to decrease their private benefits of control.

Third, consistent with Cohen, Dey, and Lys (2004a) who find that earnings management decreased following SOX, our evidence is consistent with SOX working towards its objective of reducing fraud and expropriation of outsiders by insiders.

Fourth, our paper improves on other concurrent studies that provide similar evidence to that in our Table 1 about exits from the US following SOX (e.g. Marosi and Massoud, 2006; Witmer, 2006). Prior literature suggests that cross-listing managers bond via the US legal and financial system, *i.e.* commit to limit their private benefits, because benefits of a cross-listing outweigh their private costs due to these limitations. Conversely, we focus on the decrease in the private benefits of MCOs and the increase in compliance costs following SOX as motivators of terminating cross-listings. Our model sets forth conditions under which MCOs who had previously decided to cross-list decided to leave the US markets following the passage of SOX, while controlling for possible changes in other benefits of the cross-listing. Without the benefit of such an analysis, it is difficult to interpret the increase in exits from the US that our study and these concurrent studies also document. Further, because these papers mainly rely on country-level determinants their inferences are likely to be biased as firms that cross-list may be different from their peers that do not (Lang, Raedy, Yetman, and Joos, 2003). More importantly, of the 24 countries whose firms exited the US after SOX, 19 had more firms that remained than those that left and no country had all of its ADRs delisting. Therefore, country variables per-se cannot be the primary reason that many (if not most) of the firms delisted. Rather, the reasons are more likely to be company-specific. We examine these company-specific determinants while taking into account that firms that maintain their US listings may be doing so involuntarily because exiting the US capital markets is more costly for them. Specifically, we form a control group of ADRs (matched on the home country, fraction of shares outstanding as ADRs, and, if available, industry) that did not choose to delist. We then draw our inferences based on the differences between the sample of delisting firms and the control group. However, our analysis

complements those approaches that focus primarily on cross-country differences for the delisting.

Finally, we also contribute to a larger body of literature investigating cross-listings and competition among stock exchanges. Our results are broadly consistent with Doidge (2004) and Doidge et al. (2004) who find evidence that US cross-listed firms have lower control premia and controlling shareholders are less likely to choose to list their firms' shares in the US when private benefits of control are high. Consistent with this result, we find that MCOs for whom SOX would result in a larger reduction in their private benefits of control are more likely to delist. However, our finding that, on average, SOX is driving away firms with weaker corporate governance somewhat tempers the conclusion that SOX adversely affects the competitiveness of US exchanges (McCreevy, 2007).

The remainder of the paper is organized as follows. Section 2 discusses the institutional background of the ADR market. Section 3 develops our research hypotheses. Section 4 describes the sample selection and the characteristics of the sample firms. Section 5 presents the empirical evidence and Section 6 concludes.

2. Institutional Background

Foreign firms have two options to become listed on US exchanges. First, just as any US firm, they can issue shares by registering them with the SEC. Under this option, foreign firms can be either exclusively or primarily traded in the US. Second, they can choose to be traded as an ADR. Under this option, a foreign firm can issue ADRs backed by shares issued in their home country through a depository institution acting as a custodian.⁴ While most of the prior

⁴ A foreign firm may also privately place ADRs with "Qualified Institutional Buyers" under Rule 144A.

research focuses on the first option, i.e. securities exclusively or primarily traded in the US (e.g., Engel et al., 2007, Leuz et al., 2006), it is the second option that is the focus of our analysis (as is the focus in contemporaneous work by Marosi and Massoud, 2006 and Witmer, 2006).

There are three levels of ADRs. Level I ADRs are traded on pink sheets and are largely exempt from US SEC regulations. Level II and III ADRs trade on a US stock exchange just as any other US security and are considered SEC registrants. Level II ADRs involve shares previously issued abroad while Level III ADRs allow firms to raise capital through the issuance of new shares. In either case, ADRs can be redeemed for shares in the home market.

If the foreign firm decides to terminate its ADR program, it requests termination of its deposit agreement, and the depository institution purchases the ADRs from their holders in exchange for the deposited shares or their cash equivalent. After the end of this redemption period, the depository institution can sell all deposited shares and keep custody of the proceeds until any remaining holders redeem their ADRs.

The regulatory and disclosure requirements for Level II and III are very similar except that Level III ADRs require the filing of an initial registration statement. Specifically, Level II and III ADRs are subject to US reporting standards and securities regulations, including the provisions of SOX. These firms must file annual reports and must furnish certain information in the interim including a reconciliation of their accounts with US GAAP on Form 20-F. The SEC has repeatedly stated that provisions of SOX apply to all issuers regardless of the country of origin.⁵ Thus, the provisions of SOX apply to Level II and III ADRs essentially in the same

⁵ For example, in Release No. 33-8124 the SEC states “Because of the broad scope of Section 302 of the Act, the new rules are applicable to all types of issuers that file reports under Section 13(a) or 15(d) of the Exchange Act, including foreign private issuers, banks and savings associations, issuers of asset-backed securities, small business issuers and registered investment companies.” Release No. 33-8177 states this more emphatically: “We have determined to include foreign private issuers within the scope of the final rules implementing Sections 406 and 407. Their inclusion comports both with the plain language of the above statutory sections, which applies broadly to issuers, as well as with the overarching purpose of the Sarbanes-Oxley Act, which is to restore investor confidence

manner as they apply to US domestic firms. Limited exceptions have been granted only for implementation deadlines.⁶

We examine the recent delisting and deregistration (“exits”) activities of Level II and III ADRs. A foreign firm may voluntarily delist from an exchange by following the rules of that exchange and by applying to the SEC on Form 25.⁷ For example, in the case of an ADR traded on the NYSE, the firm submits a letter indicating its intention to delist and a board resolution approving the delisting. The SEC can then impose additional terms to protect investors, but has not done so for many years.⁸ The delisting can become effective after 10 days from the filing date. The delisting is typically followed by the filing of a Form 15 which leads to the deregistration (“deregister”). To deregister and to be freed from all filing requirements, registrants needed to have fewer than 300 US shareholders during the period of our study.⁹

In our sample period, to calculate the number of US security holders, the foreign private issuer had to “look through” record ownership of brokers, dealers, banks or other nominees on a worldwide basis to identify beneficial owners resident in the US, which is a difficult task (Bergman, 2004). Further, the difficulty of complying with the “fewer than 300 US shareholders” requirement was exacerbated by continuing requirements that the number of US shareholders stays below 300 permanently for Level III ADRs and for at least 18 months for

in U.S. financial markets, regardless of the origin of the market participants.” The word “foreign” appears 18 times in the Sarbanes-Oxley Act and none of these mentions exemptions or distinctions between the requirements for domestic firms vs. foreign firms.

⁶ For example, in the case of Section 404 requirements, implementation deadlines for foreign accelerated filers have been extended until fiscal years ending after July 15, 2006 while the deadlines for foreign non-accelerated filers have been extended until fiscal years ending after December 15, 2007 similarly to those of non-accelerated US filers.

⁷ Rule 12d2-2 of the Securities Exchange Act of 1934 *Removal from Listing and Registration* describes the actions that a firm must take in order to delist from an exchange and deregister with the SEC.

⁸ 70 FR 42456, July 22, 2005.

⁹ The 300 shareholders rule has recently changed (effective June 4, 2007). The new rule permits alternative criteria under which a foreign private issuer can deregister, including a comparison of the average daily trading volume of its securities in the United States with its worldwide average daily trading volume, using a five percent benchmark. The new rule also revises the counting method of U.S. resident shareholders.

Level II ADRs. Otherwise, the firm's reporting obligations would resume. Since some foreign firms may have more than 300 US shareholders outside their ADR programs or some investors may buy shares to hold up a firm's deregistration, the termination of ADR programs alone was not, by itself, sufficient for foreign firms to deregister from the SEC.

Some of the options that are available to foreign firms to reduce the number of US shareholders are reverse stock splits (followed by repurchases of fractional shares), adjustments of the exchange ratio on the ADR program (similar to a reverse split), amendment of articles to seize minority shareholdings, share buybacks, and reduction of capital. However, these measures cannot be exclusively targeted towards US investors. Some of them require court or shareholder approvals and risk bad publicity for the firm due to their adversity to minority shareholders (Lovells Client Note, 2004). Therefore, deregistration is likely to be a time consuming and costly procedure. However, but for two cases, we were able to confirm that the delistings were in fact followed by deregistrations for all other Level II and Level III ADRs that delisted in the sample period. In what follows, we develop a model that leads to our testable hypotheses.

3. Hypothesis Development

We begin our analysis by modeling the cross-listing and delisting decisions of a foreign issuer as a function of benefits to the firm, compliance costs, and the loss of private benefits by the MCOs. We focus on SOX' effectiveness in reducing agency costs and the direct costs of complying with the provisions of SOX such as the Section 404.

The major benefits of a US listing for a foreign firm are access to the US capital markets to raise capital and to enhance liquidity, and increased visibility and reputation of the firm's

products. We denote these benefits by B . In addition to those benefits, non-controlling shareholders of a foreign firm benefit from investor protection (including superior corporate governance) provided by the US legal system. These benefits increase the value of the firm by reducing the control rents that insiders appropriate (see e.g. Jensen and Meckling, 1976). We denote these control rents by A . (See Pagano, Roell, and Zechner (2002) for a review of benefits to cross-listing.)

Offsetting these benefits, firms incur listing fees, additional audit fees, and various compliance costs including charges for professional services. We denote these costs by C . B and C are shared by all investors of the firm, while A benefits MCOs at the expense of other shareholders.

SOX has significantly changed US corporate governance by mandating certain corporate governance practices rather than just requiring their disclosures (Romano, 2005). These mandates include audit committee independence, majority board independence,¹⁰ prohibition of loans to executives, limitations on non-audit services by a firm's auditors, increased criminal penalties for executives, accelerated reporting of insider trades, executive certification of financial statements, and increased risk of litigation. Direct implementation costs such as the Section 404 requirements and indirect costs such as expected penalties due to increased scrutiny and risk of litigation due to SOX are likely to increase expected costs and hence decrease the control rents earned by MCOs. Thus, SOX is likely to reduce A . In addition, SOX also imposes large direct and indirect implementation costs which increase the cost of cross-listing in the US, C .

¹⁰ The majority independence rules were introduced by the NYSE and NASDAQ in conjunction with SOX mandated rules.

Anecdotal evidence suggests MCOs of foreign firms are directly affected by the US legal environment including SOX and also that SOX compliance is an important factor in their exit decisions.¹¹ The purpose of our analysis is to develop a framework that allows us to distinguish empirically the two aspects of SOX – increased compliance costs and reduction of control rents earned by MCOs – that may play a role in their exits from the US capital markets.

The Model:

In this section, we derive a model that derives the conditions under which MCOs cross-list in and exit the US capital markets. We use this model to generate testable hypotheses. As Doidge et al. (2004), we model these decisions as a wealth maximization problem of MCOs, which may differ from maximizing shareholders' wealth.

Let V be the present value of the firm's cash flows absent control rents and US cross-listing costs and benefits. Then, assume that MCOs can extract private control benefits, A_k , as a function of the legal system k ($k \in \{F, US_{preSOX}, US_{postSOX}\}$), where F denotes the foreign market and US_{preSOX} ($US_{postSOX}$) the US before (after) SOX. Thus, the value of the firm in the foreign market (before a US cross-listing) is $V_F = V - A_F$.

We assume that A_k is an increasing function of the MCO's ownership percentage (α) for $\alpha < 0.5$. This reflects the two roles of α in determining the net-private benefits. First, the probability of MCOs' maintaining control is likely to increase with α until the MCOs control the majority of the voting rights and remain constant above that level.¹² Second, as α increases the marginal net-benefits to the MCOs from misappropriation decreases because MCOs share a

¹¹ For example, Vivendi (delisted in 2006) had been the target of a high profile shareholder lawsuit in the US in 2002 and "legal experts said the US agencies are likely to move more swiftly and seek stiffer penalties if they press charges than their French counterparts who were conducting their own criminal and civil probes." (Grover and Matlack, Business Week, November 18, 2002). Also, many delisting firms mention that there will be substantial cost savings from being relieved of SEC reporting requirements, e.g. LION bioscience delisting announcement (11/15/2004).

