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## **Do Political Institutions Affect the Choice of the U.S. Cross-Listing Venue ?**

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**Abstract:**

We study the impact of political institutions on foreign firms' choice of their U.S. cross-listing venue. Using two measures of political institutions (an index of political rights and a political constraint index) and controlling for various firm-level and country-level characteristics, we show that foreign firms from countries with weak political institutions are more likely to cross-list in the U.S. via the over-the-counter market and less likely to opt for an exchange-listed program (i.e., New York, Nasdaq, and AMEX).

**Keywords:** Cross-listing, Political institutions, Legal institutions

**JEL Classification:** G15, G32, G34, G38, P48

# Do political institutions affect the choice of the U.S. cross-listing venue?

## 1. Introduction

Foreign firms from a wide set of countries continue to cross-list their shares on the U.S. markets. Firms can cross-list their shares in the U.S. through American Depositary Receipts (ADRs) or direct listings. Firms that decide to cross-list on U.S. markets can choose exchange-listed programs that are traded on one of the major U.S. exchanges (i.e., NYSE, Nasdaq, and AMEX) and mainly consist of Level II and III ADRs and direct listings. Alternatively, foreign firms can choose unlisted programs that are traded on the over-the-counter (OTC) market (including Level I ADRs) or on Private Offerings, Resales and Trading through Automated Linkages (PORTAL), also called Rule 144A. Indeed, in 2010, 39 foreign firms, nearly three times more than in 2009, chose to cross-list on the major U.S. exchanges through ADR programs. Moreover, in 2010, 60 foreign firms from 23 countries chose OTC depositary receipt programs. As of December 2010, 407 depositary receipts were listed on NYSE and Nasdaq and 779 OTC depositary receipts were available to investors. According to the latest U.S. Federal Reserve statistics and Bank of New York Mellon estimates, depositary receipts accounted for 6.4% of all equity portfolio investment in the U.S. at the end of 2010.<sup>1</sup>

Foreign firms choose to cross-list on U.S. markets for many reasons, including raising new funds at a lower cost (Reese and Weisbach, 2002; Lins et al., 2005; Doidge et al., 2009), increasing their visibility (Baker et al., 2002), improving the liquidity of their shares and broadening their shareholder base (Pagano et al., 2002; Aggarwal et al., 2007), and bonding themselves to stringent U.S. rules to protect their minority shareholders when the legal institutions of their domestic countries are weak (e.g., Coffee, 1999; Stulz, 1999; Reese and Weisbach, 2002; Doidge 2004; Doidge et al., 2004, 2009). The testing of this “bonding” hypothesis has led to a burgeoning empirical literature on the role of legal institutions in determining the choice of a U.S. cross-listing venue (e.g., Reese and Weisbach, 2002; Boubakri et al., 2010). However, the impact of *political institutions* on the U.S. cross-listing decision and the choice of the *U.S. cross-listing venue* has not yet been examined. The objective of this paper is to fill this gap and to

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<sup>1</sup> Source: The Depositary Receipt Market: 2010 Yearbook, February 2011, BNY Mellon, Depositary Receipts. These statistics do not include direct listing, which is mainly used by Canadian firms.

examine how political institutions affect the choice of the U.S. cross-listing venue (OTC, PORTAL, and exchange-listed programs).

In the same way as the literature has highlighted the role of political institutions in the financial development of countries (e.g., Roe and Siegel, 2009, 2011; Keefer, 2008; Rajan and Zingales, 2003), recent studies have examined the impact of political institutions on credit spreads, gross spreads of IPOs, and equity trading costs. For example, Qi et al. (2010), using a political rights index, find that the cost of debt is higher for firms originating in countries with weaker political rights. Chen and Hao (2011) find that political institutions in the issuers' home markets affect the underwriters' gross spreads of ADR IPOs. In the same vein, Eleswarapu and Venkataraman (2006) show that the trading costs of NYSE-listed ADRs are lower for foreign firms domiciled in countries with more efficient judicial systems, better accounting standards, and more stable political systems. To our knowledge, no study has yet examined the direct link between political institutions and the choice of the U.S. cross-listing venue; this paper is thus the first to assess this relation.

In their study of corporate transparency, defined as the widespread availability of firm-specific information to those outside the publicly-traded firm, Bushman et al. (2004) find that financial transparency in a given country is primarily related to the political regime of that country. More precisely, Bushman et al. (2004) document that financial transparency is higher in countries with low state ownership in companies and banks and low risk of state expropriation of firms' wealth. In the same line of reasoning, Chen and Hao (2011) argue that political institutions may affect the country's information environment and thus shareholders' ability to monitor firms. In light of these arguments, we expect that firms originating in countries where political institutions are weak and consequently suffer from corporate opacity are more likely to choose the least constraining cross-listing programs (i.e., OTC and PORTAL rather than the exchange-listed programs). This is especially the case after the enactment of the Sarbanes-Oxley Act (SOX).

As foreign firms cross-listed on U.S. markets originate in countries with different political structures, our study offers a unique opportunity to examine the impact of political institutions on the choice of the U.S. cross-listing venue. Indeed our sample of cross-listed shares covers 44 countries over the period 1990 to 2007. We consider two measures of the quality of political institutions. Our primary variable of interest is the index of political rights from Freedom House

(2010). This index indicates how people and political parties can freely participate in the country's political development. We consider Henisz's (2005) executive constraint index as an alternative measure of the quality of political institutions. This index assesses the extent of constraints on the exercise of executive power.

We use a multinomial logit model to assess the impact of the quality of political institutions on the choice of the cross-listing program. Our results suggest that firms from countries with weak political institutions are more likely to cross-list on OTC and less likely to opt for an exchange-listing program (NYSE, Nasdaq, or AMEX). We find no evidence that the quality of political institutions affects the likelihood of a foreign firm opting for PORTAL. Our findings are robust to controlling for the various firms' characteristics, the quality of the home country's legal institutions, and several sensitivity tests.

The rest of the paper is organized as follows: Section 2 reviews the literature on cross-listing choice and the role of political institutions. Section 3 presents the data and descriptive statistics. Section 4 covers the empirical evidence. Section 5 concludes the paper.

## **2. Cross-listings and the choice of a U.S. venue: Related literature**

In this section, we present the different types of cross-listings on U.S. markets followed by a discussion of the firms' motives for cross-listing. We then develop our hypothesis concerning the impact of political institutions on the choice of the U.S. cross-listing venue.

### ***2.1. How do foreign firms cross-list in the U.S.?***

Cross-listing in the U.S. is mainly achieved through ADRs or direct listings. ADRs are negotiable certificates that represent a foreign firm's publicly traded equity or debt. A firm that decides to issue an ADR can choose one of four options: Level I, Level II, Level III, and Rule 144A. Foreign firms that cross-list their shares on U.S. markets can choose either exchange-listed or unlisted programs. Level II and Level III ADRs and direct listing are exchange-listed programs, whereas Level I and Rule 144A are unlisted programs. We group Level II and Level III ADRs and direct listings under exchange-listed programs since foreign firms that choose these listing options adopt the same disclosure and regulatory requirements as U.S. firms listed on these exchanges. Exchange-listed programs are traded on one of the major U.S. exchanges

(i.e., NYSE, Nasdaq, and AMEX). Unlisted programs are either traded on OTC markets (including Level I ADRs) or on the PORTAL system (Rule 144 ADRs) among Qualified Institutional Buyers (QIB).

## ***2.2. The motives for U.S. cross-listing***

Several motives lead foreign firms to cross-list on U.S. markets. Cross-listing allows firms to raise new funds at a lower cost (Reese and Weisbach, 2002; Lins et al., 2005; Doidge et al., 2009), to increase their visibility via greater analyst coverage (Baker et al., 2002), and to improve the liquidity of their shares and broaden their shareholder base (Pagano et al., 2002; Aggarwal et al., 2007). In addition, the bonding hypothesis, first advanced by Coffee (1999) and Stulz (1999), posits that foreign firms may seek to “bond” themselves to stringent U.S. rules to protect their minority shareholders when the legal and financial institutions of their domestic countries are weak. Considerable research supports the bonding hypothesis (e.g., Reese and Weisbach, 2002; Doidge, 2004, Doidge et al., 2004, 2009; Lel and Miller, 2008).

Nonetheless, the bonding hypothesis has been challenged,<sup>2</sup> in particular by Siegel (2005), who documents a weak level of enforcement by the SEC against cross-listed Mexican firms. Siegel introduces the reputational bonding hypothesis according to which foreign firms bond themselves to build a reputation that subsequently allows them to raise capital on U.S. markets.<sup>3</sup> In contrast, Licht (2003) advances the avoiding hypothesis, which posits that foreign firms are more likely to avoid more stringent regulations. Licht et al. (2011) further state that the bonding and avoidance hypotheses are not mutually exclusive. In the same vein, Stulz (2009, p. 349) notes that “some firms will choose stronger securities laws than those of the country in which they are located and some firms will do the opposite.” In support of both the bonding and avoiding hypotheses, Boubakri et al. (2010) document that some foreign firms from countries with weak legal institutions who wish to issue a capital raising ADR select an exchange-listed program (Level III) while others choose an unlisted ADR program (Rule 144A) to avoid meeting stringent U.S. regulations.

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<sup>2</sup> See Karolyi (2010) for a thorough discussion of the evidence on the bonding hypothesis.

<sup>3</sup> Interestingly, in an experimental study from the 1994-1995 Mexican crisis, Siegel (2009) also shows that cross-border alliances with a multinational firm which involve joint investments in fixed assets are a better mechanism than cross-listings to ensure good corporate governance.

While several studies have examined legal institutions as a determinant of U.S. cross-listing (e.g., Reese and Weisbach, 2002; Boubakri et al., 2010), to the best of our knowledge, no study has yet examined the impact of political institutions on the decision to cross-list in the U.S. and the venue choice. The objective of this paper is to fill this gap and to establish whether political institutions play a determining role in the choice of the U.S. cross-listing venue.

