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# ON THE FORTUNES OF STOCK EXCHANGES AND THEIR REVERSALS EVIDENCE FROM FOREIGN LISTINGS

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**Abstract.** Using a sample that provides unprecedented detail on foreign listings, new listings, and delistings for 29 exchanges in 24 countries starting from the early 1980s, we document a growing tendency of listings to concentrate in the U.S. and the U.K., and large changes in all exchanges' ability to attract foreign companies. We highlight the following determinants of these patterns. First, during the sample period, investor protection improved in many countries. As investor protection improves in the country of origin, firms become less likely to list in countries with weak investor protection, but more likely to list in countries with strong investor protection, especially in the U.K. and the U.S. Second, we show that foreign listings are related to the exchange's market valuation in the same way that domestic equity issues are and that firms that are more difficult to evaluate are more inclined to list in foreign exchanges with high valuations.

**Keywords:** Cross-listings, market timing, investor protection, SOX

**JEL Codes:** G15, G38, M41, M45, F40

## **Non-technical summary**

This paper studies one interesting aspect of the ongoing globalization of capital flows, namely secondary listing of shares, also called cross-listing of shares, by corporations. While the literature has provided two main explanations for why firms list in foreign exchanges - attracting foreign investors and committing to following better governance and disclosure practices, most of these studies are limited to non-U.S. firms cross-listing on U.S. exchanges. In comparison, our paper uses a sample of more than 5,000 cross-listings from firms from more than 80 countries spanning 29 different exchanges and starting in the early 1980s. Such a large sample, unprecedented in the existing literature for both temporal and geographical coverage, allows us to better address the questions of the degree to which laws, regulations and listing costs explain listings and delistings, of the changing fortunes of stock exchanges, and of the effect of changes of ownership of exchanges.

There are several stylized facts that motivate our research. First, foreign listings have increased fourfold worldwide since the early 1980s, implying that nowadays, close to 10% of world's firms are cross-listed abroad. Second, there are large fluctuations in firm preferences for exchanges. For instance, the London Stock Exchange attracted the largest share of foreign listings during the 1980s, but lost its primacy to the U.S. in the early 1990s. In the 1980s, the Tokyo Stock Exchange was also a popular destination, and between 1985 and 1990 it attracted close to 20% of foreign listings around the world, much more than U.K. and U.S. exchanges did in that period. Also, in the early 1990s, the Paris Bourse and the Swiss exchanges managed to attract nearly 15% of global listings each, an increase of over 50% concentrated in a couple of years. However, more recently, we have seen that U.S. and U.K. exchanges have substantially increased their share in the world of foreign listings.

Finally, there is a large difference between the average number of listings an exchange receives per year and the maximum number of listings an exchange is able to attract at the peak of its popularity. For instance, while the average exchange attracts 6.7 new listings per year on average, Japan receives 5 new listings per year, but in 1987, 35 new foreign firms listed in Japan.

Our analysis focuses on how improvements in corporate governance across the world as well as differences in stock valuation across markets can help explain the

observed patterns. We first focus on laws and regulations adopted with the aim of improving corporate governance. We find that after a country adopts stronger corporate governance provisions, it becomes a more attractive destination for foreign firms. We also find that when firms' home countries adopt a corporate governance code, firms become less likely to cross-list in the smaller exchanges and in exchanges with weaker investor protection, but more likely to cross-list in countries with strong investor protection.

This important finding implies that the costs of further strengthening investor protection decrease when firms have to comply with stronger standards of corporate governance in their own country. Thus one may argue that improvements in corporate governance around the world have strengthened the competitive advantage of U.S. and U.K. exchanges, where regulations and market forces guarantee particularly strong protection of investor rights. To illustrate this point, the share of foreign listings enjoyed by the U.S. and the U.K. increased from less than 40% in the 1980s, to above 60% at the end of 2006. In addition, foreign firms now account for a substantial share of these countries' stock exchanges: in 1988, foreign listed firms represented 5.6% of firms listed in the U.K. and U.S., whereas in 2006 they accounted for more than 17% of the number of firms, which is a dramatic increase.