¹² In fact, it may continue to increase beyond 50% with supermajority rules.

larger fraction of the costs as shareholders. The private benefits of control also depend on the quality of the corporate governance (g). Therefore, we have

$$A_k(\alpha, g) \quad (1a)$$

and for $\alpha < 0.5$, $\frac{\partial}{\partial \alpha} A_k > 0$, $\frac{\partial^2}{\partial \alpha^2} A_k < 0$, and $\frac{\partial}{\partial g} A_k < 0$.¹³

Finally, we assume that

$$A_F > A_{USpreSOX} > A_{USpostSOX} \quad (1b)$$

Next, we derive MCO's total wealth (W) including their private benefits. The MCO's net wealth is the fraction α of the firm's value in its home market plus the value of private benefits of MCOs, that is

$$W_F = \alpha \times V_F + A_F \quad (2a)$$

where $V_F = V - A_F$.

Listing in the US reduces the rents earned by MCOs to $A_{USpreSOX}$, provides other benefits that are not related to corporate governance, $B_{USpreSOX}$, and requires incremental compliance costs of $C_{USpreSOX}$. The MCO wealth upon a cross-listing is expressed by

$$W_{USpreSOX} = \alpha \times (V - A_{USpreSOX} + B_{USpreSOX} - C_{USpreSOX}) + A_{USpreSOX} \quad (2b)$$

Accordingly, the MCOs will decide to list in the US prior to the passage of SOX if $W_{USpreSOX} > W_F$ or combining (2a) and (2b)

$$\frac{\alpha}{1-\alpha} \times (B_{USpreSOX} - C_{USpreSOX}) > A_F - A_{USpreSOX} \quad (3)$$

Similarly, the firm value upon cross-listing in the US prior to SOX is

$$V_{USpreSOX} = V_F - (A_{USpreSOX} - A_F) + (B_{USpreSOX} - C_{USpreSOX}) \quad (4a)$$

¹³ Our specification is consistent with prior empirical research, e.g., McConnell and Servaes (1995), who document a quadratic relationship. Our specification for example would be consistent with $A(\alpha) = a \times \alpha \times (1-\alpha)$ where a is a constant.

where $V_{US,preSOX}$ is the firm value in the US prior to SOX. Equations (3) and (4a) imply that conditional on a US cross-listing prior to SOX, firm value increases since $0 < \alpha < 1$, and $A_F > A_{USpreSOX}$. That is

$$\Delta V_{list,preSOX} = V_{USpreSOX} - V_F = B_{USpreSOX} - C_{USpreSOX} + A_F - A_{USpreSOX} > 0 \quad (4b)$$

In summary, MCOs would not always cross-list in the US even if doing so would result in an increase in shareholder wealth. Conversely, shareholder wealth increases given that MCOs chose to cross-list in the US.

Passage of SOX changes the cross-listed firm value by

$$\Delta V_{SOX} = (B_{postSOX} - B_{preSOX}) - (C_{postSOX} - C_{preSOX}) - (A_{USpostSOX} - A_{USpreSOX}) \quad (5a)$$

If we assume that the first term on the RHS of (5a) is zero (*i.e.* the benefits of a US listing will not change due to SOX for reasons other than reducing private benefits from control A), then $\Delta V_{SOX} < 0$ implies that $-\Delta A_{SOX} < \Delta C_{SOX}$ and vice versa. In other words, negative market returns around SOX imply that the costs of SOX exceed the reduction in private benefits appropriated by MCOs.

If the firm remains listed in the US, the MCOs' wealth decreases to

$$W_{USpostSOX} = \alpha \times (V - A_{USpostSOX} + B_{USpostSOX} - C_{USpostSOX}) + A_{USpostSOX} \quad (5b)$$

MCOs would decide to delist if $W_{USpostSOX} < W_F$ or alternatively,

$$\frac{\alpha}{1-\alpha} \times (B_{USpostSOX} - C_{USpostSOX}) < A_F - A_{USpostSOX} \quad (5c)$$

Equation (5c) can be expressed as a function of the changes in private benefits, ΔA_{SOX} , changes in non-governance related benefits of US listing, ΔB_{SOX} , and compliance costs for US listing, ΔC_{SOX} :

$$\begin{aligned} \frac{\alpha}{1-\alpha} \times (B_{USpreSOX} + \Delta B_{SOX} - C_{USpreSOX} - \Delta C_{SOX}) &< A_F - A_{USpreSOX} - \Delta A_{SOX} \\ \frac{\alpha}{1-\alpha} \times (B_{USpreSOX} - C_{USpreSOX}) - (A_F - A_{USpreSOX}) &< -\frac{\alpha}{1-\alpha} \times (\Delta B_{SOX} - \Delta C_{SOX}) - \Delta A_{SOX} \\ 0 \leq \Phi &< -\frac{\alpha}{1-\alpha} \times (\Delta B_{SOX} - \Delta C_{SOX}) - \Delta A_{SOX} \end{aligned}$$

where $\Phi > 0$ represents the net benefits gained by the MCOs from being listed in the US before SOX (otherwise the MCOs would have delisted before SOX). Assuming that $\Delta B_{SOX} = 0$, *i.e.* the benefits of a US listing will not change due to SOX for reasons other than reducing private benefits of control, the firm will delist if:

$$\Phi < \frac{\alpha}{1-\alpha} \Delta C_{SOX} - \Delta A_{SOX} \quad (5d)$$

In other words, the MCOs will decide to delist if their share of the SOX compliance costs together with lost private control benefits exceed their share of the benefits of a US cross-listing. In particular, both higher compliance costs (ΔC_{SOX} high) and higher efficacy of SOX ($|\Delta A_{SOX}|$ high) make the MCO worse off and result in a larger probability of exiting US capital markets.

Upon delisting firm value (i) decreases by the amount of the lost benefits from US cross-listing, (ii) increases by US compliance cost savings, and (iii) decreases by MCOs' additional private benefits in the home country:

$$\begin{aligned} \Delta V_{delist,postSOX} &= V_F - V_{USpostSOX} \\ &= -B_{USpostSOX} + C_{USpostSOX} - A_F + A_{USpostSOX} \\ &= -B_{USpreSOX} - \Delta B_{SOX} + C_{USpreSOX} + \Delta C_{SOX} - A_F + A_{USpreSOX} + \Delta A_{SOX} \\ &= -\Delta V_{list,preSOX} - \Delta B_{SOX} + \Delta C_{SOX} + \Delta A_{SOX} \end{aligned} \quad (6)$$

Therefore, the MCOs' decision to delist following SOX does not necessarily result in an increase in shareholder wealth even though it increases MCOs' wealth. The change in value due to the delisting would be positive only if ΔC_{SOX} is sufficiently high. In contrast, if incremental SOX

compliance costs are lower than SOX' incremental effectiveness in reducing private benefits of control, (5d) and (6) imply that the impact of the exit on firm value will be negative. Given that $\Delta V_{list, preSOX}$ must be positive (or MCOs would not have chosen to list in the US in the first place), the delisting returns could still be negative if SOX is not cost efficient in curbing the private benefits of MCOs (*i.e.* $\Delta C_{SOX} > |\Delta A_{SOX}|$).

Based on this analysis (particularly equations (5d) and (6)), the probability of a voluntary delisting will be increasing in the reduction of private benefits by SOX, and increase in the costs of compliance with SOX. Finally, using our earlier assumption that $A(\alpha, g)$ is an increasing function of α , we conjecture that the likelihood of delisting will be

$$prob(\text{delisting}) = f(\Delta C_{SOX}, \alpha, g, \Phi) \quad (7)$$

where the first and second partial derivatives are positive, and the third and fourth are negative.

This implies that firms with high SOX compliance costs (ΔC_{SOX}), firms in which MCOs have large private benefits due to control (α) or weaker oversight (g), and firms that had lower benefits of being listed in the US (Φ) are more likely to delist. These predictions lead to our main hypotheses. Clearly, the two hypotheses are not mutually exclusive – the combined effect of increased compliance costs and reduced private benefits may lead to the delisting. We first focus on corporate governance:

H1: The probability of delisting is negatively associated with the quality of corporate governance.

We consider several attributes of corporate governance based on past literature and develop working hypotheses that are empirically testable. We first consider the independence of the board of directors as an empirical proxy for the quality of governance. We assume that a board with a higher percentage of non-affiliated directors is an indicator of better corporate governance (Weisbach, 1988). Accordingly we have our first testable hypothesis.

H1a: The probability of delisting is negatively associated with the degree of independence of the board of directors.

We derive a similar prediction based on control enhancing mechanisms that give some shareholders a larger fraction of the firm's voting rights than their share in the cash flows of the firm. When votes are tied to dividends, insiders cannot have substantial control of the company without having substantial ownership of its cash flows. Otherwise separating the cash flow rights from voting increases MCOs ability and incentive to divert cash flows (La Porta et al. 1998). Therefore, we predict that:

H1b: The probability of delisting is positively associated with the presence of control enhancing mechanisms that separate cash flow and voting rights.

Third, we consider the entrenchment effect of controlling shareholders and private benefits of control. Relying on prior research, we assume that corporate governance quality deteriorates when the firm is more closely controlled. Claessens, Djankov, and Lang (2000), Dyck and Zingales (2004), Mitton (2002), among others, support this assumption. Hence, we predict that:

H1c: The probability of delisting is positively associated with the degree to which the firm is closely controlled.

Next, we use financial reporting quality as an indirect measure of corporate governance quality. Previous research (e.g., Klein, 2002) shows that there is a significant positive association between financial reporting quality and corporate governance quality. This leads to our fourth hypothesis:

H1d: The probability of delisting is negatively associated with the quality of financial reporting.

Finally, we consider investors' stock price reaction to the passage of SOX as a broad proxy of corporate governance quality. If SOX increases firm value by improving corporate

governance then, as we derived in equation (5a), investors' price reaction provides an overall evaluation of the net benefits caused by SOX. Therefore, our last agency conflict hypothesis is stated as follows.

H1e: The probability of delisting is positively associated with the cumulative abnormal return for events surrounding the passage of SOX.

Our second main hypothesis considers the alternative argument that it is the increased compliance costs of SOX that drive foreign firms away from the US capital markets.

H2: The probability of delisting is positively associated with the compliance costs of SOX.

We test these hypotheses on a hand-collected sample of ADRs that delisted between 2002 and 2006. Sample selection and variable measurement are discussed next.

4. Sample Selection and Variable Measurement

We identify all Level II and III ADRs and all ADR terminations (ADR sample) from the web portals of the largest US depository banks, the Bank of New York, JP Morgan, and Citibank.¹⁴ Citibank and Bank of New York both provide a comprehensive list of all ADRs listed in the US, including Level I ADRs on their websites. We also review the list of *International Registered and Reporting Companies* issued by the SEC, the *Non-US Listed Companies* list provided by the NYSE, and firms that have delisting codes in CRSP to ensure accuracy. This procedure yields a sample of 559 Level II and III ADRs as of January 1, 2002.

We extend our sample period to 2006, because the implementation deadlines for certain SOX provisions have been extended for foreign issuers until July 15, 2005 and even beyond for Section 404 requirements for smaller issuers. These firms have a real option to wait until

¹⁴ These three banks sponsor more than 90% of ADRs in the US (http://www.adrbny.com/dr_directory.jsp).

implementation deadlines. This option is valuable because both the delisting and a potential re-entry after the delisting are costly actions, hence in effect creating a real-option.

We then search Factiva and Lexis-Nexis to ensure that we have identified all voluntary ADR delistings and we review the firms' delisting and deregistration press releases. We exclude terminations of ADR programs that are the result of financial distress, acquisitions, major restructuring, or failure to meet exchange listing criteria. In addition, we exclude Canadian ADRs, as the American and Canadian capital markets are highly integrated and the cross-listing reasons of Canadian firms are different from those of other foreign firms who use ADRs.¹⁵ Finally, we exclude any delisting announcements that are confounded by events such as earnings announcements, restructuring plans, and financing activities. We use the earliest announcement date when firms make multiple announcements at different stages of the delisting process (intention to delist, final decision to delist, formal delisting, and formal deregistration) because subsequent announcements are likely to be anticipated by investors.