### ***2.3. Political institutions and the choice of the U.S. cross-listing venue***

Bushman et al. (2004, p.208), who define corporate transparency as “the availability of firm-specific information to those outside the publicly-traded firms” show that financial transparency in a country is mainly related to the political regime of this country. Specifically, the authors find that financial transparency is superior in countries with a low state ownership of firms and a low risk of state expropriation of firms’ profits. Likewise, Chen and Hao (2011) point out that the presence of inefficient political institutions would weaken the quality of the general information environment and thus limit the ability of shareholders to monitor the managers of firms domiciled in these countries. Similarly, Piotroski and Wong (2010) argue that the benefits of opacity in many developing countries characterized by high levels of ownership concentration, politicized institutions, and corruption are likely to prevail over the benefits of transparency. Stulz (2005) also argues that, in countries where state expropriation risk is high, firm managers who are more inclined to consume private benefits are not encouraged to enhance financial disclosure because it would make state expropriation easier.

Given the above discussion, we conjecture that firms domiciled in a weak corporate transparency environment are unwilling to meet the stringent U.S. exchange rules, especially after the enactment of SOX . There are two reasons for which we enunciate this conjecture. First, firms originating in countries with weak political institutions may find that financial transparency costs outweigh the benefits reaped from listing on the main U.S. exchanges. Therefore, these firms adopt the least constraining cross-listing programs. Second, as discussed in Piotroski and Wong (2010), the benefits of opacity might outweigh the benefits of transparency, leading foreign firms to choose the least constraining U.S. cross-listing programs. In other words, controlling for firm-level and other country-level variables, we conjecture that:

*Firms originating in countries where political institutions are weak are more likely to choose the least constraining cross-listing programs (OTC and PORTAL) as compared to the exchange-listed programs (i.e., NYSE, Nasdaq, and AMEX).*

### **3. Data description and methodology**

#### ***3.1. Data sources and sample characteristics***

Our sample consists of all the U.S. cross-listed shares issued from 1990 to 2007. The initial sample comes from Boubakri et al. (2010) who covered ADRs issued during the period from 1990 through 2006. We have updated this sample with ADRs issued in 2007 and we have augmented it with all the direct (non-ADR) cross-listings during the period 1990 through 2007. ADR data are collected from the major depository bank websites: Bank of New York, Citibank, the Deutsche Bank, and JPMorgan. We extract from these websites the type of ADR, the effective issuance date, the market where the ADR is traded, the sponsorship status, the underlying share and its country of origin, the ADR number given by the Committee on Uniform Securities Identification Procedures (CUSIP), and the International Securities Identification Number (ISIN) of the underlying share. We verify the ADR's characteristics using Lexis-Nexis, NASDAQ, NYSE, and the firm's websites. For the non-ADR cross-listed shares (direct listing and New York Registered shares), we obtain the name of the firms, type of listing from the NYSE, Nasdaq, and AMEX websites. The CUSIP and listing date are collected from the Center for Research in Security Prices (CRSP) database.

Our sample only includes cross-listed shares that were issued between 1990 and 2007 and that are still active as of December 2007. Furthermore, firms that are included in our sample must have first issued shares in their local home market prior to cross-listing in the U.S. The ADR portion of our sample only includes sponsored ADRs. We exclude ADRs that change from their initial levels since we cannot get full details about these changes, namely the first ADR and the issuance date. We also eliminate subsequent ADRs that a firm may have issued, ADRs that have debt as an underlying security, and side-by-side ADRs that consist of a combination of Level 1 and Rule 144A for the same underlying stock. As Rule 144A (PORTAL) was introduced in 1990, we only consider ADRs and other cross-listed programs issued after 1990.



The final sample consists of 786 cross-listed shares. We present summary statistics of this sample in Table 1. Appendix 1 displays the cross-listed shares issued by year for a sample of 786 issues between 1990 and 2007. This appendix also presents the average number of cross-listed shares issued in the pre- and post-SOX periods.

Following the World Bank country group classification, Panel B of Table 1 indicates that 38.7% (total of 304) of the cross-listed shares are from firms located in the Asia/Pacific geographical region. Europe follows with 33.7% (total of 265) of the cross-listed shares. Canada represents 14% (total of 110) of the 786 cross-listed shares. All of these 110 shares are issued under the direct listing programs. The Latin American region represents 10.2% (total of 80) of the 786 cross-listed shares. Panel C breaks down the number of issuances per industry in accordance with Campbell's (1996) classification: 21.8% (total of 171) of the cross-listed shares are issued by firms in basic industries. Finance and real estate follow with 15.3% (total of 120) of the cross-listed shares.

Our sample consists of 362 (45.9%) cross-listed shares issued on the OTC, 285 (36.1%) on major U.S. exchanges (including direct listing shares), and 139 (18%) under private placements (PORTAL) for a total of 786 cross-listed shares.

[Insert Table 1 about here]

### ***3.2. Assessing political and legal institutions***

North (1981, p. 201) defines institutions as “a set of rules, compliance procedures, and moral and ethical behavioral norms designed to constrain the behavior of individuals in the interests of maximizing the wealth or utility of principals.” Given this definition, Glaeser et al. (2004) and Qi et al. (2010) argue that good measures of political institutions should reflect the ex ante view of constraints on government behavior rather than the ex post government performance. Furthermore, measures of government expropriation and government effectiveness reflect governments past restraint and quality; hence they are not necessarily the best measures of future political outcomes. The variable we choose to assess political institution efficiency is the “political rights” index developed by Freedom House (2010).<sup>4</sup> It is an ex ante proxy of the future outcomes of the political bargaining process. The political rights index ranges from one to seven,

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<sup>4</sup> See La Porta et al. (1999), Acemoglu et al., (2008), and Qi et al. (2010) for the use of this political rights index.

with a score of one representing the best opportunity for individuals (e.g., business leaders, shareholders) to act spontaneously outside government control and domination. As such, individuals have greater freedom from arbitrary intervention in their objectives and pursuits by the government. The highest score (of one) also indicates a political system where free and fair elections are conducted, candidates who are elected actually rule, the opposition can actively contest the political party in power, and minority groups can contribute to informal consensus with the party in power and the opposition (Freedom House).

As an alternative measure of political institution efficiency, we extract from the political constraint index of Henisz (2000) the executive constraint index from the Polity database and Interuniversity Consortium for Political and Social Research (see Jagers and Gurr, 1996; Henisz, 2005; Marshall and Jagers, 2009). This *ex ante* index measures the extent of institutionalized constraints on the decision-making powers of chief executives, whether individuals or collectivities. The constraints may be imposed by any “accountability groups” such as legislatures in Western democracies. Other kinds of accountability groups are the ruling party of a one-party state, powerful advisors in monarchies, and the military in coup-prone polities. The index ranges from one to seven, with a score of one indicating stronger executive constraints, hence better political institutions.<sup>5</sup>

Our measure of the effectiveness of the legal system will be the difference in the anti-self-dealing indices between the firm’s home country and the U.S., as developed by Djankov et al. (2008). The anti-self-dealing index measures the legal protection of minority shareholders against “managerial self-dealing” and private benefit extraction. Using the differences in these indices, we establish a link between the desires of a non-U.S. firm to bond to U.S. regulations and to select a cross-listing program. To confirm the robustness of our results, we also consider alternative legal institution variables: (1) the difference in the accounting ratings between the cross-listed firm’s home country and the U.S. constructed by La Porta et al. (1998); (2) a dummy variable equal to one if the legal origin of the cross-listed firm’s home country is common law and zero otherwise; and (3) the difference in the revised anti-director rights indices between the cross-listed firm’s home country and the U.S. (Djankov et al., 2008). Table 3 lists the means of all political and legal institution variables for each country.

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<sup>5</sup> To be consistent with the political rights index, we reversed the ratings of the political constraint index so that for both variables a higher score indicates weaker political institutions.

[Insert Table 2 about here]

### **3.3. Control variables**

We control for various accounting and financial characteristics of firms measured one year before the cross-listing date. Appendix 2 describes the data definitions and sources for all the firms and institutional variables used in this study. We control for the natural logarithm of total assets (SIZE), pre-tax income (INCOME), and the liquidity of the underlying share relative to local stock market (TURNVOL). We expect that larger and more profitable firms are more likely to cross-list on major U.S. exchanges as these exchanges require that (1) firms pay registration and continuing fees and (2) meet earnings and size requirements. Firms with a higher turnover volume are also more likely to opt for exchange listings to improve their liquidity and overcome the financial constraints of their local market.

We also control for growth opportunities (ASSETGR) and firm leverage (LEV) as these firms are more likely to issue equity offerings to finance their operations. Consequently, given that only Level III (exchange listings) and PORTAL allow capital-raising, we expect that the higher the leverage ratio and growth opportunities of foreign firms, the more likely it is that these firms choose either exchange listings or PORTAL. In the same vein, privatized firms (PRIV) are more likely to choose PORTAL and exchange listings since these cross-listings provide the option for governments to raise capital and divest gradually through subsequent primary equity offerings.

As documented in Lins et al. (2005), emerging market firms are more capital constrained. These firms may then seek access to U.S. markets through either exchange listings or PORTAL. We thus introduce a dummy variable for firms domiciled in emerging markets (EMC).

The enactment of the Sarbanes-Oxley Act (SOX) in 2002 has likely had an influence on the foreign firms' choice of cross-listing venues. The implementation of SOX raised the costs of exchange cross-listings by obliging firms to comply with more stringent new rules and regulations. Since SOX, foreign firms have been more likely to cross-list through PORTAL or OTC because it allows these firms to raise capital (PORTAL) or simply list on U.S. markets (OTC) with no particular compliance with SOX requirements.

It is also necessary to account for the ownership structure of the cross-listed firms. Doidge et al. (2009) state that when controlling shareholders have tighter control over a firm's operations, they

are more reluctant to cross-list on exchange listings because the costs of extracting private benefits of control exceed those gained by cross-listing on major U.S. exchanges. Further, Claessens et al. (2000) emphasize that controlling shareholders are less likely to extract private benefits of control from minority shareholders when the separation between control and cash flow rights is less pronounced. Hence, we control for both the ultimate shareholder control rights (ULOW) and the difference between the control and cash flow rights (ULOWDIF).