Second, we find that market timing plays an important role in explaining cross-listing waves. We show that all firms are more likely to list in foreign exchanges with high market valuations. This suggests that the choice of a foreign exchange is at least partly driven by investor sentiment, as are firms' domestic capital-raising activities (SEOs and IPOs).

Overall, our results suggest that imperfect integration of capital markets may lead to cross-border arbitrage in international capital-raising activities. They also provide a broader perspective on a number of recent papers analyzing how the Sarbanes–Oxley Act (SOX) has affected the competitiveness of U.S. exchanges with respect to U.K. exchanges. Their conclusion that SOX did not significantly hinder the competitiveness of U.S. exchanges is consistent with our finding that exchanges attract more foreign listings if they improve their investor protection regime.

In the last few decades, there have been large shifts in exchanges' ability to attract foreign listings. U.S. and U.K. exchanges, which had approximately 40% of all foreign listings at the beginning of the 1980s (and less than 34% in 1990), now account for approximately 60% of foreign listings. The London Stock Exchange attracted the largest share of foreign listings during the 1980s, but lost its primacy to the U.S. in the early 1990s. More recently, U.K. exchanges have once again gained a substantial share of new listings and now boast more new listings than U.S. exchanges.<sup>1</sup>

Similar waves in foreign listings have been observed in other markets. In the 1980s, the Tokyo Stock Exchange was a popular destination and, between 1985 and 1990, it attracted close to 20% of foreign listings around the world, much more than U.K. and U.S. exchanges did in that period. In the early 1990s, the Paris Bourse and the Swiss exchanges managed to attract nearly 15% of global listings each, an increase of over 50% concentrated in a couple of years.

In this paper, we aim to explain the trends and waves in foreign listings around the world. Our sample starts in the early 1980s and includes firms from more than 80 countries that cross-list across 29 different exchanges. Such a large sample, unprecedented in the existing literature for both time-series and cross-sectional coverage, allows us to investigate the role of different determinants of exchange competitiveness and their reversals.

We argue that improvements in corporate governance across the world as well as differences in stock valuation across markets can help to explain the observed patterns. First, during the sample period, many countries adopted laws and regulations aimed at improving corporate governance (De Nicoló, Laeven, and Ueda, 2008). We show that, as corporate governance improves in their home country, firms become less likely to cross-list in countries

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<sup>1</sup> In 2007, U.K. exchanges attracted over 130 foreign firms, more than double the number of foreign firms that listed in U.S. stock exchanges.

with weaker investor protection. However, the probability of their listing in countries with strong investor protection, especially the U.S. and the U.K., increases.

Second, we demonstrate that all firms are more likely to list in foreign exchanges with high market valuations.<sup>2</sup> Cross-listing waves appear to occur during periods in which domestic firms raise large amounts of capital through initial public offerings (IPOs) and seasoned equity offerings (SEOs) in the exchange country. Interestingly, firms that are more prone to be mispriced or to have negative valuations in the following three years are more likely to cross-list in markets with temporarily high valuations than firms in need of cash. This suggests that the choice of a foreign exchange is at least partly driven by investor sentiment, as are firms' domestic SEOs and IPOs (Ritter, 1991; Loughran and Ritter, 1995; Lowry, 2003).

The finding that the timing of cross-listings and the choice of exchange are driven by the desire to exploit higher market valuations is consistent with the work of Foerster and Karolyi (1999), Henderson, Jegadeesh, and Weisbach (2006), Gozzi, Levine, and Schmukler (2008), and Sarkissian and Schill (2009a and b), who find that firms experience a temporary increase in valuation — and, subsequently, low returns — after cross-listing or raising capital in international markets. Our test for market timing, which is based on firm listing choices rather than ex post returns, is important for the following reasons. First, existing evidence on post-listing valuation is conflicting, as Errunza and Miller (2000), Foerster and Karolyi (2000), Doidge, Karolyi, and Stulz (2004), and King and Segal (2009) find permanent increases in valuation after cross-listings for firms that issue equity in major public exchanges in the U.S.