This procedure yields 87 firms that voluntarily delisted from January 2002 to May 2006. We match this delisting sample with 87 control-firm ADRs that have stayed cross-listed in the US after the passage of SOX based on home country, percentage of shares issued as ADRs, and if available, industry and size. To deal with the five countries with an equal number or lower number of firms that stayed cross-listed in the US than the number that delisted, we treated each of Scandinavia, Hong Kong/Singapore, and Australia/New Zealand as regions and matched companies within each region. In addition, we matched four Swedish firms with German firms and one Peruvian firm with a Brazilian firm.

¹⁵ The US and Canada constitute the largest trade partnership in the world, barriers to foreign investments between the two countries are minimal, the structure and regulatory framework of their stock markets are similar, and the shares of a significant number of Canadian and American firms are inter-listed (Beaulieu and Bellemare, 2000).

We obtain home-country stock prices and market indices from Datastream and Yahoo Finance and cross-validate across these data sources.¹⁶ When price series are available from multiple exchanges (e.g., in Germany) we select the one with the highest trading volume or price volatility.

We collect financial statement variables from Global COMPUSTAT, Datastream, North American COMPUSTAT, the Form 20-Fs filed with the SEC, and the annual reports available from firms' websites. We cross-validate the information from the different sources with data from the Form 20-Fs. Corporate governance variables and information about percentage of shares owned by US residents are extracted from Form 20-Fs or annual reports. The requirement of financial statement information and stock price data reduces our delisting sample to 75 firms.

Table 1 provides a breakdown of our delisting sample across countries and across years. To understand the intensity of deregistration across countries, we compute the ratio of voluntary delistings to the number of active Level II and Level III ADR programs in the US as of December 31, 2001. The 87 firms identified above represent 15.56% of the 559 Level II and Level III ADR programs that were active at the end of 2001 (Panel A). While the UK leads the number of delistings with 17, 10 out of 11 Swedish and four out of five New Zealand firms delisted. No African firms and only 11.49% of South American firms voluntarily delisted.

Panel B of Table 1 and Figure 1 document the pattern of US ADR listings and delistings over the years. There is a noticeable jump in the number of voluntary delistings starting in 2002 (we include delistings prior to 2002 for comparison). The number of voluntary delistings in 2002 alone (17) far exceeds their total from all prior years (3). In addition, there is a concurrent decrease in new Level II and Level III ADRs listings that occurs in 2002. Moreover, untabulated results indicate that the percentage of new ADR listings that are Level II and Level III to all new

¹⁶ In one case, we obtain the data from the firm's own website.

ADR listings declined significantly from approximately 23.8% in 1990-2001 to 17.3% in the 2002-2006. In contrast, we do not observe a significant change in the rate of new Level I ADRs between the two subperiods (88 per year in 1990-2001 vs. 91.2 per year in 2002-2006). Moreover, the number of Level I ADR terminations between 2002 and 2006 is 109 compared to 198 in the preceding five years.¹⁷ If changes in market conditions in the US were the ultimate driver of exits of Level II and III ADR firms, we should have seen an increase in Level I ADR terminations as well, and not the sharp decline compared to the previous five-year period that we observe.

Finally, a comparison with Japan indicates that the rate of delistings by foreign firms from the Tokyo Stock Exchange (where SOX or SOX-like regulations were not implemented) have totaled 16 between 2002 and 2006 and 21 in the preceding five years. Once again global market conditions are unlikely to explain the increased termination rate of Level II and III ADRs given that the corresponding Japanese rate actually decreased during the same period. These patterns suggest SOX as the primary reason for the exits from the US. The following sections explore more direct ties between these exits, corporate governance, and compliance costs, while controlling for changes in the benefits of a cross-listing that are unrelated to SOX.

4.1 Corporate Governance Characteristics of Delisting Firms

We have five categories of corporate governance variables, each corresponding to one of our five sub-hypotheses, H1a - H1e. To measure board independence for H1a, we use three

¹⁷ The 109 and 198 Level I ADR terminations include involuntary terminations that are inactive programs from the Universal Issuance Guide maintained by Citibank which includes both voluntary and involuntary terminations due to causes such as mergers and bankruptcy, unlike our main analysis which excludes “involuntary” terminations.

variables: (i) the proportion of outside directors on the board (*OUTDRTPCT*),¹⁸ (ii) the number of directors (*NUMDRT*), and (iii) an indicator variable that takes the value of 1 if the CEO and the chairman of the board is the same person (*CEOCHAIR*). We conjecture that it would be more difficult for the board to be complacent or collude and act against shareholders' interests when there are more directors in the board.^{19,20}

For H1b, we use an indicator variable (*SEPARATION*) that takes on the value of 1, if the firm has at least one of the top three control enhancing mechanisms identified by the report on the proportionality principle in the European Union (2007). These three mechanisms are the violation of one-share one-vote, pyramid schemes, and special voting arrangements.

For H1c, we adopt two empirical proxies for the degree of ownership concentration, i.e. how closely a firm is controlled: (i) total percentage of shares owned by the largest five non-US owners (*FIVEOWN*),²¹ and (ii) the CEO and the chairman's total ownership in the firm (*CEOCHAIROWN*).

For financial reporting quality (H1d) we construct a summary measure by combining three measures of financial reporting quality used by Leuz et al. (2003): (i) the firm-level standard deviation of net income divided by the standard deviation of operating cash flows (*STDRATIO*), which is positively associated with financial reporting quality, (ii) the firm-level median of the absolute value of accruals divided by operating cash flows (*MEDIANACC_OCF*), which is negatively associated with financial reporting quality, and (iii) the firm-level correlation between the change of accruals and the change of operating cash flows (*CORR_ΔACC_ΔOCF*),

¹⁸ Outside directors are identified as those who have no employment record with the firm according to Item 6 of Form 20-F.

¹⁹ We control for firm size in all our regressions.

²⁰ This argument is different from that of Yermack (1996) who hypothesizes that larger boards are more inefficient and finds that smaller boards are associated with higher firm valuations.

²¹ As a robustness check we also examine the ownership controlled by the top three owners (*THREEOWN*).

which is positively associated with financial reporting quality. The combined measure, *EM_SUMRANK*, is the sum of each variable's quality rank on the three dimensions and it is positively correlated with financial reporting quality.

4.2 Empirical Proxies for Compliance Costs

Our proxy for compliance costs is the audit fee premium that a firm pays as a consequence of its US cross-listing. We assume that the audit fee premium for cross-listing is highly correlated with the incremental cross-listing costs after SOX.

As Choi et al. (2006) document, cross-listed firms incur higher audit fees if the cross-listing increases audit complexity or raises the auditors' litigation risk by exposing them to a stricter legal regime. SOX affects both of these dimensions. The requirement that outside auditors attest to and report on management's assessment of the internal control system of each issuer necessarily increases audit complexity. At the same time auditors face greater litigation risk as the penalties for corporate fraud have increased after SOX.

To develop this measure we estimate the following regression model for a pooled sample of all foreign firms, for all years with available data from Global COMPUSTAT. We estimate an audit fee model as a function of the client's size, the client's audit complexity, and the auditor's litigation risk due to firm-specific, domestic, and cross-listing factors.

$$\begin{aligned}
 AUDITFEE_{it} = & \alpha_0 + \sum_{m=1}^9 \delta_m * Industry_{it} + \sum_{j=1}^2 \beta_{1j} Size_{it} + \sum_{k=1}^4 \varphi_{1k} AuditComplexity_{it} + \sum_{l=1}^3 \gamma_{1l} ClientLitigationRisk_{it} \\
 & + \sum_{l=4}^5 \gamma_{1l} DomesticLitigationRisk_{it} + \alpha_1 XL_{it} + \alpha_2 XL_{it} * SOX_{it} + \sum_{j=1}^2 \beta_{2j} XL_{it} * Size_{it} \\
 & + \sum_{k=1}^4 \varphi_{2k} XL_{it} * AuditComplexity_{it} + \sum_{l=1}^3 \gamma_{2l} XL_{it} * ClientLitigationRisk_{it} \\
 & + \sum_{l=4}^5 \gamma_{2l} XL_{it} * CrossListingLitigationRisk_{it} + \varepsilon_{it}
 \end{aligned} \tag{8}$$

We then measure our proxy for compliance costs (*XLISTPREM*) as

$$XLISTPREM_{it} = E[\text{Cross-Listing Premium}_{it}] \quad (9)$$

where the cross-listing premium is given by the sum of the terms that contain the indicator variable for cross-listed firms, XL , and its interactions with other variables. Further details of this model are provided in the Appendix.

Number of business segments (*SEGMENTS*): We also use the number of business segments as a proxy for the direct compliance costs of SOX, as in Zhang (2007). Firms with larger number of business segments are more likely to incur higher SOX compliance costs because of the internal control difficulties created by these complexities. Consistent with this argument, Doyle, Ge, and McVay (2007) document that firms with complex businesses are more likely to report material control weaknesses.

4.3 Control Characteristics of Delisting Firms

The impact of corporate governance quality on the MCOs' control rents and private benefits is only one of many factors that may affect the delisting decisions of foreign firms. While we examine the impact of governance variables, we control for other potentially confounding factors that may be related to the changes in benefits of cross-listing as suggested by our model.

Firm size (*SIZE*): Firm size captures various aspects of the cost-benefit considerations involved in the delisting process. On one hand, larger firms may enjoy higher benefits of cross-listing. For instance, larger firms have a greater demand to raise capital outside their home markets. They are also more likely to derive greater revenues outside their home countries, and thus to benefit from the enhanced visibility and prestige that comes with the US listing.

On the other hand, firms of different sizes possibly face different SOX-related compliance costs, a conjecture supported by the intense debate about whether small firms should be exempted from SOX.²² In addition, because of the large US investor base, larger firms may also find it more difficult to meet the deregistration conditions set by the SEC than smaller firms. We measure firm size as the log of assets at the end of the fiscal year preceding the delisting and as the log of market value in sensitivity tests.

North American Sales (*NORTHAMSALES*): Prior research suggests that foreign firms derive benefits from cross-listing because it enhances the sale of their products in the US (Pagano et al., 2002; Bancel and Mittoo, 2001). It would, therefore, be relatively more costly for these firms to delist. We use the percentage of sales from North America as our empirical proxy,²³ and predict that it is negatively associated with the likelihood of delisting. We also examine the five-year change in foreign sales as a proxy for North American sales and predict that decreasing sales makes a firm more likely to leave the US.

Fraction of total turnover (*ALIQ*): The amount of trading in the US is an important determinant of the benefits of maintaining an ADR program in the US. The benefits from a US ADR program is likely to be an increasing function of the amount of trading executed in the US, while previous research has also shown that there is a spillover benefit in the home market. We construct the time series of trading volume in the US from CRSP as a percentage of trading volume in the home market from Global Compustat. Our measure, *ALIQ*, is the average change in this percentage in the five years preceding delisting indicating the liquidity benefits from a US ADR program.

²² See, for example, Government Reform Subcommittee on Regulatory Affairs hearings on “The Sarbanes-Oxley Act 4 Years Later: What Have We Learned?” on April 5, 2006 and Report of the Securities and Exchange Commission Advisory Committee on Smaller Public Companies, 2006.

²³ In very few cases, when that information is not available, we use the percentage of foreign sales as a substitute.

Growth opportunities (*MTB*): Firms with higher growth opportunities are more likely to raise capital and therefore are more likely to benefit from a US listing. Moreover, the market to book ratio can proxy for the premium attached to cross-listed firms for being listed in the US. Accordingly, we predict that firms with higher market to book are less likely to leave the US. Consistent with prior literature, we use the market-to-book ratio as our empirical proxy.

Profitability (*ROA*): ADRs of less profitable foreign firms are likely to benefit less from cross-listing because they are less likely to raise capital or benefit from product market reputation spillovers. Therefore, we predict that profitability, as measured by return on assets, is negatively associated with the probability of delisting.

We also construct a variable that proxies for changes in expected profitability (*EROA*). *EROA* is the difference between one year ahead and current profitability and controls for whether the firms are motivated by managers' anticipation about declines in profitability.

Leverage (*ΔLEV*): We include leverage as a control for capital raising plans of firms. Firms that are above their target leverage are more likely to raise equity and vice versa. Our empirical leverage proxy is the ratio of total liabilities to total assets minus the average of the same ratio in the US for the two-digit SIC code industry of the firm.