The literature also provides evidence that legal institutions do matter in the world of cross-listing. For instance, Boubakri et al. (2010) show that legal institutions explain the choice of the type of cross-listing. Their results suggest that firms from countries with weak legal institutions are more likely to bond to stringent regulations.<sup>6</sup> They also show that some firms prefer to avoid stringent regulations by listing via PORTAL. The avoiding and bonding hypotheses do not appear to be mutually exclusive (Stulz, 2009; Licht et al., 2011). We thus control for the quality of legal institutions. However, we do not expect the quality of a country's legal institutions to play a major role in the choice of a U.S. cross-listing once we have accounted for the quality of political institutions in the home country of the cross-listed firms. As emphasized by Roe and Siegel (2009), investor protection is a policy choice that is a reflection of political interest, the quality of political institutions, and political preferences. When political institutions are weak "...whatever formal legal rules are transplanted – the core of legal origin perspective – are unlikely to make a difference" (Roe and Siegel, 2009 p.790). Also as noted by Eleswarapu and Venkataraman (2006), the rule of law can only prevail in the presence of a strong and independent judicial system, which in turn relies on the efficiency of the political system.

### ***3.4. Model presentation***

Once the decision to cross-list in the U.S. is taken, the firm's managers must select a type of cross-listing. Their set of choices includes three types of cross-listings: over-the-counter (OTC), exchange listings (NYSE, Nasdaq, and AMEX), and PORTAL. We opt for a multinomial logit to test our main hypothesis since we have more than two outcomes.

In a multinomial logit model, the Independence of Irrelevant Alternatives (IIA, hereafter) hypothesis implies that adding an additional alternative (i.e., a choice) or changing the

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<sup>6</sup> We obtain the same results if we follow Boubakri et al.'s (2010) approach by only breaking down our ADR sample into four groups (ADR levels I, II, III, and Rule 144A).

characteristics of a third alternative do not affect the relative probability for any other two alternatives. The IIA therefore implies that all alternatives are equally similar or dissimilar (Hensher et al., 2005). To assess the IIA hypothesis, we use the Hausman and McFadden (1984) test to compare the estimation of the parameter vector  $\beta$  for different subsets of alternatives. Therefore, if IIA is shown to be true, the use of any subset of alternatives will consistently estimate  $\beta$ .

In a multinomial logit model, we cannot estimate all the coefficients for all the cross-listing choices. Consequently, the model is unidentified and we choose a base outcome to eliminate this issue. A base choice in which all the coefficients are set to 0 leads to the interpretation that the estimated coefficients measure change relative to the chosen base outcome. The choice of the base outcome is arbitrary and does not impact the predicted marginal effects or probabilities (Greene, 2003). In this study, the base outcome consists of the cross-listing shares that trade on the OTC.

We report the results of our tested hypothesis by estimating the marginal effects of the multinomial logit model estimation for the three cross-listing choices. We also assume the choice of cross-listing programs to be available to all firms that choose to list in the U.S. As explained in Boubakri et al., (2010), NYSE and NASDAQ can allow a foreign firm to list on their exchange despite the firm's inability to meet the exchanges' requirements in terms of size, profitability, earnings, and number of shareholders.

#### **4. Empirical results**

Table 3 presents correlation coefficients for our variables of interest. The two political institutional variables, political rights (PRIGHTS) and executive constraint (XCONST), and the legal institutional variables are not highly correlated. This finding suggests that these variables capture different effects.

[Insert Table 3 about here]

Table 4 presents the expected signs of the political, legal, and control variables. The marginal effects of the regression coefficient of several variables (asset growth, leverage, firm from an emerging/non-emerging country, privatization, and SOX) are undetermined because our study

combines both capital and non-capital raising cross-listed programs (e.g., ADR levels II and III) under the same venue (i.e., exchange-listing programs).

[Insert Table 4 about here]

#### ***4.1. Univariate Analysis***

Table 5 presents the means of the explanatory variables for the different types of cross-listing. Differences in the variable means between the different types of cross-listing and OTC are tested using a two-tailed t-test of means.

The results, displayed in Table 5, for the means of political rights (PRIGHTS) and executive constraint (XCONST) suggest that firms that cross-list via the exchange-listing programs come from countries with more efficient political institutions than firms listed on the OTC. The means of the political rights and executive constraint variables likewise suggest that firms listed via PORTAL have relatively weaker political institutions than firms listed on the OTC.

Firms from countries with weak legal institutions (i.e., with a higher difference, in absolute value, in the anti-self-dealing index between the firms' home countries and the U.S.) are more likely to list on exchange listings and PORTAL than on OTC. These univariate results tend to support both the avoiding and bonding hypotheses.

As for the other firm-specific variables, we note that the pre-tax incomes and asset growth rates of exchange-listed firms are higher than those of OTC firms. Firms listed on PORTAL also post higher asset growth and are more leveraged than OTC listed firms. Our results also show that newly privatized firms are more likely to list on exchanges than on OTC so as to have a broader shareholder base to raise funds and to issue subsequent equity. Exchange-listed firms have significantly lower ultimate ownership control rights and private benefits of control than firms listed on the OTC. These results confirm Doidge et al.'s (2009) position on the reluctance of firms that wish to preserve their benefits of control to issue shares on U.S. exchanges. Furthermore, firms that list via PORTAL are more likely to come from emerging markets and post higher private benefits of control as shown by the ultimate ownership of control rights.

[Insert Table 5 about here]

#### *4.2. Multivariate analysis*

Table 6 reports the marginal effects of multinomial logit estimations. As discussed in section 3.4., we test for Hausman-McFadden's IIA assumption for all the specifications. The results of the Hausman-McFadden test suggest that we cannot reject the IIA assumption for all the specifications. Consequently, we estimate multinomial logit models while correcting for clustering at the country level.

We also report McFadden's pseudo  $R^2$  and the percentage of the correctly classified observations predicted by each model. These two statistics gauge the power and goodness of fit for each estimated model (Hensher et al., 2005).

We perform the multivariate analysis for our two key political institution variables, namely political rights (PRIGHTS) and executive constraint (XCONST). Both political institution variables have a strong and statistically significant impact on the choice of the cross-listing venue. Panels A and B of Table 6 show that foreign firms from countries with poor political institutions are more likely to list on the OTC market. More specifically, an increase of one unit in the political rights index raises the probability of cross-listing via OTC by 0.1558 (Panel A) and 0.1417 (Panel B). These results are statistically significant at the 1% level. In contrast, foreign firms from countries with poor political institutions are less likely to choose an exchange-listed program. More precisely, a one unit increase in the political rights index reduces the probability of listing on U.S. exchanges by 0.1242 (Panel A) and 0.1183 (Panel B). These results are statistically significant at the 5% level. The political rights measure has no predictive power for the decision of foreign firms to cross-list shares via a private placement (PORTAL). Overall, this evidence suggests that political institutions, measured using an ex ante variable (an index of political rights), contribute to predicting the choice of two cross-listing venues in the U.S. (the OTC and U.S. exchanges). Furthermore, it appears that firms from countries with weak political institutions are more likely to avoid exchange-listings and thus the stringent legal and disclosure regulations.

Panels C and D report the evidence using our alternative measure of political institutions, which is the executive constraint index (XCONST). Panel C shows that an increase of one unit in the executive constraint index decreases (increases) the probability that a foreign firm lists on U.S. exchanges (the OTC) by 0.1121 (0.1453). These results are statistically significant at the 5% and

1% levels, respectively. Such results suggest that foreign firms from countries with weaker executive constraints are more likely to cross-list on OTC but that they are less likely to list on U.S. exchanges. Once we control for the anti-self-dealing index (Panel D), a one unit increase in the executive constraint index raises the probability of listing on the OTC by 0.1409 (significant at the 1% level) and also decreases the probability of listing on an exchange by 0.1098 (significant at the 5% level). Similar to political rights, executive constraint has no statistically significant predictive power on the probability of listing via PORTAL.

The results, shown in Panels B and D, indicate that the legal institution variable we consider, the anti-self-dealing index, has no statistically significant impact on the choice of the U.S. cross-listing venue. This evidence suggests that, once we control for political institutions, the level of legal protection for minority shareholders in the home-countries of the cross-listed firms does not predict the desire of these firms to conform to or to avoid stringent U.S. regulations.

Panels A to D show that the higher the firm's pre-tax income (INCOME) and the higher the asset growth rate (ASSETGR), the more likely it is that the firm chooses a U.S. exchange program. These results for the role of pre-tax income are consistent with the predicted relations shown in Table 4, since to list on any U.S. exchange, firms have to meet minimum earnings requirements. These results are also consistent with the predicted relations shown in Table 4 that conjecture that firms with high growth opportunities generally need to raise fresh capital and therefore are less likely to choose OTC, which does not offer this possibility. All panels of Table 6 suggest that firms with high leverage (LEVERAGE) are more likely to cross-list on the OTC and via PORTAL and less likely to list on an exchange.

To sum up, these results reveal that more profitable firms are more likely to list on U.S. exchanges by meeting earnings requirements. Furthermore, firms with higher asset growth are more likely to issue equity offerings via exchange listings and PORTAL so as to pursue growth opportunities. Finally, indebted firms are more likely to finance operations through PORTAL and less likely to do so via exchange listings.

As shown in Panel A, the fact that a firm comes from an emerging country (EMC) increases the probability that it lists via PORTAL by 0.4113 (significant at the 1% level) and decreases the probability of it listing on the OTC by 0.3715 (significant at the 5% level). This result suggests that firms from emerging countries may be more tempted to avoid U.S. regulations to meet their



needs to raise fresh capital. Privatization (PRIV) through U.S. cross-listings increases the likelihood that a foreign firm chooses to list on a major U.S. exchange by 0.2984 (significant at the 5% level) and decreases the probability of listing on the OTC by 0.5220 (significant at the 1% level). This evidence suggests the need of the newly-privatized firms to raise funding from a larger pool of investors and to divest a large government stake among U.S. investors, thereby benefiting from the liquid U.S. markets. This opportunity is particularly valuable for these firms, which are often large and which resort to subsequent equity issues.

Lastly, the results of the SOX dummy variable confirm Boubakri et al.'s (2010) findings, consistent with Zingales' (2006) claim that foreign firms are more likely to issue private placement cross-listing shares after 2002, both to avoid U.S. legal liability and the increase in cost of issuance on an exchange, and to tap the U.S. primary market for institutional investors.

Overall, the results of the multivariate models uphold both the evidence from the univariate analysis and the expected relations between the explanatory variables and the probability of choosing a given type of U.S. cross-listing venue. In particular, we show that foreign firms from countries with weak political institutions are more likely to cross-list in the U.S. via the over-the-counter market and less likely to opt for an exchange-listed program. We also show that the legal institution environments in the foreign firms' home-countries do not influence the choice of the U.S. cross-listing venue. In the following section, we conduct additional tests to ensure the robustness of our findings.

[Insert Table 6 about here]

### ***4.3. Sensitivity tests***

#### ***4.3.1. Additional firm control variables***

We report further tests by including additional control variables for which we have a smaller number of observations. Panels A and B of Table 7 include the relative turnover variable, which we measure as the ratio of the turnover volume of the underlying firm to the local stock market's turnover volume (TURNVOL). The results suggest that the higher the relative turnover, the greater the probability that the foreign firm cross-lists via PORTAL. Panels A and B also show

that the results for the political rights and anti-self-dealing index variables are qualitatively similar.

Panel C includes two additional variables of private benefits of control, the ultimate control rights (ULOW) and the difference between the ultimate control rights and the ultimate cash flow rights (ULOWDIF). Panel C shows that firms with ultimate owners who have more control than cash flow (ULOWDIF) rights are more likely to cross-list on the OTC (5% level). This panel also suggests that the introduction of these variables does not affect the impact of political rights on the choice of the U.S. cross-listing venue (significant at the 5% level rather than at the 1% level).

[Insert Table 7 about here]

We also conducted additional tests on the type of shareholder that may impact the cross-listing choice, since the consumption of private benefits of control may vary with the shareholder type. We first re-estimate the models of Panel C of Table 6 with a dummy equal to one if the largest shareholder is a foreigner. The unreported results show that this foreign shareholder and the difference in control and cash flow rights (ULOWDIF) increase the probability of listing on the OTC (significant at the 5% level) for both independent variables. When the largest shareholder is foreign, the probability of listing on exchanges or via PORTAL decreases (significant at the 10% level). The statistical significance of political rights remains unchanged. Lastly, we re-conduct the same test but with a dummy variable equal to one if the largest shareholder is either a family, a members of management, or a head of an unlisted firm. The unreported results reveal that the impact of political institutions on the choice of the U.S. cross-listing venue is qualitatively similar.

#### ***4.3.2. A channel of weak political institutions: socio-political instability***

Following Qi et al. (2010) who consider political stability as one aspect of political rights, we examine how socio-political instability (as measured by the SPI index) can affect the choice of the U.S. cross-listing venue. We employed the SPI index constructed by Alesina and Perotti (1996). In keeping with these authors, we use the principal component analysis of the following four variables: politically motivated assassinations, revolutions, purges of political opposition, and an indicator variable of the degree of democracy using data from Banks (2010) and Freedom

House (2010). The SPI index of a country measures the average political instability over a 19-year window prior to the year in question, and is thus a measure of political institution efficiency. It is constructed for the year 1990 to 2007.<sup>7</sup> The specifications, shown in Table 8, do not include the variable PRIGHTS because it is strongly correlated with SPI.

The results of Table 8 show that socio-political instability affects the cross-listing choice with regard to the OTC and U.S. exchanges. These results are consistent with the predicted relations in Table 4. More precisely, a one unit increase in socio-political instability increases the probability of listing on the OTC by 0.2331 and 0.2361 (1% significance level). The probability of listing on exchanges decreases by 0.2131 and 0.2141 (5% significance level). The socio-political instability index has no impact on the cross-listing choice via PORTAL. This result reinforces our main findings on the impact of political institution quality on the cross-listing choice.<sup>8</sup>

[Insert Table 8 about here]

#### ***4.3.3. Sample composition<sup>9</sup>***

The sample of cross-listed firms that are considered for the multinomial logit results and presented in Table 6 includes financial and real estate firms. Financial and real estate firms have different characteristics from those of non-financial firms (e.g., leverage). Therefore, we exclude both financial and real-estate companies from the baseline model of Panel A, Table 6. The unreported results are qualitatively similar. The coefficients of political rights remain statistically significant for both cross-listings on the OTC and the U.S. exchanges (1% and 5% level respectively). Additionally, since we have ownership data for only 378 firms out of our initial 786 sample size, we can question whether our results hold true for this sub-sample. The estimated results for this sub-sample are generally consistent with those of the whole sample.

We also re-estimated Table 7 Panel C, by excluding foreign firms where the State is the largest shareholder. For state-owned firms, the ultimate owner (in this case, the State), tends to have higher ultimate control rights than non-state-owned firms. We find that ultimate cash flow rights

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<sup>7</sup> Data on the degree of democracy (not free, partially free, and free) from Freedom House (2010) is available from 1972, hence our 19 year window calculation for the SPI average.

<sup>8</sup> Following Roe and Siegel (2011) and Qi et al. (2010), we also construct the SPI variable with a moving index with decay rates of 1%, 5%, and 10%. This produces similar results.

<sup>9</sup> The unreported results mentioned in this section are available from the authors upon request.

and the difference between control and cash flow rights increase the probability of choosing an OTC cross-listing (10% level) venue and that ultimate cash flow rights decrease the probability of listing on a U.S. exchange (10% level). These results are consistent with our predictions in Table 5. More importantly, we find that the impact of political rights on both OTC and exchange listings is qualitatively similar.

#### ***4.3.4. Alternative legal institutional variables***

To establish the robustness of our results, we consider three alternative legal institution variables to replace the difference in the anti-self-dealing indices between the firm's home country and the U.S.: first, the difference in the accounting ratings between the foreign country and the U.S. constructed by La Porta et al. (1998); second, a dummy variable equal to one if the foreign firm is from a country where its legal origin is common law and zero otherwise; and third, the difference in the *revised* anti-director rights indices between the foreign country and the U.S. (Djankov et al., 2008).<sup>10</sup> We then re-estimate the baseline scenario of Table 6, Panel B. The results, reported in Table 9, reveal that none of the three alternative legal institution variables affect the choice of the U.S. cross-listing venue, while the impact of political rights on the three types of cross-listing remains unchanged.

[Insert Table 9 about here]

## **5. Conclusion**

The objective of this paper was to assess the impact of political institutions on foreign firms' choice of their U.S. cross-listing venue. Using two measures of political institutions (an index of political rights and a political constraint index) and controlling for various firm-level and country-level characteristics, we show that foreign firms from countries with weak political institutions are more likely to cross-list in the U.S. via the over-the-counter market and less likely to opt for an exchange-listing program (i.e., NYSE, Nasdaq, AMEX). We also show that the quality of legal institutions does not affect the choice of the U.S. cross-listing venue. This evidence suggests that political institutions rather than legal institutions affect the choice of the

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<sup>10</sup> We also test our model without taking the difference between the foreign country and the U.S. The results remain the same.

U.S. cross-listing venue.. Further tests reveal that our results are robust to alternative legal and political institutional measures.

These findings have broad implications for firms and policymakers. Stronger political institutions improve the level of financial and corporate transparency as firms are more likely to cross-list on U.S. exchange programs. Future research may examine how the quality of political institutions affects the choice of the stock market (e.g., New York versus London) where the firm wishes to cross-list its shares as well as assess the impact of the cross-listing choice on the firm's valuation.

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**Table 1**  
**Descriptive statistics**

<i>Panel A: Countries</i>	Type of Cross-Listing			Total	Percentage (%)
	OTC	Exchange listings	Private placements		
Argentina		4	2	6	0.8%
Australia	48	8	2	58	7.4%
Austria	13		1	14	1.8%
Belgium	2	1		3	0.4%
Brazil	9	14	7	30	3.8%
Canada		110		110	14.0%
Chile	2	8	1	11	1.4%
China	15	6		21	2.7%
Colombia	1			1	0.1%
Denmark		1		1	0.1%
Finland	2	1	1	4	0.5%
France	10	14	2	26	3.3%
Germany	18	10	1	29	3.7%
Greece	2	3	2	7	0.9%
Hong Kong	48	5	1	54	6.9%
India	1	9	24	34	4.3%
Indonesia	2		1	3	0.4%
Ireland	7	3		10	1.3%
Israel		2	1	3	0.4%
Italy	4	4	1	9	1.1%
Japan	28	14		42	5.3%
Korea	1	8	11	20	2.5%
Luxembourg	1	1		2	0.3%
Malaysia	8			8	1.0%
Mexico	15	5	6	26	3.3%
Netherlands	6	6	1	13	1.7%
Nigeria			1	1	0.1%
Norway	4	2	1	7	0.9%
Pakistan			3	3	0.4%
Peru	1			1	0.1%
Philippines	2	1	2	5	0.6%
Poland	2		5	7	0.9%
Portugal	4			4	0.5%
Russia	12		11	23	2.9%
Singapore	7		1	8	1.0%
South Africa	11	2	1	14	1.8%
Spain	3	3	1	7	0.9%
Sweden	8	2	1	11	1.4%
Switzerland	4	4	1	9	1.1%