Other control variables: We also include for sensitivity checks country level corporate governance quality variables used by La Porta, Silanez, Shleifer, Vishny (1998) ("La Porta score") and the World Bank corporate governance measure based on World Bank Worldwide Governance Indicators (1996-2006) (Kraay, 2007). The La Porta scores are widely used but is constructed several years prior to SOX and hence our sample period. The World Bank indicators are provided annually and hence they allow us to measure changes in corporate governance over time. They are also highly correlated with the La Porta scores.

5. Empirical Analysis

5.1 Descriptive Statistics

The means of the independent variables are consistent with the agency conflict hypothesis as reported in Table 2. That is, the delisting firms tend to have weaker corporate governance compared to the control firms: their boards are less independent (H1a), they have higher separation of ownership and voting rights (H1b), they have more concentrated ownership (H1c), and their returns in conjunction with SOX are higher (H1e). There is weaker support for the compliance cost hypothesis (H2). Contrary to our prediction, delisting firms have higher financial reporting quality (H1d), but this measure is statistically insignificant in the multivariate analyses that follow.

Consistent with the agency conflict hypothesis, first, the boards of delisting firms are less independent (H1a). On average, they have a lower proportion of outside directors than control firms and they have smaller boards (61.60% vs. 68.34% outside directors and 9.00 vs. 11.28 directors, both significantly different at the conventional levels). Second, the ownership of delisting firms is more concentrated and insiders own more of their firm's shares (H1b). The top five non-US owners (*FIVEOWN*) on average own 47.86% of a delisting firm's shares, whereas the ownership stake of the top five non-US owners of the control firms average 35.69% (these two means are statistically different at conventional levels). Further, the total holdings by the CEO and the chairman of the board (*CEOCHAIROWN*) is higher in the delisting firms than it is in the control firms (Delisting: 13.03% Control: 7.84%). Third, the price appreciation of the delisting firms was higher than that of the control firms around the events that led to the passage of SOX (H1e). This is consistent with investor anticipation of decreasing agency costs following SOX. However, our financial reporting quality measure reveals that delisting firms have higher

reporting quality than the control firms do (as indicated by *EM_SUMRANK* which summarizes *STDRATIO*, *CORR_ΔACC_ΔOCF*, and *MEDIANACC_OCF*). We explore this further in the multivariate tests.

Contrary to the compliance cost hypothesis, delisting firms have higher cross-listing compliance costs, as proxied by the estimated cross-listing premium (*XLISTPREM*). In addition, our other proxy for the severity of the compliance costs, *SEGMENTS*, is not significantly different between the delisting and control firms.

Delisting firms are significantly smaller than the control firms. This is consistent with the argument that firms with more US shareholders face greater difficulties in delisting assuming that size and number of US shareholders are positively correlated. In brief, the descriptive statistics are mainly consistent with the agency conflict hypothesis but there is no evidence supporting the compliance cost hypothesis.

We present the correlations between all variables in Table 3. Notably, concentrated ownership (*FIVEOWN*) and controlling enhancing mechanisms (*SEPARATION*) are highly correlated ($\rho=0.47$). We take this into account later in our multivariate analysis.

5.2 Market Response to SOX - Event Study

Our first finding, reported in Table 4, is that firms that have subsequently stayed in the US reacted to SOX significantly more negatively than our delisting firms (i.e., firms which subsequently exited the US capital markets). In fact, while the control firms experienced a significant decline in price as similar to US firms examined in prior literature (e.g. Zhang, 2007), the market reaction for our delisting firms did not statistically differ from zero.

We calculate the cumulative abnormal returns surrounding the events that are related to the passage of SOX. Based on Litvak (2006), Jain and Rezaee (2005), and Zhang (2007), we

identify five critical event periods during which there was a significant, abnormal market reaction to SOX. Three of those event periods are prior to the passage of SOX and two are subsequent events that are related to the SEC's proposal for new rules to enforce SOX. Table 4 provides a detailed description of these five events.

We measure the abnormal reaction by the standardized cumulative abnormal returns over the thirteen-day period covering the five events.²⁴ The returns are obtained from the home market, which has higher trading volume than the US market in almost all cases for both the delisting and control sample firms. Regardless, prior research indicates that the law of one price is largely observed between the ADRs and the corresponding home country shares so that the data source is not going to affect our inferences (see e.g. Chen, Choi, and Kim 2007 for evidence from emerging markets). The exchange movements on those days do not confound our inferences, which are based on the differences between control and delisting firms paired by country.

To check the robustness of these results, we also measure the standardized cumulative abnormal returns over the nine-day period covering the first three events (*RET3*). These cumulative abnormal returns indicate investors' assessment of the quality of their firms' corporate governance.

The differential market reaction between delisting and non-delisting firms is consistent with (at least) two hypotheses. First, the market may have predicted that the benefits of SOX would be higher for delisting firms than the large samples of US firms and foreign firms that

²⁴ The standardization procedure follows Patell (1976): $RET_5 = \sum_{t=1}^L \frac{u_{i,t}}{s_i \sqrt{LC_{i,t}}}$ where $C_{i,t} = 1 + \frac{1}{T} + \frac{(R_{m,t} - \bar{R}_m)^2}{\sum_{\tau=1}^T (R_{m,\tau} - \bar{R}_m)^2}$ and L is

the number of days in the accumulation period, i.e., 13 for *RET5*, $u_{i,t}$ is the market-adjusted stock returns in home market, s_i is the standard deviation estimated over a period before the event period that is 50 to 400 trading days long based on data availability, and T is the number of trading days in the estimation period.

would stay. Alternatively, the market may have predicted that these firms would exit US capital markets and the costs and benefits of SOX would not be applicable to them. The following analysis provides evidence inconsistent with the latter explanation.

5.3 Delisting Announcement Returns – Event Study

We examine the abnormal returns to the news announcement of a firm's intention to voluntarily terminate its US cross-listing and deregister from the SEC. These announcement returns provide a measure of the change in investors' assessment of the expected *net* benefits of delisting. In contrast to the SOX events analyzed in Table 4 that were centered on calendar time, the delisting event study is performed in event time. As a result, we do not need to control for concurrent events by using a matched sample design. As equations (5d) and (6) imply, positive delisting abnormal returns indicate that the expected compliance costs exceed the expected improvements in corporate governance, while a negative return suggests that the MCOs were motivated by protecting their private benefits. The negative returns may have been exacerbated by the lost benefits of cross-listing, but MCOs clearly cannot be motivated by losing the benefits from cross-listing except for their private control rents. In subsequent tests, we control for other cross-listing benefits and show that corporate governance measures such as board independence partially explain delisting returns.

Figure 2 depicts the daily cumulative abnormal returns for our sample firms in their home markets starting from 30 days before the news announcement to 30 days after.²⁵ Overall, delisting announcements are associated with a negative market reaction. There is a steady decline in stock price starting five days before the announcement and ending five days after the announcement, without an obvious reversal within the following 25 trading days.

²⁵ Potential exchange rate movements are diversified away since the announcements are scattered over several days on the calendar.

This overall negative reaction is confirmed by the tests of the cumulative abnormal returns as reported in Table 5. The returns are negative for all accumulation windows (significant for all but two). During the eleven-day window (days [-5,+5]) around delisting announcement events, stocks of delisting firms suffer a statistically significant loss (-4.6%). Of this decline, -1.9% materialized on the five-day window around the announcement (days [-2,+2]). For the 63 firms with available data, this eleven-day price decline amounts to approximately \$54 million per firm.

The significant price reaction to the delisting announcements is not consistent with the explanation that the market anticipated that these firms would exit. The negative price reaction to the delisting announcements is also inconsistent with the hypothesis that firms terminate cross-listings to enhance firm value. However, the evidence is consistent with the conjecture that, on average, delisting decisions are motivated by MCOs' incentives to protect their control rents.

Finally, the combined evidence from the non-negative returns around the SOX dates (compared to a negative return for firms that stayed) and the negative returns around the exit announcements is not consistent with an alternative view of the effect of SOX e.g. in Zhang (2007). Under that view, companies had corporate governance arrangements which were an equilibrium outcome of their economic circumstances prior to SOX and SOX disturbed that equilibrium. But, if this were true in the context of the exit of foreign firms, then we should have seen a negative market response to SOX events and a positive market response to their exit announcements, opposite of what we find.

To understand these different price reaction patterns, and more importantly, to cross-validate our results in section 5.2 and 5.3, we next conduct cross-sectional analyses. We first

examine the cross-sectional determinants of the delisting decision and then examine the cross-sectional determinants of the delisting announcement price decline.

5.4 Decision to delist – multivariate analysis

We test our hypotheses using a model of the likelihood of voluntary delisting as a function of corporate governance characteristics, SOX compliance costs, and benefits derived from a US listing. As an improvement on existing literature, we use a matched sample design to address concerns for misclassified dependent variables. Because we cannot detect firms' *true willingness* to exit in the absence of exogenous factors such as regulatory obstacles to delisting, some firms that should be classified as *ones* (otherwise willing to delist) may be classified as *zeros* (not delisted). Further, if there were systematic patterns in this misclassification, the results would be biased.²⁶

To minimize this problem, we form a control group matched on the size of their ADR programs. The ideal variable for the matching procedure is the number of US shareholders that is stipulated by the SEC rule, but this information is seldom disclosed by the firms. Therefore, we obtain the percentage of a firm's shares issued as ADRs for all Level II and III ADR firms during the period from 2001 to 2006. Then, for each firm that delisted, we identify a matching firm from the same country with a similar ADR percentage and, whenever possible, from the same industry. Because it is generally difficult to match further on firm size, we also include firm size in our regression. We then perform our regression analysis in the matched sample as in equation (10):

$$\log\left(\frac{\Pr(\text{SAMPLE} = 1 | X, Z)}{1 - \Pr(\text{SAMPLE} = 1 | X, Z)}\right) = \alpha + XB_1 + ZB_2 + \varepsilon, \quad (10)$$

²⁶ Since this problem is about the misclassification of the dependent variable, it cannot be corrected by simply including ADR percentage or variables correlated with ADR percentage as control variables.

where *SAMPLE* is a dummy variable that takes the value of one if the firm in question voluntarily delisted, and zero otherwise; *X* is our set of variables measuring corporate governance quality and compliance costs; *Z* is a set of variables controlling for other factors affecting the voluntary delisting decision; and α , B_1 , and B_2 are parameter vectors.

We report the results of this regression in column A of Table 6. There is strong support for the agency conflict hypothesis. Consistent with H1a, number of directors has a negative coefficient of -0.21 ($p = 0.02$). In addition, the percentage of outside directors has a negative coefficient of -2.74 that is statistically significant at five-percent. In other words, firms with less independent boards have had a higher propensity to leave the US market consistent with the agency conflict hypothesis regarding board independence.

When we examine the separation of cash flow and voting rights (H1b), there is strong evidence that firms with such arrangements are more likely to leave the US following SOX (coefficient = 1.35; $p < 0.05$).

Next, when we examine the managerial and blockholders' ownership in the delisting firms (H1c), concentrated ownership, measured by the percentage of shares owned by the five largest non-US shareholders, has a positive coefficient of 0.01 ($p > 0.25$).²⁷ However, percentage of shares held by the CEO and chairman is not statistically different from zero (at conventional levels).

When we examine the financial reporting quality (H1d), *EM_SUMRANK* is also not significant at the conventional levels. Therefore, exiting firms do not seem to be prompted by higher quality financial reporting mandates of SOX.

²⁷ Given the high correlation with SEPARATION, this variable is significantly positive if it is included in the regression without the presence of SEPARATION (coefficient=0.02; p-value 0.07).

In testing H1e, the abnormal return around the passage of SOX enters the regression with a coefficient of 0.37 ($p < 0.10$). In other words, the higher the appreciation of a firm's shares around the passage of SOX, the more likely it is for that firm to delist subsequently. This finding is consistent with the agency conflict hypothesis. It suggests that investors were anticipating that SOX would curb control rents earned by MCOs and that MCOs decided to delist their firms rather than lose their control rents. Additionally, we repeat the test with cumulative returns from the three SOX events (*RET3*) instead of five and results are substantially the same (0.50; $p < 0.10$; not tabulated).