Taiwan		7	36	43	5.5%
Thailand	5			5	0.6%
Turkey	2		7	9	1.1%
United Kingdom	50	26	3	79	10.1%
Venezuela	4	1		5	0.6%
Total (44)	362	285	139	786	
Percentage (%)	45.9%	36.1%	18.0%	100%	
<b>Panel B: Geographic location (countries)</b>					
Asia/Pacific (13)	165	58	81	304	38.7%
Europe (19)	152	81	32	265	33.7%
Latin America (7)	32	32	16	80	10.2%
Middle East/Africa (4)	13	4	10	27	3.4%
North America (1)		110		110	14.0%
Total (44)	362	285	139	786	
Percentage (%)	45.9%	36.1%	18.0%	100%	
<b>Panel C: Industry classification</b>					
Industry classification					
Basic industries	66	85	20	171	21.8%
Capital goods	21	9	11	41	5.2%
Consumer durables	37	25	31	93	11.8%
Construction	10	3	3	16	2.0%
Finance/Real estate	55	43	22	120	15.3%
Food/Tobacco	19	10	7	36	4.6%
Leisure	20	5	5	30	3.8%
Pretroleum	14	17	7	38	4.8%
Services	38	26	6	70	8.9%
Textiles/Trade	20	5	6	31	3.9%
Transportation	16	7	9	32	4.1%
Utilities	42	41	7	90	11.5%
Miscellaneous	4	9	5	18	2.3%
Total	362	285	139	786	
Percentage (%)	45.9%	36.1%	18.0%	100%	

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This table presents descriptive statistics for a sample of 786 cross-listed shares issued between 1990 and 2007. In Panel A we present the number of issuances of cross-listing types (over-the-counter, exchange listings, and PORTAL) per country. Based on the World Bank country group classifications, we provide the distribution of the issuing firms' home-countries by geographic location in Panel B. Panel C presents the industry classification of these firms according to Campbell (1996).

**Table 2**  
**Descriptive statistics by country**

Panel A. This table reports means for the institutional variables used in our multinomial logit. All variables are described in Appendix 2.

Country	PRIGHTS	XCONST	SELFDEAL	ANTDIR	ACRAT
Argentina	2	2.33	-0.21	-1	-26
Australia	1	1	0.14	1	4
Austria	1	1	-0.44	-0.5	-17
Belgium	1	1	-0.11	0	-10
Brazil	2.4	2	-0.36	2	-17
Canada	1	1	-0.01	1	3
Chile	1.64	1	-0.02	1	-19
China	7	5	0.13	-2	.
Colombia	4	2	-0.07	0	-21
Denmark	1	1	-0.18	1	-9
Finland	1	1	-0.19	0.5	6
France	1	2	-0.27	0.5	-2
Germany	1	1	-0.37	0.5	-9
Greece	1	1	-0.42	-1	-16
Hong Kong	4.91	.	0.31	2	-2
India	2	1	-0.1	2	-14
Indonesia	4	3.33	0.03	1	.
Ireland	1	1	0.14	2	.
Israel	1	1	0.07	1	-7
Italy	1	1	-0.26	-1	-9
Japan	1	1	-0.17	1.5	-6
Korea	1.55	2	-0.19	1.5	-9
Luxembourg	1	.	-0.45	-1	.
Malaysia	4.63	3.62	0.3	2	5
Mexico	2.62	2.42	-0.47	0	-11
Netherlands	1	1	-0.44	-0.5	-7
Nigeria	4	3	-0.22	1	-12
Norway	1	1	-0.21	0.5	3
Pakistan	6	5.33	-0.24	1	.
Peru	5	5	-0.24	0.5	-33
Philippines	2.2	2	-0.41	1	-6
Poland	1	1	-0.41	-1	.
Portugal	1	1	-0.16	-0.5	-35
Russia	5.43	3.39	-0.17	1	.
Singapore	5	5	0.35	2	7
South Africa	1.21	1	0.16	2	-1
Spain	1	1	-0.28	2	-7
Sweden	1	1	-0.31	0.5	12
Switzerland	1	1	-0.38	0	-3

Taiwan	1.93	1.93	-0.09	0	-6
Thailand	3.4	1.6	0.2	1	-7
Turkey	3.44	1	-0.22	0	-20
United Kingdom	1	1	0.28	2	7
Venezuela	3	3	-0.56	-2	-31

. = data not available

Panel B. Descriptive statistics for the variables used in our main multinomial logit model. All variables are described in Appendix 2.

	<b>PRIGHTS</b>	<b>XCONST</b>	<b>SELFDEAL</b>	<b>ANTDIR</b>	<b>ACRAT</b>	<b>SIZE</b>	<b>INCOME</b>	<b>ASSETGR</b>	<b>LEVERAGE</b>
<b>Mean</b>	1.98	1.55	-0.06	0.95	-3.68	13.82	0.47	33.40	19.98
<b>S.d.</b>	1.63	1.04	0.24	1.01	8.84	2.69	1.14	61.90	18.53
<b>Min</b>	1.00	1.00	-0.56	-2.00	-35.00	8.11	-0.11	-39.64	0.00
<b>Max</b>	7.00	6.00	0.35	2.00	12.00	19.07	6.16	291.42	67.86

The political institution variables are the political rights index (PRIGHTS) of Freedom House (2010), which varies from 1 to 7, with 1 being the ideal perceived political institution efficiency; and a measure of institutionalized constraints on the decision-making power of chief executives (XCONST) by the Polity database and Interuniversity Consortium for Political and Social Research (ICPSR) (see Marshall and Jagers, 2009), with a higher score indicating stronger executive constraints. The institutional variables are the differences in the anti-self dealing index (SELFDEAL), the revised anti-director rights index (ANTDIR) introduced by Djankov et al. (2008), and the accounting ratings (La Porta et al., 1998) between the firm's home country and the U.S.. The firm variables are the natural logarithm of total assets in thousands of US dollars (SIZE), the pre-tax income in billions of US dollars (INCOME), the one year total assets growth (ASSETGR), and the total debt divided by the total assets (LEVERAGE).

**Table 3**  
**Correlation coefficients**

The table provides the correlation coefficients of key variables for the cross-listing choice. The variables' definitions and sources are described in Appendix 2. The sample period is 1990-2007.

	SIZE	INCOME	ASSETGR	LEVERAGE	PRIV	SOX	EMC	SELFDEAL	ANTDIR	COMLAW	ACRAT	PRIGHTS	XCONST
SIZE	1.00												
INCOME	0.55	1.00											
ASSETGR	-0.26	-0.12	1.00										
LEV	0.38	0.05	-0.18	1.00									
PRIV	0.16	0.05	-0.06	0.09	1.00								
SOX	-0.14	0.03	0.02	-0.05	-0.11	1.00							
EMC	0.06	-0.17	0.01	0.20	0.07	-0.03	1.00						
SELFDEAL	-0.23	-0.05	0.00	-0.15	-0.13	0.08	-0.22	1.00					
ANTDIR	-0.07	0.01	-0.02	-0.02	-0.17	0.07	-0.04	0.59	1.00				
COMLAW	-0.40	-0.10	0.11	-0.34	-0.14	0.12	-0.28	0.81	0.53	1.00			
ACRAT	-0.17	0.06	0.00	-0.24	-0.14	0.04	-0.60	0.67	0.38	0.62	1.00		
PRIGHTS	0.04	-0.14	0.01	0.12	0.04	-0.11	0.70	-0.07	0.01	-0.12	-0.34	1.00	
XCONST	0.10	-0.09	-0.04	0.12	0.03	-0.15	0.55	-0.12	-0.09	-0.23	-0.20	0.79	1.00

The firm variables are the natural logarithm of total assets in thousands of US dollars (SIZE), the pre-tax income in billions of US dollars (INCOME), the one year total assets growth (ASSETGR), and the total debt divided by the total assets (LEVERAGE). The governance and ownership variables are the privatization dummy (PRIV), which is equal to 1 if the firm was privatized by cross-listing and 0 otherwise, the Sarbanes-Oxley dummy (SOX), which is equal to 1 if the firm issues a cross-listing after April 23, 2002 and 0 otherwise, and an emerging market dummy (EMC), which is equal to 1 if the country of origin of the cross-listing is an emerging market based on Standard and Poor's Emerging Market Database, and 0 otherwise. The institutional variables are the differences in the anti-self dealing index (SELFDEAL), the revised anti-director rights index (ANTDIR) introduced by Djankov et al. (2008), the accounting ratings (La Porta et al., 1998) between the firm's home country and the U.S., and a dummy variable (COMLAW) which is equal to 1 if the firm's country legal origin is common law and 0 otherwise. The political institution variables are the political rights index (PRIGHTS) of Freedom House (2010), which varies from 1 to 7, with 1 being the ideal perceived political institution efficiency; and a measure of institutionalized constraints on the decision-making power of chief executives (XCONST) by the Polity database and Interuniversity Consortium for Political and Social Research (ICPSR) (see Marshall and Jaggers, 2009), with a higher score indicating stronger executive constraints.



**Table 4**  
**Determinants of an issuer's cross-listing decisions**

Variables	Label	Probability of choosing a cross-listing		
		OTC	Exchange-listings	PORTAL
Firm	SIZE	-	+	-
	INCOME	-	+	-
	ASSETGR	-	-/+	+
	LEVERAGE	-	-/+	+
	TURNVOL	-	+	-
	EMC	-/+	-/+	+
	PRIV	-	-/+	+
	SOX	-/+	-/+	+
	ULOW	+	-	+
	ULOWDIF	+	-	+
	Legal institutions	SELFDEAL	-/+	+
ACRAT		-/+	+	-/+
ANTDIR		-/+	+	-/+
COMLAW		-/+	+	-/+
Political institutions	PRIGHTS	+	-	+
	XCONST	+	-	+

This table reports the predicted signs of the variables that we include in our model for cross-listing choice, namely, over-the-counter or OTC, exchange listings (NYSE, NASDAQ, and AMEX), and PORTAL. The firm variables are: the natural logarithm of total assets in thousands of US dollars (SIZE); the pre-tax income in billions of US dollars (INCOME); the one year total assets growth (ASSETGR); the total debt divided by the total assets (LEVERAGE); and the yearly turnover volume of the firm divided by the yearly turnover volume of its country of origin's market (TURNVOL). The governance and ownership variables are: the privatization dummy (PRIV), which is equal to 1 if the firm was privatized by cross-listing and 0 otherwise; the Sarbanes-Oxley dummy (SOX), which is equal to 1 if the firm issues a cross-listing after April 23, 2002 and 0 otherwise; the ultimate control right (ULOW); the difference between the ultimate control and cash flow rights (ULOWDIF); and an emerging market dummy (EMC), which is equal to 1 if the country of origin of the cross-listing is an emerging market based on Standard and Poor's Emerging Market Database, and 0 otherwise. The legal institution variable is the difference in the anti-self dealing index (SELFDEAL) and the revised anti-director rights index (ANTDIR) introduced by Djankov et al. (2008). The political institution variables are: the political rights index (PRIGHTS) of Freedom House (2010), which varies from 1 to 7, with 1 being the ideal perceived political institution efficiency; and a measure of institutionalized constraints on the decision-making power of chief executives (XCONST) by the Polity database and Interuniversity Consortium for Political and Social Research (ICPSR) (see Marshall and Jagers, 2009), with a higher score indicating stronger executive constraints.



**Table 5****Univariate analysis: comparison between cross-listing venues in the U.S.**

Comparison between ADR programs

Variables	Type of Cross-Listing					
	OTC		Exchange listings		Portal	
	Obs.	Mean	Obs.	Mean	Obs.	Mean
SIZE	362	13.75	285	13.76 (0.95)	139	14.11 (0.13)
INCOME	362	0.36	285	0.69*** (0.00)	139	0.31 (0.57)
ASSETGR	362	22.95	285	44.02*** (0.00)	139	38.83*** (0.00)
LEVERAGE	362	22.47	285	13.6*** (0.00)	139	26.56** (0.03)
TURNVOL	281	0.02	201	0.02 (0.72)	82	0.01 (0.22)
EMC	362	0.42	285	0.26*** (0.00)	139	0.88*** (0.00)
PRIV	362	0.00	285	0.06*** (0.00)	139	0.10*** (0.00)
SOX	362	0.54	285	0.44*** (0.01)	139	0.60 (0.23)
ULOW	179	28.76	157	23.07** (0.02)	42	41.61*** (0.00)
ULOWDIF	179	7.76	157	2.06*** (0.00)	43	2.54* (0.06)
SELFDEAL	362	-0.01	285	-0.08*** (0.00)	139	-0.17*** (0.00)
PRIGHTS	362	2.28	285	1.41*** (0.00)	139	2.35 (0.70)
XCONST	313	1.65	279	1.29*** (0.00)	138	1.83 (0.15)

This table presents the mean of the different variables for the three types of cross-listing, namely over-the-counter or OTC, exchange listings (NYSE, NASDAQ and AMEX), and PORTAL. Our sample consists of 786 cross-listings issued between 1990 and 2007. The firm variables are: the natural logarithm of total assets in thousands of US dollars (SIZE); the pre-tax income in billions of US dollars (INCOME); the one year total assets growth (ASSETGR); the total debt divided by the total assets (LEVERAGE); and the yearly turnover volume of the firm divided by the yearly turnover volume of its country of origin's market (TURNVOL). The governance and ownership variables are: the privatization dummy (PRIV), which is equal to 1 if the firm was privatized by cross-listing and 0 otherwise; the Sarbanes-Oxley dummy (SOX), which is equal to 1 if the firm issues a cross-listing after April 23, 2002, and 0 otherwise; the ultimate control right (ULOW); the difference between the ultimate control and cash flow rights (ULOWDIF); and an emerging market dummy (EMC), which is equal to 1 if the country of origin of the cross-listing is an emerging market based on Standard and Poor's Emerging Market Database, and 0 otherwise. The legal

institution variable is the difference in the anti-self dealing index (SELFDEAL). The political institution variables are: the political rights index (PRIGHTS) of Freedom House (2010), which varies from 1 to 7, with 1 being the ideal perceived political institution efficiency; and a measure of institutionalized constraints on the decision-making power of chief executives (XCONST) by the Polity database and Interuniversity Consortium for Political and Social Research (ICPSR) (see Marshall and Jagers, 2009), with a higher score indicating stronger executive constraints. All the firm variables, except for SOX and PRIV, are taken one year before the issuing of the cross-listing. Differences in the means of the variables between the different types of cross-listings and OTC (the base outcome) are tested using a two-tailed *t*-test of means. *P*-values of this test are reported in parentheses.

\*, \*\*, \*\*\* Statistically significant at the 10%, 5% and 1% level, respectively.

**Table 6**

**Multivariate analysis: multinomial logit of the choice between the three cross-listing venues**

Panel	Type of listing	SIZE	INCOME	ASSETGR	LEVERAGE	PRIV	SOX	EMC	SELFDEAL	PRIGHTS	XCONST	Number of obs.	Pseudo R2 (%)	Correctly classified obs. (%)
A	OTC	-0.0097 (0.5593)	-0.0513** (0.0403)	-0.0017*** (0.0000)	0.0068** (0.0468)	- (0.0000)	0.5220*** (0.1503)	0.0871 (0.0151)	-0.3715** (0.0151)	0.1558*** (0.0018)		786	22.8	65.01
	Exchange-listings	0.0087 (0.5592)	0.0545*** (0.0046)	0.0004** (0.0136)	-0.0088** (0.0195)	0.2984** (0.0300)	0.1612*** (0.0024)	-0.0397 (0.7572)	-0.1242** (0.0116)					
	Portal	0.0011 (0.8782)	-0.0031 (0.8820)	0.0004** (0.0136)	0.0020** (0.0231)	0.2236 (0.1341)	0.0741* (0.0653)	0.4113*** (0.0001)	-0.0316 (0.1894)					
B	OTC	-0.0063 (0.6986)	-0.0531** (0.0497)	-0.0016*** (0.0000)	0.0069** (0.0463)	- (0.0000)	0.5200*** (0.1376)	0.0887 (0.0396)	-0.3386** (0.3673)	0.1763 (0.0044)	0.1417*** (0.0044)	786	23.2	64.89
	Exchange-listings	0.0073 (0.6123)	0.0567*** (0.0058)	0.0013*** (0.0001)	-0.0088** (0.0200)	0.3222** (0.0181)	0.1606*** (0.0024)	-0.0393 (0.7635)	-0.0524 (0.7619)	-0.1183** (0.0177)				
	Portal	-0.0010 (0.8960)	-0.0036 (0.8691)	0.0003** (0.0370)	0.0019** (0.0217)	0.1978 (0.1705)	0.0720* (0.0573)	0.3779*** (0.0010)	-0.1239 (0.2432)	-0.0234 (0.3290)				
C	OTC	-0.0140 (0.4208)	-0.0454* (0.0583)	-0.0016*** (0.0000)	0.0068** (0.0432)	- (0.0000)	0.4791*** (0.0502)	0.1140* (0.0326)	-0.3027** (0.0326)		0.1453*** (0.0024)	730	22	61.64
	Exchange-listings	0.0105 (0.5121)	0.0520** (0.0110)	0.0013*** (0.0001)	-0.0089** (0.0180)	0.2926** (0.0291)	0.1783*** (0.0015)	-0.1260 (0.3186)	-0.1121** (0.0322)					
	Portal	0.0035 (0.6308)	-0.0067 (0.7514)	0.0003* (0.0526)	0.0021** (0.0267)	0.1866 (0.1948)	0.0643* (0.0804)	0.4286*** (0.0000)	-0.0331 (0.1879)					
D	OTC	-0.0120 (0.4742)	-0.0463* (0.0676)	-0.0016*** (0.0000)	0.0069** (0.0433)	- (0.0000)	0.4788*** (0.0496)	0.1117** (0.0544)	-0.2880* (0.6060)	0.1050 (0.0040)	0.1409*** (0.0040)	730	22.1	61.78
	Exchange-listings	0.0096 (0.5407)	0.0531** (0.0137)	0.0013*** (0.0001)	-0.0089** (0.0183)	0.2987** (0.0267)	0.1770*** (0.0013)	-0.1268 (0.3173)	-0.0420 (0.8295)	-0.1098** (0.0374)				
	Portal	0.0025 (0.7385)	-0.0068 (0.7539)	0.0003* (0.0724)	0.0020** (0.0255)	0.1801 (0.2088)	0.0653* (0.0700)	0.4148*** (0.0001)	-0.0630 (0.5491)	-0.0311 (0.2016)				

This table reports the multinomial logit estimates of the choice between the cross-listing programs, namely over-the-counter (OTC), exchange listings (NYSE, NASDAQ, AMEX), and PORTAL. This table reports the marginal effects evaluated at the mean of the explanatory variables for cross-listings issued between 1990 and 2007. The firm variables are: the natural logarithm of total assets in thousands of US dollars (SIZE); the pre-tax income in billions of US dollars (INCOME); the one year total assets growth (ASSETGR); and the total debt divided by the total assets (LEVERAGE). The governance and ownership variables are: the privatization dummy (PRIV), which is equal to 1 if the firm was privatized by cross-listing and 0 otherwise; the Sarbanes-Oxley dummy (SOX), which is equal to 1 if the firm issues a cross-listing after April 23, 2002, and 0 otherwise; and an emerging market dummy (EMC), which is equal to 1 if the country of origin of the cross-listing is an emerging market based on Standard and Poor's Emerging Market Database, and 0 otherwise. The legal institution variable is the difference in the anti-self-dealing index (SELFDEAL) between the firm's home country and the U.S., as introduced by Djankov et al. (2008). The political institution variables are: the political rights index (PRIGHTS) of Freedom House (2010), which varies from 1 to 7, with 1 being the ideal perceived political institution efficiency; and a measure of institutionalized constraints on the decision-making power of chief executives (XCONST) by the Polity database and Interuniversity Consortium for Political and Social Research (ICPSR) (see Marshall and Jaggers, 2009), with a higher score indicating stronger executive constraints. All the firm variables, except for SOX and PRIV, are taken one year before the issuing of the cross-listing. To gauge the power and fit of each estimated model, we rely on the Pseudo R<sup>2</sup> and the percentage of correctly classified observations predicted by the model. For PRIV, SOX, and EMC, the marginal effect is calculated as a discrete change from 0 to 1. The reported results use OTC as the base outcome and are corrected for clustering at the country level. Values between parentheses represent the *p*-values of the *t*-test for the null hypothesis that the coefficient is equal to zero.