In contrast to the evidence supporting the agency conflict hypothesis, we find little evidence supporting the compliance cost hypothesis. The estimated coefficient for our proxy for compliance costs, *XLISTPREM*, is not statistically different from zero (-0.62; $p > 0.25$). On the other hand, the number of segments that proxies for business complexity has the predicted positive sign with a p-value of 0.06, lending support for the compliance cost hypothesis.

Finally, the control variables seem to appropriately control for the opportunity costs of leaving the US capital markets. Firms with higher growth opportunities (*MTB*) are less likely to leave as predicted, but not statistically significant. On average, these firms are more likely to raise capital in the future and also have a higher premium for being listed in the US based on prior research. Also, larger firms (*SIZE*) are less likely to leave, likely because it is more difficult for them to do so, among other reasons. The negative coefficient of *SIZE* is also consistent with the view that the direct compliance costs of SOX are more overwhelming for smaller firms.

In column B of Table 6, we explore some other factors that could explain the delisting decisions. None of these variables are significant. For example, we investigate whether firms

terminated their ADR programs because they no longer derived as much benefits as they used to when they had initially listed in the US. One measure of those benefits is the amount of trading that takes place in the US. If that amount has decreased since the establishment of the ADR program, then the firm may terminate its ADR program.²⁸ However, the pre-delisting five-year change in the percentage of shares traded in the US as a percentage of worldwide shares traded is not significant in the decision to delist.

Along the same lines, we also included the change in the market to book ratio and the change in the return on assets in the five years preceding delisting. The market to book ratio serves (i) as a measure of how much benefits the firm derives from its cross-listing, (ii) how likely it is to raise capital – benefit of being cross-listed. The change in the return on assets similarly measures the likelihood of raising capital and hence the benefits of the cross-listing. Neither variable is significant in our model.

Finally, we include two country level corporate governance and market development variables. This approach is meant to control for the effects of any potential imbalance in the matching procedure, because our matched-sample empirical design perfectly controls for any potential country-level effects. The World Bank corporate governance measure is not significant in our model. In other words, the corporate governance level in the home market does not play a significant role beyond the governance of the firms.

Firms from countries that have less developed markets might suffer larger costs due to loss of liquidity when they terminate their ADRs. To control for potential loss of liquidity benefits we include the size of the home country equity market scaled by home country GDP (*MKTTOGDP*) in our model. However, *MKTTOGDP* has a negative coefficient that is

²⁸ For example, Mehran and Peristiani (2006) find that firms with lower stock turnover go private sooner in the US.

significant at eight percent, the opposite of the predicted sign. In other words, firms from less developed markets are more likely to delist.

The impact of these additional control variables has only a minimal impact on main variables. In column B, we see that the coefficient estimates from *NUMDRT*, *OUTDRTPCT*, and *SEPARATION* carry the same signs and statistical significance levels. The one important change in column B is that the number of business segments – a proxy for the SOX compliance costs – is no longer significant.

As we discussed above, including country level variables in our model could not have affected our results in a matched design where every exiting firm has a matching firm from the same country. Thus, our original model already eliminates the role of country level factors that may explain the exit of ADRs. However, it is reasonable to expect that MCOs of firms domiciled in countries with better governance may have decided to leave primarily for compliance cost reasons, while MCOs of firms domiciled in countries with poor governance, may have left to escape the (now too) stringent US governance model. To test these “refined” hypotheses, we include interactive terms between our test variables and the country level governance index. Due to degree of freedom limitations, we conducted this test with the variables that were significant in the original model and their interactions with the country level governance index. The results (not tabulated) indicate that the interactive terms were not significant in this model, either. This evidence contradicts claims that exiting firms with poor corporate governance come from countries with lower costs of compliance and saving compliance costs is their primary motivation.²⁹

²⁹ For example, Doidge et al. (2007) argue that incentives to improve corporate governance are weak for firms from countries with low level of investor protection, because external finance is costly.

The pseudo- R^2 of the logistic model presented in Table 6 is 35% and the model likelihood ratio is significant at one percent. Thus, our model seems to have sufficient power in predicting foreign firms' decisions to leave the US capital markets following the passage of SOX. Overall, the results of our analysis support our main hypothesis that, on average, firms with poorer corporate governance quality are more likely to exit the US capital markets following the passage of SOX. These results also suggest that, on average, we should observe negative stock price reactions to the delisting announcements when investors did not fully anticipate that their MCOs would exit the US rather than face the curbs in control rents. We examine this conjecture next.

5.5 Cross-sectional Analysis of Delisting Announcement Returns – Multivariate Analysis

We now analyze the cross-sectional determinants of the market reaction to firms' delisting announcements. Our model in equation (11) is similar to the delisting decision model except that we now have abnormal returns as the dependent variable and our estimation follows standard event study methodology:

$$DELISTRETURN = \alpha + XB_1 + ZB_2 + \varepsilon \quad (11)$$

Table 7 presents the estimation results from our delisting return model over the sample of delisting firms using the five-day (i.e., [-2, +2]) cumulative abnormal returns. The eleven-day return windows (i.e. [-5,+5] days) also yielded similar conclusions. Overall, the agency conflict hypothesis predicts that there will be a negative market reaction to a delisting announcement if the firm has weaker corporate governance because the loss of shareholder value in such firms will be higher after they move out of the reach of SOX. In contrast, the compliance cost

hypothesis predicts that the market returns will be positive if the firm is motivated by avoiding excessive compliance costs following SOX.

The results, reported in the column A, partially support the agency conflict hypothesis, particularly board independence (H1a), but not with the compliance cost hypothesis. The delisting announcement returns are positively associated with the percentage of outsider directors in the board at the one-percent level. However, the cross-section of delisting announcement returns is not associated with any of our proxies for separation of cash flow and voting rights, ownership concentration, financial reporting quality, and the returns to the SOX events.

In columns B and C of Table 7, we examine other alternative explanations that may explain the delisting announcement returns. These explanations relate to the benefits that the departing firms forego by leaving the US markets. The first explanation relates to the bonding benefits that the firms derived by being listed in the US. Firms from countries with relatively small stock markets or weaker corporate governance derive larger bonding benefits by cross-listing in the US. Accordingly, the delisting returns may be negative due to the loss of those benefits. However, our two measures, *MKTTOGDP* and *GOV_WB*, are not statistically different from zero.

Similarly, the market may interpret the exit of these firms as an indicator of lower capital needs, lower growth opportunities, and lower profitability in the future. Accordingly, the exit announcement may serve as a negative signal to the market. To test whether companies that ex-post experienced declining profitability resulted in the negative market reaction, we added *EROA* to the model in column B (unreported). *EROA* had a significantly positive coefficient (coefficient=0.0005; $p < 0.03$) consistent with that argument. To determine whether those companies that subsequently experienced lower profitability drove this result, we replaced *EROA*

with its positive and negative parts (*EROA+* and *EORA-*) as explanatory variables.³⁰ As reported in Column C, *EROA+* has a significantly positive sign, but *EROA-* is not statistically significant. In other words, firms with a more profitable outlook experienced relatively higher returns in reaction to their exit announcements, but the negative market reaction had no relationship with declining future profitability. Then, negative news that may have been inferred from the delistings is unlikely to explain the significantly negative returns documented in Table 5 in response to delisting announcements.

In comparison to the evidence from the delisting decision analysis, there is weaker evidence suggesting that the agency conflicts are associated with the exits of the foreign firms, and more strongly than that analysis, there is no indication that the compliance costs played any role in these firms' exits.

These results are generally consistent with the interpretation that investors recognize the implication of corporate governance characteristics for delisting decisions. MCOs of firms with weaker corporate governance exit the US to escape the stringent SOX legislation and retain their control rents, hence the market reacts negatively. There is almost no evidence that these terminations were motivated to save compliance costs and no support for explanations of the price decline due to the loss of bonding benefits or revelation of future underperformance.

5.6 Sensitivity Analysis

This section describes the sensitivity analysis performed to investigate whether our results are sensitive to our empirical design choices, potential omitted variables correlated with the delisting decision such as a contemporaneous decline in the benefits of being listed in the US, and our measures of corporate governance. The tenor of our results remains the same.

³⁰ Formally, $EROA+ = \max[EROA, 0]$ and $EROA- = \min[EROA, 0]$.

Empirical Design

We verify the robustness of our empirical design in two ways. First, we include in the regressions the ADR percentage (ADRPCT) as an independent variable in both the delisting decision and the announcement returns regressions. Since we are matching control firms based on this variable, it should not be significant if the matching is successful. Indeed, it is not significant in both regressions. Alternatively, when we compared the total values of the ADRs outstanding or the percentage of shares in the form of ADRs, the differences between the delisting and control group are not statistically distinguishable (p-values of 0.46 and 0.79 respectively; Table 8.A).

In addition, we perform a conditional logistic analysis and our results are substantially the same. We also note that unequal sampling rates in the matched design is not a concern based on Maddala (1991) who provides further assurance that the coefficients of the explanatory variables are not affected by unequal sampling rates from the sample and treatment groups. In any case, the delisting event is not rare (15.56% of Level II and III ADRs as of 12/31/2001).

Benefits of US Cross-listing

We explore the possibility that benefits enjoyed by the cross-listed firms from being listed in the US decreased coincidentally with the passage of SOX. One of the benefits of being cross-listed in the US identified in prior literature is the additional visibility that increases a firm's standing in its product markets. Accordingly, we have already included the levels of the North American sales. We also study the change in the benefits in the years preceding the delisting in our sensitivity analysis. Because for many of our firms we do not have their North American sales (especially for years prior to SOX), we include the change in foreign sales in the

five years preceding delisting (*ΔFRNSALES5YR*) and it is not significant in either of our main regressions (Table 8.B).

Along the same lines, we include the change in ROA for these firms before delisting (*ΔROA5YR*) as well. A significant decline in profitability is likely to result in a significant decline in the benefits from a cross-listing. When we include this variable in our regressions, it is again not significant (untabulated).

Next, we examine the changes in the market-to-book ratios (MTB) of the delisting firms in comparison to their matched firms. Prior studies (e.g. Zhang 2007) suggest that the first news event that may be tied to SOX were in January of 2002. To isolate the changes in benefits from the market's anticipation of SOX, we conservatively examine the changes in MTB for various periods ending in November 2001. This is just before Enron's filing for bankruptcy protection on December 2, 2001. We repeat the analysis using various starting points, because shorter periods would capture a smaller fraction of the changes in benefits for our firms, but longer periods may exclude some of the sample firms if they listed recently or their less recent data is not available. We also calculate an annual average change in MTB for each firm over the longest horizon over which it has data.

When we compare the changes in MTB, we find that the difference between the delisting and matching firms is statistically insignificant over all horizons ending in November 2001 and the main results do not differ (Table 8.B). When we include the annual change in MTB in the delisting decision regression, the variable is again not statistically significant. Moreover, the significance levels of the originally significant variables do not change either. The exception to this is the board size which is now significant only at the ten percent level.

Finally, we examine the improvements in the home country market governance (Table 8.C). If the governance in those markets has improved since the initial listing of ADRs, the marginal benefit of cross-listing in the US may have decreased and prompted some countries to delist. However, when we compare the change in home country corporate governance for delisting and control firms, there is no statistically significant difference. Therefore, there is no empirical support for this alternative view.

Alternative Measures

We construct various alternative measures of financial reporting quality. The price volatility around earnings announcements, a measure of earnings informativeness following DeFond et al. (2007), both Pearson and Spearman correlation coefficients between returns and earnings are all statistically indistinguishable between delisting and control firms. The only metric that is different between the two groups is the earnings response coefficients that are available for only 31 delisting firms. Based on this metric, delisting firms on average have lower earnings response coefficients (*ERC*) and hence less informative earnings, assuming other factors affecting *ERC* are the same between the two groups on average (Table 8.D).

Finally, we compared the risk taking by delisted and control firms as a proxy for the indirect costs of SOX (Table 8.E). If new regulations of SOX reduced risk-taking, we would expect that control firms that maintained their ADR programs experienced decreased risk-taking when compared to delisting firms that were not subject to SOX. Examining research and development, capital expenditures, and equity return volatility we find that the opposite is true: the delisting firms decreased risk-taking more than control firms although this decrease was not statistically significant at conventional levels ($p < 0.14$).