\* Statistically significant at the 10% level; \*\* statistically significant at the 5% level; and \*\*\* statistically significant at the 1% level.

**Table 7****Multivariate analysis: multinomial logit of the choice between the three cross-listing venues with additional firm control variables**

Panel	Type of listing	SIZE	INCOME	ASSETGR	LEVERAGE	TURNVOL	PRIV	SOX	ULOW	ULOWDIF	EMC	SELFDEAL	PRIGHTS	Number of obs.	Pseudo R2 (%)	Correctly classified obs. (%)			
A	OTC	-0.0090 (0.6140)	-0.0516** (0.0241)	-0.0014*** (0.0003)	0.0080* (0.0563)	0.6767 (0.4542)	- (0.0000)	0.5584*** (0.0091)			-0.4207** (0.0250)		0.1958*** (0.0019)	564	26.40	67.02			
	Exchange-listings	0.0075 (0.6432)	0.0433** (0.0354)	0.0012*** (0.0013)	-0.0089** (0.0374)	0.2324 (0.7784)	- (0.0440)	0.4500** (0.0007)			-0.0404 (0.7485)		- (0.0013)						
	Portal	0.0015 (0.7675)	0.0084 (0.6381)	0.0002* (0.0748)	0.0009 (0.1238)	-0.9091** (0.0379)	0.1084 (0.5381)	0.0351 (0.1995)			0.4611*** (0.0017)		-0.0232 (0.2275)						
B	OTC	-0.0082 (0.6435)	-0.0513** (0.0297)	-0.0014*** (0.0004)	0.0081* (0.0538)	0.6593 (0.4658)	- (0.0000)	0.5561*** (0.0098)			-0.3999** (0.0484)	0.0584 (0.7781)	0.1887*** (0.0052)	564	26.70	67.02			
	Exchange-listings	0.0074 (0.6489)	0.0438** (0.0346)	0.0012*** (0.0016)	-0.0089** (0.0377)	0.2255 (0.7867)	0.4684** (0.0254)	0.1761*** (0.0007)			-0.0347 (0.7922)	0.0060 (0.9737)	0.1692*** (0.0035)						
	Portal	0.0009 (0.8722)	0.0075 (0.6932)	0.0002* (0.0974)	0.0008 (0.1360)	-0.8848** (0.0267)	0.0877 (0.5725)	0.0361 (0.1863)			0.4347*** (0.0051)	-0.0644 (0.3767)	-0.0195 (0.3005)						
C	OTC	-0.0036 (0.8808)	-0.0753** (0.0278)	-0.0016*** (0.0005)	0.0073* (0.0684)		- (0.0004)	0.4951*** (0.6757)	0.0021 (0.1682)	0.0136** (0.0255)	-0.3599 (0.1144)	0.1696 (0.4870)	0.2078** (0.0247)	378	27.90	69.58			
	Exchange-listings	-0.0006 (0.9780)	0.0966*** (0.0093)	0.0016*** (0.0002)	-0.0074* (0.0807)		0.4348*** (0.0036)	-0.0707 (0.3406)	-0.0024 (0.1443)	-0.0116 (0.1107)	0.0644 (0.7270)	-0.0822 (0.7188)	-0.2037** (0.0282)						
	Portal	0.0042 (0.5054)	-0.0213 (0.3163)	-0.0000 (0.8778)	0.0001 (0.8503)		0.0603 (0.5989)	0.0376** (0.0346)	0.0003 (0.5994)	-0.0020 (0.2531)	0.2955** (0.0157)	-0.0874 (0.1469)	-0.0041 (0.6940)						

This table reports the multinomial logit estimates of the choice between the cross-listing programs, namely over-the-counter (OTC), exchange listings (NYSE, NASDAQ, AMEX), and PORTAL with additional firm variables. This table reports the marginal effects evaluated at the mean of the explanatory variables for cross-listings issued between 1990 and 2007. The firm variables are: the natural logarithm of total assets in thousands of US dollars (SIZE); the pre-tax income in billions of US dollars (INCOME); the one year total assets growth (ASSETGR); the total debt divided by the total assets (LEVERAGE); and the yearly turnover volume of the firm divided by the yearly turnover

volume of its country of origin's market (TURNVOL). The governance and ownership variables are: the privatization dummy (PRIV), which is equal to 1 if the firm was privatized by cross-listing and 0 otherwise; the Sarbanes-Oxley dummy (SOX), which is equal to 1 if the firm issues a cross-listing after April 23, 2002, and 0 otherwise; the ultimate control right (ULOW); the difference between the ultimate control and cash flow rights (ULOWDIF); and an emerging market dummy (EMC), which is equal to 1 if the country of origin of the cross-listing is an emerging market based on Standard and Poor's Emerging Market Database, and 0 otherwise. The legal institution variable is the difference in the anti-self-dealing index (SELFDEAL) between the firm's home country and the U.S., as introduced by Djankov et al. (2008). The political institution variable is the political rights index (PRIGHTS) of Freedom House (2010), which varies from 1 to 7, with 1 being the ideal perceived political institution efficiency. All the firm variables, except for SOX and PRIV, are taken one year before the issuing of the cross-listing. To gauge the power and fit of each estimated model, we rely on the Pseudo R<sup>2</sup>. For PRIV, SOX, and EMC, the marginal effect is calculated as a discrete change from 0 to 1. The reported results use OTC as the base outcome and are corrected for clustering at the country level. Values between parentheses represent the *p*-values of the *t*-test for the null hypothesis that the coefficient is equal to zero.

\* Statistically significant at the 10% level; \*\* statistically significant at the 5% level; and \*\*\* statistically significant at the 1% level.

**Table 8**

**Multivariate analysis: multinomial logit of the choice between the three cross-listing venues with the Socio-Political Instability index**

Panel	Type of listing	SIZE	INCOME	ASSETGR	LEVERAGE	PRIV	SOX	EMC	SELFDEAL	SPI	Number of obs.	Pseudo R2 (%)	Correctly classified obs. (%)
A	OTC	-0.0092 (0.5977)	-0.0525** (0.0281)	-0.0016*** (0.0000)	0.0063* (0.0558)	-0.4765*** (0.0000)	0.1069* (0.0671)	-0.3323*** (0.0098)		0.2331*** (0.0089)	732	21.20	59.42
	Exchange-listings	0.0090 (0.5560)	0.0561*** (0.0066)	0.0013*** (0.0001)	-0.0087** (0.0181)	0.2874** (0.0422)	-0.1775*** (0.0011)	-0.0701 (0.5059)		-0.2131** (0.0329)			
	Portal	0.0002 (0.9752)	-0.0037 (0.8497)	0.0003 (0.1086)	0.0024*** (0.0066)	0.1891 (0.2037)	0.0707* (0.0672)	0.4025*** (0.0008)		-0.0200 (0.6743)			
B	OTC	-0.0070 (0.6651)	-0.0535** (0.0277)	-0.0015*** (0.0000)	0.0065* (0.0541)	-0.4767*** (0.0000)	0.1057* (0.0654)	-0.3243** (0.0150)	0.1322 (0.4962)	0.2361*** (0.0091)	732	21.50	61.2
	Exchange-listings	0.0086 (0.5448)	0.0574*** (0.0077)	0.0013*** (0.0001)	-0.0087** (0.0185)	0.3026** (0.0338)	-0.1771*** (0.0009)	-0.0659 (0.5446)	-0.0188 (0.9223)	-0.2141** (0.0359)			
	Portal	-0.0016 (0.8303)	-0.0038 (0.8481)	0.0002 (0.1629)	0.0022*** (0.0078)	0.1741 (0.2365)	0.0714* (0.0554)	0.3901*** (0.0021)	-0.1134 (0.2425)	-0.0220 (0.6383)			

This table reports the multinomial logit estimates of the choice between the cross-listing programs, namely over-the-counter (OTC), exchange listings (NYSE, NASDAQ, AMEX), and PORTAL. This table reports the marginal effects evaluated at the mean of the explanatory variables for cross-listings issued between 1990 and 2007. The firm variables are: the natural logarithm of total assets in thousands of US dollars (SIZE); the pre-tax income in billions of US dollars (INCOME); the one year total assets growth (ASSETGR); and the total debt divided by the total assets (LEVERAGE). The governance and ownership variables are: the privatization dummy (PRIV), which is equal to 1 if the firm was privatized by cross-listing and 0 otherwise; the Sarbanes-Oxley dummy (SOX), which is equal to 1 if the firm issues a cross-listing after April 23, 2002, and 0 otherwise; and an emerging market dummy (EMC), which is equal to 1 if the country of origin of the cross-listing is an emerging market based on Standard and Poor's Emerging Market Database, and 0 otherwise. The legal institution variable is the difference in the anti-self-dealing index (SELFDEAL) between the firm's home country and the U.S., as introduced by Djankov et al. (2008). The political institution variable is an index that measures the average of the socio-political instability of a country (SPI) over a 19 year period. It is constructed using the principal component analysis of the variables assassinations, purges, and revolutions, as well as a score for democracy from Banks (2010) and Freedom House (2010), with a higher SPI indicating more instability. All the firm variables, except for SOX and PRIV, are taken one year before the issuing of the cross-listing. To gauge the power and fit of each estimated model, we rely on the Pseudo R<sup>2</sup> and the percentage of correctly classified observations predicted by the model. For PRIV, SOX, and EMC, the marginal effect is calculated as a discrete change from 0 to 1. The reported results use OTC as the base outcome and are corrected for clustering at the country level. Values between parentheses represent the *p*-values of the *t*-test for the null hypothesis that the coefficient is equal to zero.