In summary, even with the noisy nature of stock returns, we find evidence supporting the conjecture that corporate governance plays a role in the delisting decision and that investors are aware of this when they react to the delisting announcements.

6. Summary and Conclusions

Our analysis is motivated by the large number of foreign firms voluntarily delisting from the US markets following the passage of SOX, reversing a previous trend of large increases in the number of ADRs (see Figure 1). We investigate the extent to which the delisting decisions were motivated by MCOs' control rents and/or the costs to comply with SOX.

We find that the market response to the passage of SOX for the delisting firms was significantly higher (less negative) than the returns of matched control firms that experienced a significantly negative market reaction similar to those found in prior studies of SOX in large samples. In addition, we document that delisting firms tend to have weaker corporate governance as measured by several traditional corporate governance proxies such as the proportion of outside directors, ownership concentration, and separation of cash flow rights and voting rights.

We next examine the probability of delisting as a function of corporate governance characteristics. We also use investors' price response to SOX-related events as a proxy for investors' assessment of the firms' corporate governance quality in this regression. Both measures of corporate governance and the SOX returns are significantly associated with the probability of delisting. In other words, firms with weaker governance characteristics are more likely to delist and the market seems to have anticipated that SOX would benefit these firms. We find little evidence that the delistings were motivated by reducing compliance costs. One caveat

in our analysis is that some widely advocated corporate governance attributes such as a majority of independent directors may be suboptimal governance practices that overburdened companies and consequently led to their exits from the US. However, our measure of the separation between cash flows and voting rights is consistent with the agency conflict hypothesis without being subject to this caveat.

We then examine the average home-country market response to the earliest delisting announcement by each firm and explore how this response is related to the corporate governance characteristics in the cross-section. The firms on average experienced a significantly negative price reaction to their delisting announcements – a result that is contrary to the argument that these SOX-related delistings are primarily undertaken on the basis of cost savings that is associated with the burdensome SOX requirements. Instead, the evidence suggests that the delistings are motivated by the MCOs' desire to protect their private benefits that SOX would curb and investors seem to understand that the delistings are not enhancing the value of their investments in the firm.

Our findings are largely consistent with studies of the impact of SOX. Using a different research methodology and a different setting, we reach the conclusion that the recent increase in the number of delistings by foreign firms is related to the provisions of SOX (Marosi and Massoud, 2006; Witmer, 2006). This is also consistent with the findings of Piotroski and Srinivasan (2007) that post-SOX new cross-listings in the US have decreased. Finally, our attribution of the increase in exits from the US by foreign firms to a reduction in MCOs private benefits corroborates similar examinations by Leuz et al. (2006) and Engel et al. (2007) of the trends in US public securities towards going dark or private.

In summary, based on our results, the exit of foreign firms does not imply that US capital markets are losing their competitiveness due to large compliance costs imposed by SOX. Rather, it seems that the policy choices embodied in SOX against appropriation of resources by corporate insiders are driving these firms away.

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Appendix - Estimation of the cross-listing premium for audit fees

We measure the additional audit fee that a firm pays as a consequence of its US cross-listing as the estimated cross-listing premium for audit fees. Drawing on Simunic (1980), Francis (1984), Seethamaram et al. (2002), Choi and Wong (2006), and Choi et al. (2006), we model audit fees as a function of the client's size, the client's audit complexity, and the auditor's litigation risk. The auditor's litigation risk for cross-listed clients is defined as a function of the domestic litigation environment, client-specific risk factors, and the incremental effect of the US litigation environment.

To control for client size and the volume of a client's business transactions, we use the natural logarithm of total assets and the asset turnover ratio (*ATURN*). Similar to Simunic (1980) and Choi et al. (2006), we include the leverage ratio (*LEV*), return on assets (*ROA*), and a dummy variable for losses (*LOSS*) to proxy for the auditor's client-specific litigation risk. We employ La Porta's (1998) home-country scores for judiciary system efficiency (*EFFIJUD*) and rule of law (*RULELAW*) to control for auditors' domestic litigation risk while the difference between US and home-country La Porta scores (*EFFIJUDCHGXL*, *RULELAWCHGXL*) serves as a proxy for additional litigation risk borne by auditors with cross-listed clients. Our controls for audit complexity include dummy variables for the client's industry (*INDUSTRY1-INDUSTRY9*), measures for the relative size of accounts receivable and inventories (*INVREC*), measures for the relative size of intangible assets (*INTANGIBLES*), the current ratio (*CURRATIO*), and a dummy variable for clients that raised new external capital (*NEWCAPITAL*). Finally, we incorporate two indicator variables that take the value of 1 if the client is cross-listed (*XL*) and if the period is after the passage of SOX (*SOX*). The following equation specifies our audit fee model:

$$\begin{aligned}
 AUDITFEE_{it} = & \alpha_0 + \sum_{j=1}^2 \beta_{1j} Size_{it} + \sum_{k=1}^4 \varphi_{1k} AuditComplexity_{it} + \sum_{l=1}^3 \gamma_{1l} ClientLitigationRisk_{it} \\
 & + \sum_{l=4}^5 \gamma_{1l} DomesticLitigationRisk_{it} + \alpha_1 XL_{it} + \alpha_2 XL_{it} * SOX_{it} + \sum_{j=1}^2 \beta_{2j} XL_{it} * Size_{it} + \sum_{k=1}^4 \varphi_{2k} XL_{it} * AuditComplexity_{it} \\
 & + \sum_{l=1}^3 \gamma_{2l} XL_{it} * ClientLitigationRisk_{it} + \sum_{l=4}^5 \gamma_{2l} XL_{it} * CrossListingLitigationRisk_{it} + \sum_{m=1}^9 \delta_m * Industry_{it} + \varepsilon_{it}
 \end{aligned}$$

Further, we define the portion of the audit fees that result from a cross-listing as follows:

$$\begin{aligned}
 CrossListingPremium_{it} = & \alpha_1 XL_{it} + \alpha_2 XL_{it} * SOX_{it} + \sum_{j=1}^2 \beta_{2j} XL_{it} * Size_{it} + \sum_{k=1}^4 \varphi_{2k} XL_{it} * AuditComplexity_{it} \\
 & + \sum_{l=1}^3 \gamma_{2l} XL_{it} * ClientLitigationRisk_{it} + \sum_{l=4}^5 \gamma_{2l} XL_{it} * CrossListingLitigationRisk_{it} + v_{it}
 \end{aligned}$$

Table 1. Country and year distributions of the sample firms

Panel A: Country distribution of foreign firms that voluntarily delisted between 2002 and 2006

Country	All Level II&III ADRs [*]		Starting Delisting Sample		Final Delisting Sample ^{**}	
	N	Percent	N	Percent	N	Percent
Finland	6	1.07%	1	1.15%	1	1.33%
France	30	5.37%	4	4.60%	3	4.00%
Germany	22	3.94%	4	4.60%	3	4.00%
Ireland	13	2.33%	3	3.45%	2	2.67%
Italy	12	2.15%	2	2.30%	2	2.67%
Luxembourg	9	1.61%	1	1.15%	1	1.33%
Netherlands	35	6.26%	3	3.45%	3	4.00%
Norway	7	1.25%	1	1.15%	1	1.33%
Portugal	3	0.54%	1	1.15%	1	1.33%
Spain	7	1.25%	1	1.15%	0	0.00%
Sweden	11	1.97%	10	11.49%	10	13.33%
Switzerland	13	2.33%	1	1.15%	1	1.33%
UK	87	15.56%	17	19.54%	17	22.67%
Other - Europe	16	2.86%	0	0.00%	0	0.00%
EUROPE	271	48.48%	49	56.32%	45	60.00%
China	17	3.04%	6	6.90%	5	6.67%
India	12	2.15%	1	1.15%	0	0.00%
Indonesia	2	0.36%	1	1.15%	1	1.33%
Israel	71	12.70%	6	6.90%	5	6.67%
Japan	25	4.47%	3	3.45%	2	2.67%
Singapore	6	1.07%	3	3.45%	2	2.67%
Other - Asia	16	2.86%	0	0.00%	0	0.00%
ASIA	149	26.65%	20	22.99%	15	20.00%
Chile	22	3.94%	1	1.15%	0	0.00%
Mexico	28	5.01%	8	9.20%	7	9.33%
Peru	2	0.36%	1	1.15%	1	1.33%
Other - South America	60	10.73%	0	0.00%	0	0.00%
SOUTH AMERICA	112	20.04%	10	11.49%	8	10.67%
Australia	13	2.33%	4	4.60%	3	4.00%
New Zealand	5	0.89%	4	4.60%	4	5.33%
AUSTRALIA & NZ	18	3.22%	8	9.20%	7	9.33%
AFRICA	9	1.61%	0	0.00%	0	0.00%
Total	559	100.00%	87	100%	75	100.00%

^{*} Source: The Securities and Exchange Commission. "Foreign Companies Registered and Reporting with the U.S. Securities and Exchange Commission", December 31, 2001.

^{**} We cannot find complete corporate governance and other data for 12 of the 87 firms that delisted.

Panel B: New ADR listings and voluntary delistings over the period from 1990 to 2005

Year	Total ADR Listings	Level I	Level II & III	Level I Rate	Level II & III Rate	Voluntary Delistings [†]
1990	22	17	5	77.27%	22.73%	
1991	32	23	9	71.88%	28.13%	
1992	40	33	7	82.50%	17.50%	
1993	72	57	15	79.17%	20.83%	
1994	180	156	24	86.67%	13.33%	0*
1995	98	81	17	82.65%	17.35%	
1996	160	127	33	79.38%	20.63%	
1997	180	138	42	76.67%	23.33%	
1998	160	123	37	76.88%	23.13%	
1999	155	116	39	74.84%	25.16%	
2000	157	92	65	58.60%	41.40%	1*
2001	137	93	44	67.88%	32.12%	2*
2002	120	91	29	75.83%	24.17%	17 (15)
2003	96	82	14	85.42%	14.58%	18 (14)
2004	134	109	25	81.34%	18.66%	24 (21)
2005	128	106	22	82.81%	17.19%	24 (21)
1-5/2006	77	68	9	88.31%	11.69%	4 (4)

Data about the new listings are from the same information sources used to identify the sample, as described in Section 4.

[†]: Number of ADRs in the final sample is reported in parentheses.

*: Marosi and Massoud (2006) report 4, 3, and 4 voluntary non-Canadian delistings for these three periods respectively.

Table 2. Comparison of mean statistics between sample firms and control firms

	N.obs. DELISTED	DELISTED MEAN	N.obs. CONTROL	CONTROL MEAN	p-value
<u>Board Independence (H1a)</u>					
CEOCHAIR	75	0.17	75	0.19	0.833
NUMDRT	75	9.00	75	11.28	0.000
OUTDRTPCT	75	0.62	75	0.68	0.045
<u>Separation of Voting and Cashflow Rights (H1b)</u>					
SEPARATION	69	0.48	75	0.31	0.035
<u>MCO ownership (H1c)</u>					
FIVEOWN (%)	73	47.86	75	35.69	0.004
CEOCHAIROWN (%)	75	13.03	75	7.84	0.146
<u>Financial Reporting Quality (H1d)</u>					
EM_SUMRANK	68	249.92	71	219.42	0.051
<u>Market Response (H1e)</u>					
RET3	73	-0.13	72	-0.41	0.063
RET5	73	-0.11	72	-0.47	0.075
<u>Compliance Costs (H2)</u>					
XLISTPREM	72	0.75	74	0.88	0.030
SEGMENTS	75	3.43	75	3.79	0.379
<u>Control Variables</u>					
SIZE	75	6.63	75	8.28	0.000
ROA (%)	75	-4.51	75	2.31	0.011
ΔROA (%)	63	0.14	75	-0.31	0.708
EROA (%)	63	3.36	70	2.86	0.786
MTB	75	1.04	75	1.47	0.828
ΔMTB	70	-4.10	73	-2.90	0.738
NORTHAMSALES	75	0.17	75	0.27	0.015
ΔLIQ	62	-0.11	67	-0.10	0.968
GOV_WB	75	5.84	75	5.78	0.893
MKTTOGDP (%)	75	87.83	75	89.76	0.860
ΔLEV (%)	75	27.15	75	28.99	0.615
ADRPCT (%)	65	7.22	75	5.76	0.460

CEO_CHAIRMAN: Dummy variable that is equal to one if chief executive officer and chairman of the board of directors is same person. NUMDRT: Number of directors in the board of directors. OUTDRTPCT: Outside directors percentage, measured as number of outside directors divided by total number of directors. SEPARATION: Indicator variable if the firm has control enhancing mechanisms in the form of any one (i) violation of one-vote-one-share, (ii) pyramid holdings, and (iii) special voting arrangements. FIVEOWN: Percentage of common shares owned by the five largest non-US shareholders. EM_SUMRANK: The total financial reporting quality rank score from firm-level correlation between the change in accruals and the change in operating cash flows, firm-level median of the absolute value of accruals divided by the operating cash flow, and the firm-level standard deviation of net income divided by the standard deviation of the operating cash flow. RET3 (RET5): Average cumulative standardized abnormal returns over event 1 to event 3 (5) prior to the passage of SOX. XLISTPREM: Ratio of estimated cross-listing audit premium to total estimated audit fee (Appendix 1). SEGMENTS: Number of business segments. SIZE: Size, defined as the natural logarithm of total assets in US dollars. ROA: Return on assets. ΔROA: Change in ROA over the 5 years preceding the delisting announcement. EROA: Change in ROA in the year following the delisting announcement (measured ex-post). MTB: Market-to-book ratio, defined as the book value of the firm's common equity divided by the market value of the firm. ΔMTB: Change of MTB ratio in the five years before delisting. NORTHAMSALES: North American sales, defined as sales in North America divided by total sales. ΔLIQ: Five-year change in the percentage of shares traded in the US. GOV_WB: World Bank governance indicator score. MKTTOGDP: Market cap of the listed firms in the home country as a percentage of GDP in 2002. ΔLEV: Deviation of total liabilities to total assets from its industry mean. ADRPCT: Percentage of shares outstanding in the form of ADRs.

Table 3. Pearson correlation coefficients*

SAMPLE	ADRPCT	CEOCHAIR	NUMDRT	OUTDRTPCT	FIVEOWN	SEPERATION	CEOCHAIROWN	EM_SUMRANK	RETS	XLISTPREM	SEGMENTS	SIZE	ROA	ΔROA	EROA	MTB	ΔMTB	NORTHMSALES	ΔLIQ	GOV_WB	MKTTOGDP	ΔLEV	
SAMPLE	0.06																						
ADRPCT		0.05																					
CEOCHAIR	-0.02		0.11																				
NUMDRT	-0.30***	-0.12		0.11																			
OUTDRTPCT	-0.16**	-0.03	-0.20**	-0.15*																			
FIVEOWN	0.23***	0.06	0.11	-0.02	-0.01																		
SEPERATION	0.18**	-0.02	0.03	0.12	0.10	0.47***																	
CEOCHAIROWN	0.12	0.11	0.24***	-0.01	-0.08	0.38***	0.29***																
EM_SUMRANK	0.17*	0.00	-0.14	-0.18**	-0.02	-0.09	-0.14	-0.15*															
RETS	0.15*	0.09	0.07	-0.08	-0.08	-0.03	-0.07	0.05	-0.04														
XLISTPREM	-0.18**	0.16*	0.15*	0.18**	0.14*	-0.08	0.17**	0.20**	-0.23***	0.06													
SEGMENTS	-0.07	-0.14*	-0.02	0.26***	-0.10	-0.11	0.00	-0.15*	-0.07	-0.14*	-0.04												
SIZE	-0.39***	-0.28***	0.02	0.56***	-0.03	-0.14*	-0.05	-0.22***	-0.24***	-0.09	0.05	0.52***											
ROA	-0.21**	-0.18**	0.13	0.23***	-0.08	-0.05	-0.06	-0.07	-0.30***	0.03	-0.06	0.22***	0.47***										
ΔROA	0.03	0.08	-0.10	-0.11	0.18**	-0.08	-0.17*	-0.03	0.17*	0.04	-0.15*	-0.16*	-0.19**	0.06									
EROA	0.02	0.01	-0.03	-0.13	0.19**	-0.02	-0.16*	0.03	0.29***	-0.10	0.02	-0.12	-0.16*	-0.27***	0.13								
MTB	-0.02	0.08	0.02	-0.04	-0.03	0.06	0.07	-0.05	-0.05	0.06	0.06	0.01	-0.03	-0.18**	-0.10	0.03							
ΔMTB	-0.03	0.10	0.04	0.09	-0.10	0.15*	0.13	0.03	-0.20**	0.08	0.07	0.10	0.13	0.08	-0.05	-0.20**	0.47***						
NORTHMSALES	-0.20**	0.01	0.00	-0.08	0.07	-0.27***	-0.17**	-0.12	-0.03	-0.05	0.00	-0.12	-0.08	-0.07	-0.01	0.26***	0.05	-0.04					
ΔLIQ	0.00	-0.21**	-0.11	0.03	0.09	-0.09	-0.02	0.03	0.18*	-0.09	-0.09	0.04	-0.05	-0.20**	0.35***	-0.15	-0.03	-0.04	-0.13				
GOV_WB	0.01	-0.13	-0.30***	-0.27***	0.00	-0.33***	-0.35***	-0.45***	0.28***	0.00	-0.58***	0.03	-0.02	-0.13	0.01	0.02	-0.03	-0.08	0.21***	0.05			
MKTTOGDP	-0.01	-0.13	-0.02	-0.08	-0.24***	-0.05	-0.17**	-0.16*	0.11	-0.02	-0.36***	0.02	0.08	0.07	-0.14	-0.12	-0.04	-0.01	-0.02	0.05	0.42***		
ΔLEV	-0.04	-0.04	-0.04	0.18**	0.13	0.08	0.24***	-0.01	-0.20**	-0.07	0.39***	0.07	0.15*	-0.13	-0.22***	-0.15*	-0.14*	0.09	-0.11	-0.02	-0.11	-0.01	

CEO_CHAIRMAN: Dummy variable that is equal to one if chief executive officer and chairman of the board of directors is same person. NUMDRT: Number of directors in the board of directors. OUTDRTPCT: Outside directors percentage, measured as number of outside directors divided by total number of directors. SEPERATION: Indicator variable if the firm has control enhancing mechanisms in the form of any one (i) violation of one-vote-one-share, (ii) pyramid holdings, and (iii) special voting arrangements. FIVEOWN: Percentage of common shares owned by the five largest non-US shareholders. EM_SUMRANK: The total financial reporting quality rank score from firm-level correlation between the change in accruals and the change in operating cash flows, firm-level median of the absolute value of accruals divided by the operating cash flow, and the firm-level standard deviation of net income divided by the standard deviation of the operating cash flow. RET3 (RET5): Average cumulative standardized abnormal returns over event 1 to event 3 (5) prior to the passage of SOX. XLISTPREM: Ratio of estimated cross-listing audit premium to total estimated audit fee (Appendix 1). SEGMENTS: Number of business segments. SIZE: Size, defined as the natural logarithm of total assets in US dollars. ROA: Return on assets. ΔROA: Change in ROA over the 5 years preceding the delisting announcement. EROA: Change in ROA in the year following the delisting announcement (measured ex-post). MTB: Market-to-book ratio, defined as the book value of the firm's common equity divided by the market value of the firm. ΔMTB: Change of MTB ratio in the five years before delisting. NORTHMSALES: North American sales, defined as sales in North America divided by total sales. ΔLIQ: Five-year change in the percentage of shares traded in the US. GOV_WB: World Bank governance indicator score. MKTTOGDP: Market cap of the listed firms in the home country as a percentage of GDP in 2002. ΔLEV: Deviation of total liabilities to total assets from its industry mean. ADRPCT: Percentage of shares outstanding in the form of ADRs.

Table 4. Market-adjusted returns around major events surrounding the Sarbanes-Oxley Act

The event days are those that had significant price reactions to news about the passage of SOX in all three studies by Zhang (2006), Litvak (2005), and Jain and Rezaee (2005).

	Window (all in 2002)	Event description	Types of firms	Mean of CARs across firms	Patell's Z statistic
Event 1	7/8 - 7/10	Senate debated Sarbanes' bill; passage of Sarbanes' bill likely; Senate passed a tough amendment to strengthen criminal penalties.	control	-0.007	-1.570*
			sample	-0.005	-0.610
Event 2	7/18 - 7/21	House republican leaders reportedly retreated from efforts to dilute the Senate's tough bill; Conference committee started negotiations regarding the form and contents of the bill.	control	0.004	1.637*
			sample	0.009	1.947*
Event 3	7/24 - 7/26	Senate and House agreed on the final rule and passed SOX.	control	-0.033	-5.220 *
			sample	-0.017	-2.290*
Event 4	8/2 - 8/4	The SEC issued a proposed rule, "Certification of Disclosure in Companies' Quarterly and Annual Reports" with foreign issuers not exempted.	control	-0.024	-5.118*
			sample	-0.007	-2.273*
Event 5	10/22 - 10/23	The SEC issued a proposed rule, "Disclosure Required by Sections 404, 406, and 407 of SOX" requiring a number of new disclosures. The rule has no significant exemptions for foreign issuers.	control	0.003	1.047
			sample	0.006	1.782*
Events 1 - 3	Prior to SOX		control	-0.035	-3.662*
			sample	-0.012	-0.972
Events 4 - 5	Post SOX		control	-0.021	-2.878*
			sample	-0.001	-0.356
Events 1 - 5	All events		control	-0.055	-4.602*
			sample	-0.013	-1.004

*: Significant at 10% level. The returns are calculated over 87 delisting firms and 79 control firms.

Table 5. Cumulative abnormal returns (*CAR*) around delisting announcements for sample firms

WINDOW	CAR	Z*	N
(-1, 0)	-0.005	-1.32	75
(0, 1)	-0.005	-1.44	75
(-1, 1)	-0.005	-1.55	75
(-2, 0)	-0.014	-2.49	75
(0, 2)	-0.011	-2.69	75
(-2, 2)	-0.019	-3.48	75
(-5, 0)	-0.025	-2.82	75
(0, 5)	-0.027	-3.08	75
(-5, 5)	-0.046	-3.99	75

*: The Z statistic follows Patell (1976). The calculation formula is shown in footnote 23. It tests the significance of the cumulative abnormal returns measured over the event window. *CAR* is the cumulative daily abnormal returns based on residuals from the market model.

Table 6. Corporate governance characteristics and voluntary delisting decisions

			A		B		
			Est.	Pr> χ^2	Est.	Pr> χ^2	
Agency Conflict Hyp.		Intercept		6.20	0.00	7.18	0.01
	H1a	CEOCHAIR	+	0.22	0.75	0.91	0.29
	H1a	NUMDRT	-	-0.21	0.02	-0.33	0.01
	H1a	OUTDRTPCT	-	-2.74	0.05	-3.79	0.06
	H1b	SEPARATION	+	1.35	0.03	2.15	0.01
	H1c	FIVEOWN	+	0.01	0.34	0.01	0.62
	H1c	CEOCHAIROWN	+	-0.01	0.30	-0.01	0.50
	H1d	EM_SUMRANK	-	0.00	0.18	0.00	0.24
H1e	RET5	+	0.37	0.07	0.35	0.19	
Compliance Cost Hyp.	H2	XLISTPREM	+	-0.62	0.48	-0.17	0.91
	H2	SEGMENTS	+	0.24	0.06	0.23	0.20
Control Variables		SIZE		-0.54	0.01	-0.54	0.03
		ROA	-	-0.02	0.36	-0.01	0.78
		ΔROA	-			0.00	0.93
		EROA	-			0.02	0.52
		MTB	-	-0.02	0.20	-0.02	0.36
		ΔMTB	+			-0.01	0.82
		ΔLIQ	-			-0.12	0.72
		NORTHAMSALES	-	-1.78	0.11	-0.97	0.52
		GOV_WB				0.02	0.91
		MKTTOGDP	+			-0.01	0.08
	-2 Log L			118.9		80.7	
	N.obs.			126		94	