\* Statistically significant at the 10% level; \*\* statistically significant at the 5% level; and \*\*\* statistically significant at the 1% level.

**Table 9**  
**Alternative institutional variables**

Panel	Type of listing	SIZE	INCOME	ASSETGR	LEVERAGE	PRIV	SOX	EMC	ANTDIR	COMLAW	ACRAT	PRIGHTS	Number of Obs.	Pseudo R2 (%)	Correctly classified obs. (%)
A	OTC	-0.0092 (0.5862)	-0.0528** (0.0399)	-0.0017*** (0.0000)	0.0068** (0.0479)	0.5187*** (0.0000)	0.0879 (0.1513)	-0.3734** (0.0153)	0.0155 (0.7456)			0.1568*** (0.0015)	786	22.90	65.39
	Exchange-listings	0.0086 (0.5674)	0.0543*** (0.0058)	0.0013*** (0.0002)	-0.0088** (0.0198)	0.3192** (0.0216)	0.1633*** (0.0020)	-0.0375 (0.7716)	-0.0005 (0.9913)			-0.1250** (0.0134)			
	Portal	0.0006 (0.9387)	-0.0015 (0.9431)	0.0004** (0.0198)	0.0020** (0.0206)	0.1994 (0.1938)	0.0753* (0.0653)	0.4109*** (0.0000)	-0.0150 (0.5691)			-0.0318 (0.1844)			
B	OTC	-0.0101 (0.4779)	-0.0504** (0.0451)	-0.0016*** (0.0000)	0.0066** (0.0283)	0.5241*** (0.0000)	0.0890 (0.1353)	-0.3698** (0.0175)		-0.0149 (0.9033)		0.1577*** (0.0033)	786	23.10	65.90
	Exchange-listings	0.0124 (0.3084)	0.0534*** (0.0042)	0.0013*** (0.0001)	-0.0084** (0.0102)	0.3234** (0.0246)	0.1638*** (0.0021)	-0.0124 (0.9207)		0.0718 (0.5199)		-0.1297** (0.0217)			
	Portal	-0.0023 (0.7503)	-0.0030 (0.8885)	0.0003** (0.0286)	0.0018** (0.0324)	0.2007 (0.1902)	0.0748* (0.0709)	0.3822*** (0.0003)		-0.0569 (0.3911)		-0.0279 (0.2311)			
C	OTC	-0.0087 (0.5993)	-0.0408 (0.1505)	-0.0015*** (0.0000)	0.0074** (0.0203)	0.5250*** (0.0000)	0.1563*** (0.0052)	-0.4518** (0.0126)			-0.0016 (0.8343)	0.2427*** (0.0004)	717	24.80	66.25
	Exchange-listings	0.0095 (0.5318)	0.0682** (0.0151)	0.0011*** (0.0006)	-0.0102*** (0.0048)	0.2339 (0.1151)	0.2213*** (0.0002)	-0.0319 (0.8169)			-0.0010 (0.884)	0.1995*** (0.0004)			
	Portal	-0.0007 (0.9343)	-0.0274 (0.4949)	0.0003 (0.1029)	0.0028*** (0.0080)	0.2911* (0.0603)	0.0650 (0.1204)	0.4837*** (0.0019)			0.0026 (0.5693)	-0.0432 (0.2108)			

This table reports the multinomial logit estimates of the choice between the cross-listing programs, namely over-the-counter (OTC), exchange listings (NYSE, NASDAQ, AMEX), and PORTAL with alternative legal institution variables. This table reports the marginal effects evaluated at the mean of the explanatory variables for cross-listings issued between 1990 and 2007. The firm variables are: the natural logarithm of total assets in thousands of US dollars (SIZE); the pre-tax income in billions of US dollars (INCOME); the one year total assets growth (ASSETGR); and the total debt divided by the total assets (LEVERAGE). The governance and



ownership variables are: the privatization dummy (PRIV), which is equal to 1 if the firm was privatized by cross-listing and 0 otherwise; the Sarbanes-Oxley dummy (SOX), which is equal to 1 if the firm issues a cross-listing after April 23, 2002, and 0 otherwise; and an emerging market dummy (EMC), which is equal to 1 if the country of origin of the cross-listing is an emerging market based on Standard and Poor's Emerging Market Database, and 0 otherwise. The legal institution variables are: the difference in the revised anti-director rights index (ANTDIR) between the firm's home country and the U.S., as introduced by Djankov et al. (2008); a common law (COMLAW) dummy equal to 1 if the firm's home country is of common law origin and 0 otherwise (La Porta, 1998); and the difference in the accounting rating (ACRAT) between the firm's home country and the U.S. (La Porta, 1998). The political institution variable is the political rights index (PRIGHTS) of Freedom House (2010), which varies from 1 to 7, with 1 being the ideal perceived political institution efficiency. All the firm variables, except for SOX and PRIV, are taken one year before the issuing of the cross-listing. To gauge the power and fit of each estimated model, we rely on the Pseudo  $R^2$  and the percentage of correctly classified observations predicted by the model. For PRIV, SOX, and EMC, the marginal effect is calculated as a discrete change from 0 to 1. The reported results use OTC as the base outcome and are corrected for clustering at the country level. Values between parentheses represent the  $p$ -values of the  $t$ -test for the null hypothesis that the coefficient is equal to zero.

\* Statistically significant at the 10% level; \*\* statistically significant at the 5% level; and \*\*\* statistically significant at the 1% level.

## Appendix 1

### Cross-listings issued by year

Year	Cross-listings Type			Total
	OTC	Exchange-listings	PORTAL	
1990	3	2	0	5
1991	4	1	0	5
1992	8	5	2	15
1993	14	3	3	20
1994	7	5	4	16
1995	11	11	5	27
1996	13	10	6	29
1997	26	20	4	50
1998	20	14	6	40
1999	10	20	10	40
2000	22	33	5	60
2001	21	30	7	58
2002	30	27	6	63
2003	25	17	16	58
2004	37	16	12	65
2005	35	32	18	85
2006	18	19	20	57
2007	58	20	15	93
Total	362	285	139	786
Pre-SOX average (1990-2001)	13.3	12.8	4.3	30.42
Transition 2002	30	27	6	63
Post-SOX average (2003-2006)	34.6	20.8	16.2	70.17

This Appendix presents the cross-listing programs chosen by year in a sample of 786 cross-listed firms between 1990 and 2007. This Appendix also presents the average number of cross-listed shares issued during the pre- and post-SOX periods. Cross-listed firms are traded on either the OTC market, major U.S. exchanges (NYSE, Nasdaq, and AMEX), or Portal.

## Appendix 2

### Variables, definitions, and sources

Variable description	Definitions	Sources
<b>SIZE</b>	The natural logarithm of total assets in thousands of U.S. dollars one year before issuing a cross-listing share	Worldscope Disclosure. Economatic (for Latin American), Amadeus (for Europe), Orbis, country-specific company handbooks, firm websites, and firm financial reports
<b>INCOME</b>	The pre-tax income in billions of U.S. dollars one year before issuing a cross-listing share	
<b>ASSETGR</b>	The annual asset growth of the cross-listing firm one year before issuing a cross-listing share	
<b>LEVERAGE</b>	The leverage ratio, which is equal to total debts divided by total assets one year before issuing a cross-listing share	
<b>TURNVOL</b>	The ratio between the turnover volume of the underlying firm and the turnover volume of its local market one year before issuing a cross-listing share	Datastream
<b>PRIV</b>	A dummy variable that is 1 when the firm was privatized by issuing a cross-listing share and 0 otherwise	World Bank, Privatization Barometer website, firm websites, and the Bank of New York
<b>SOX</b>	A dummy variable for the Sarbanes-Oxley Act which is equal to 1 if one firm issues a cross-listing share after April 24 2002, and 0 otherwise	Bank of New York, Citibank, Deutsche Bank, and JP Morgan websites, Lexis/Nexis, NYSE website, CRSP, and Litvak (2007)
<b>ULOW</b>	The percentage of the total ultimate control rights held by the ultimate owner of the cross-listing firm one year before issuing a cross-listing share	Worldscope Disclosure. Economatica (for Latin American), Amadeus (for Europe), Orbis, country-specific company handbooks, firm websites, and firm financial reports
<b>ULOWDIF</b>	The percentage point difference between the ultimate control rights and the ultimate cash flow rights of the ultimate owner of the cross-listing firm one year before issuing a cross-listing share	
<b>EMC</b>	A dummy variable that is equal to 1 if the firm's country of origin is an emerging market, and 0 otherwise	Standard and Poor's Emerging market Database (EMDB)
<b>SELFDEAL</b>	The difference in the anti-self-dealing index between the firm's country of origin and the U.S.	Djankov et al. (2008)
<b>ANTDIR</b>	The difference in the revised anti-director index between the firm's country of origin and the U.S.	Djankov et al. (2008)
<b>ACRAT</b>	The difference in the accounting ratings between the firm's country of origin and the U.S.	La Porta (1998)
<b>COMLAW</b>	A dummy variable that is equal to 1 if the firm's country legal origin is common law and 0 otherwise	La Porta (1998)
<b>PRIGHTS</b>	An index of political rights varying from 1 to 7, with 1 indicating countries that come closest "to the ideals" suggested by the following questions: there are free and fair elections; those who are elected actually rule; there are competing parties or other competing political groupings; the opposition has an important role and has actual power; and minority groups have reasonable self-government or can participate in the government through informal consensus	Freedom House (2010)
<b>XCONST</b>	Measures the extent of institutionalized constraints on the decision-making power of chief executives, whether they be individuals or collectivities. The index varies from 1 to 7, with 1 indicating stronger executive constraints	Polity database and Interuniversity Consortium of Political and Social Research (ICPSR); see Marshall and Jagers (2009)