This table presents the estimation results from our delisting decision model in which dependent variable *SAMPLE* is a dummy variable that takes the value of one if the firm in question voluntarily delisted, and zero otherwise. *p*-values are based on Wald ChiSq statistic. H1 is the agency conflict hypothesis. H2 is the compliance cost hypothesis. CEO_CHAIRMAN: Dummy variable that is equal to one if chief executive officer and chairman of the board of directors is same person. NUMDRT: Number of directors in the board of directors. OUTDRTPCT: Outside directors percentage, measured as number of outside directors divided by total number of directors. SEPARATION: Indicator variable if the firm has control enhancing mechanisms in the form of any one (i) violation of one-vote-one-share, (ii) pyramid holdings, and (iii) special voting arrangements. FIVEOWN: Percentage of common shares owned by the five largest non-US shareholders. EM_SUMRANK: The total financial reporting quality rank score from firm-level correlation between the change in accruals and the change in operating cash flows, firm-level median of the absolute value of accruals divided by the operating cash flow, and the firm-level standard deviation of net income divided by the standard deviation of the operating cash flow. RET3 (RET5): Average cumulative standardized abnormal returns over event 1 to event 3 (5) prior to the passage of SOX. XLISTPREM: Ratio of estimated cross-listing audit premium to total estimated audit fee (Appendix 1). SEGMENTS: Number of business segments. SIZE: Size, defined as the natural logarithm of total assets in US dollars. ROA: Return on assets. ΔROA: Change in ROA over the 5 years preceding the delisting announcement. EROA: Change in ROA in the year following the delisting announcement (measured ex-post). MTB: Market-to-book ratio, defined as the book value of the firm's common equity divided by the market value of the firm. ΔMTB: Change of MTB ratio in the five years before delisting. NORTHAMSALES: North American sales, defined as sales in North America divided by total sales. ΔLIQ: Five-year change in the percentage of shares traded in the US. GOV_WB: World Bank governance indicator score. MKTTOGDP: Market cap of the listed firms in the home country as a percentage of GDP in 2002. ΔLEV: Deviation of total liabilities to total assets from its industry mean. ADRPCT: Percentage of shares outstanding in the form of ADRs.

Table 7. Delisting announcement returns and corporate governance characteristics

				A		B		C	
				est.	p-val	est.	p-val	est.	p-val
		Intercept		-0.034	0.042	-0.033	0.085	-0.0167	0.357
Agency Conflict Hyp.	H1a	CEOCHAIR	-	0.006	0.323	0.006	0.336	0.0085	0.127
	H1a	NUMDRT	+	0.001	0.467	0.001	0.435	0.0012	0.093
	H1a	OUTDRTPCT	+	0.032	0.003	0.029	0.016	0.0152	0.189
	H1b	SEPARATION	-	-0.002	0.679	-0.004	0.507	-0.0044	0.442
	H1c	FIVEOWN	-	0.000	0.346	0.000	0.272	0.0000	0.842
	H1c	CEOCHAIROWN	-	0.000	0.603	0.000	0.526	-0.0002	0.068
	H1d	EM_SUMRANK	+	0.000	0.409	0.000	0.385	0.0000	0.804
	H1e	RET5	-	-0.001	0.481	-0.001	0.457	0.0019	0.260
Compliance Costs Hyp.	H2	XLISTPREM	+	-0.006	0.361	-0.006	0.390	0.0054	0.426
	H2	SEGMENTS	+	0.000	0.853	0.000	0.717	-0.0002	0.860
Controls		SIZE		0.000	0.997	0.000	0.830	-0.0014	0.393
		ROA	-	0.000	0.679	0.000	0.772	0.0000	0.809
		EROA+	?					0.0005	0.012
		EROA-	+					0.0001	0.876
		MTB	-	0.000	0.472	0.000	0.503	0.0000	0.867
		NORTHAMSALES	-	0.001	0.878	0.000	0.962	-0.013	0.219
		GOV_WB	+			0.000	0.863	0.000	0.642
	MKTTOGDP	+			0.000	0.456	0.000	0.690	
		<i>Adj. R-Sq</i>		2.2%		-2.0%		15.2%	
		<i>N.obs.</i>		50		50		43	

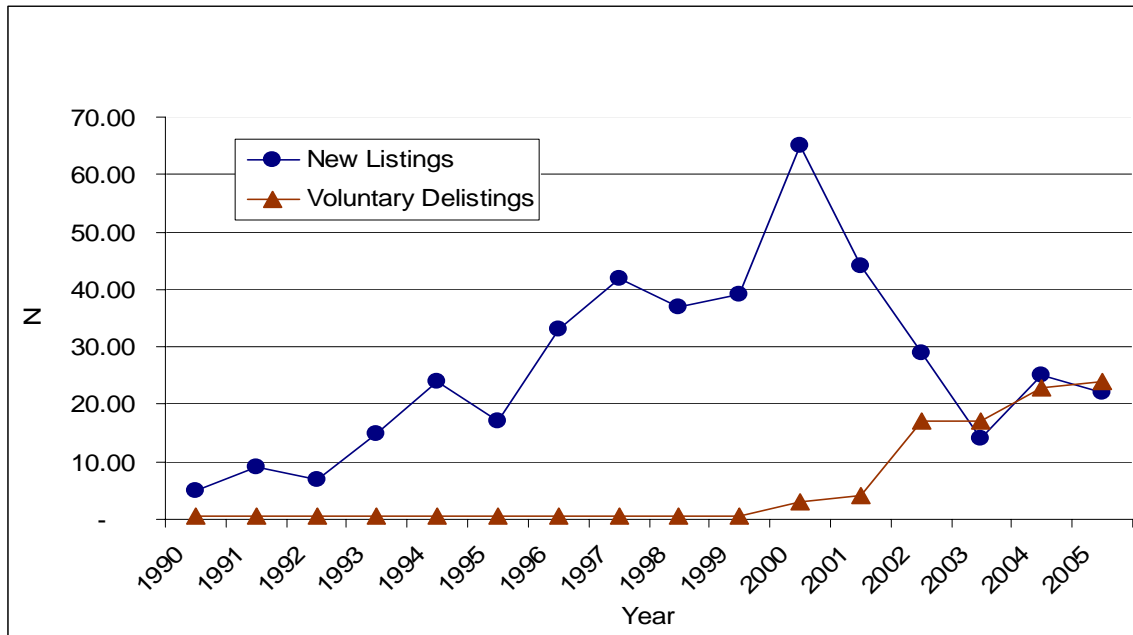
This table presents the estimation results from our delisting return model over the sample of delisting firms using the five-day (i.e., [-2, +2]) cumulative abnormal returns. *p*-values are based on two-tailed t-statistic tests. H1 is the agency conflict hypothesis. H2 is the compliance cost hypothesis. CEO_CHAIRMAN: Dummy variable that is equal to one if chief executive officer and chairman of the board of directors is same person. NUMDRT: Number of directors in the board of directors. OUTDRTPCT: Outside directors percentage, measured as number of outside directors divided by total number of directors. SEPARATION: Indicator variable if the firm has control enhancing mechanisms in the form of any one (i) violation of one-vote-one-share, (ii) pyramid holdings, and (iii) special voting arrangements. FIVEOWN: Percentage of common shares owned by the five largest non-US shareholders. EM_SUMRANK: The total financial reporting quality rank score from firm-level correlation between the change in accruals and the change in operating cash flows, firm-level median of the absolute value of accruals divided by the operating cash flow, and the firm-level standard deviation of net income divided by the standard deviation of the operating cash flow. RET3 (RET5): Average cumulative standardized abnormal returns over event 1 to event 3 (5) prior to the passage of SOX. XLISTPREM: Ratio of estimated cross-listing audit premium to total estimated audit fee (Appendix 1). SEGMENTS: Number of business segments. SIZE: Size, defined as the natural logarithm of total assets in US dollars. ROA: Return on assets. ΔROA: Change in ROA over the 5 years preceding the delisting announcement. EROA: Change in ROA in the year following the delisting announcement (measured ex-post). MTB: Market-to-book ratio, defined as the book value of the firm's common equity divided by the market value of the firm. ΔMTB: Change of MTB ratio in the five years before delisting. NORTHAMSALES: North American sales, defined as sales in North America divided by total sales. ΔLIQ: Five-year change in the percentage of shares traded in the US. GOV_WB: World Bank governance indicator score. MKTTOGDP: Market cap of the listed firms in the home country as a percentage of GDP in 2002. ΔLEV: Deviation of total liabilities to total assets from its industry mean. ADRPCT: Percentage of shares outstanding in the form of ADRs.

Table 8. Sensitivity Analysis

Variables	Ndelisted	Delistedmean	Ncontrol	Controlmean	P-value*
<u>A. Matching variables:</u>					
ADR_DOLLAR	59	\$172.70	68	\$270.69	0.46
ADRPCT (%)	75	6.25	75	5.76	0.79
<u>B. Past and future changes in performance:</u>					
Δ ROA5YR (%)	63	0.14	75	-0.31	0.72
Δ FRNSALES5YR (%)	43	1.46	43	3.31	0.44
ROA_LEAD1 (%)	64	1.26	70	4.40	0.20
ROA_LEAD2 (%)	44	1.76	48	4.39	0.34
EROA2 (%)	42	3.97	48	2.80	0.64
Δ MTB	69	-0.81	69	-0.44	0.73
Δ MTB_ann	69	-0.48	69	-1.52	0.44
<u>C. Other country-level variables:</u>					
ANTIDIRECT	74	3.39	74	3.31	0.74
Δ GOV_WB	75	-0.271	75	-0.325	0.70
<u>D. Alternative financial reporting quality measures:</u>					
ERC	31	-0.01	41	0.02	0.07
VSQ	59	1.88	63	2.02	0.68
VL_PEARSON	45	0.14	58	0.08	0.48
VL_SPEARMAN	45	0.20	58	0.09	0.25
VL_D	45	0.53	58	0.48	0.61
<u>E. Changes in risk-taking:</u>					
Δ R&D	24	0.01	43	0.05	0.72
Δ CAPEX	26	0.06	46	0.1	0.76
Δ STDRET	75	-0.05	73	-0.02	0.14

*: For continuous variables, T-test is used. For categorical variables, chi-square test is used.
 ADRPCT(%): percentage of common shares in ADR form. ADR_DOLLAR (CRSP): US dollar amount (in millions) of common shares in ADR form at the end of 2001. ERC (Datastream): Short-window (0,2) earnings response coefficient based on time-series regression within each firm over the ten years before delisting with at least six years of data available. The prior year's earning is used as the proxy for the market expectation of current year earning. The market model is estimated to obtain abnormal returns. VSQ (Datastream): Average short-window (-1,1) price volatility for earnings announcements over the five years before delisting. The measure is constructed following DeFond et al. (2007). VL_PEARSON: Pearson correlation coefficient of EPS and market adjusted one-year cumulative abnormal returns starting from the fifth month into the fiscal year requiring at least three observations. VL_SPEARMAN: Spearman correlation coefficient of EPS and market adjusted one-year cumulative abnormal returns starting from the fifth month into the fiscal year requiring at least three observations. VL_D: An indicator variable that takes the value of one if VL_PEARSON is greater than the sample mean and zero otherwise. ROA_LEAD1: ROA of the first year after delisting. ROA_LEAD2: ROA of the second year after delisting. EROA: change of ROA from the year of delisting to the next year. EROA2: change of ROA from the year of delisting to two years after delisting. Δ MTB: Change of MTB from year 2000 to 2001; Δ MTB_ann: Annual average change in MTB over the longest horizon over which data is available. ANTIDIRECT: Anti-director right from La Porta et al. (1998). Δ GOV_WB: Change in the total home country World Bank Governance indicator in the five (six, if fifth year is unavailable) years preceding the delisting announcement. Δ FRNSALES5YR: Average annual change of foreign sales percentage in total sales over the five years before delisting. Δ ROA5YR: Average annual change of ROA over the five years before delisting. Δ R&D: Change in R&D as a percentage of sales in the year following the delisting. Δ CAPEX: Change in CAPEX as a percentage of total assets in the year following the delisting. Δ STDRET: Change in the standard deviation of equity returns in the year following the delisting.

Figure 1. Time series of new listings and voluntary delistings of Level II and Level III ADR programs over the period from 1990 to 2006.*



* Data about the new listings are from the same information sources used to identify the sample, as mentioned in Section 4.

Figure 2. Cumulative market-adjusted excess returns around voluntary delisting announcements