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<sup>2</sup> Note that by listing in foreign exchanges with high valuations, managers obtain a temporary boost in the stock price that benefits current shareholders because the firm can issue overpriced equity or because current shareholders can sell their stocks at a high price. Thus, our argument also applies to foreign listings that do not involve capital raising.

Most importantly, the post-listing decline in firm valuation lends itself to alternative explanations.<sup>3</sup> For instance, Foerster and Karolyi (1999, 2000) interpret their findings in the context of models of international capital market segmentation and of multimarket trading and liquidity, and attribute permanent (temporary) value gains to the ability (inability) of the firm to capture a proportionately larger share of U.S. trading. Our findings provide direct evidence of the importance of market timing.

Our paper belongs to a growing body of literature exploring firms' foreign-listing decisions. The existing literature provides two main explanations for why firms list in foreign exchanges. First, firms may wish to exploit market segmentations to decrease their cost of capital (see Miller (1999) and Hail and Leuz (2009) for empirical tests). In this context, cross-listings are commonly considered to benefit firms because they improve risk sharing. Second, by listing in markets with more rigorous corporate governance standards and more sophisticated market participants, thanks to enforcement by the legal authorities and also to reputational mechanisms, firms can commit to limit corporate insiders' extraction of private benefits of control (Stulz, 1999; Doidge, Karolyi, and Stulz, 2004; Doidge, 2004).<sup>4</sup>

Most empirical studies rely on the experience of non-U.S. firms cross-listing on U.S. exchanges (Karolyi, 2006). Three notable exceptions are Pagano, Randl, Röell, and Zechner (2001), Pagano, Röell, and Zechner (2002), and Sarkissian and Schill (2004), who investigate how firms choose which exchange to list in, focusing on short time series (or without exploring changing patterns over time). These papers have stressed that firms that are larger than average and have stronger financing needs are more inclined to list in foreign exchanges

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<sup>3</sup> These alternative explanations do not arise in the context of domestic equity issues as there are no market segmentations between domestic and foreign markets or multimarket trading affecting liquidity and investor base. For the different interpretations of post-listing price declines for domestic and international listings, see also Karolyi (1998). Given these alternative explanations, existing papers finding post-listing price declines do *not* interpret them as evidence of market timing.

<sup>4</sup> Importantly, Edison and Warnock (2004), Ammer, Holland, Smith, and Warnock (2008), and Leuz, Lins, and Warnock (2008) show that, by improving corporate governance, U.S. cross-listings contribute to larger shareholdings by U.S. investors.



and that firms are more likely to choose familiar markets in which they are more easily recognized by investors.

In a study that is more closely related to our work, but with a focus on U.S. exchanges, Reese and Weisbach (2002) relate investor protection in the country of origin to the decision to cross-list in the U.S. and find that firms from strong corporate governance countries are more likely to be cross-listed. This suggests that the costs of a U.S. listing are largest for weak corporate governance firms. This interpretation is also supported by Doidge, Karolyi, Lins, Miller, and Stulz (2009), who show that firms in which insiders enjoy larger private benefits of control are less likely to list in the U.S. By considering cross-listings in many exchanges around the world, we find that weak corporate governance in the country of origin increases the probability of a cross-listing. However, as corporate governance improves in their country of origin, firms are more likely to cross-list in countries with strong investor protection. These results suggest that the costs of further strengthening investor protection decrease when firms have to comply with stronger standards of corporate governance in their own country.

Our findings also help to put in broader perspective a number of recent papers analyzing how the Sarbanes–Oxley Act (SOX) has affected the competitiveness of U.S. exchanges with respect to U.K. exchanges. Zingales (2007) argues that direct and indirect costs of compliance can explain why foreign firms have started spurning U.S. exchanges. Piotroski and Srinivasan (2008) and Doidge, Karolyi, and Stulz (2008), however, find limited evidence of this. In particular, Doidge, Karolyi, and Stulz argue that the U.S. loss of new foreign listings can be entirely explained by a change in the characteristics of firms listing abroad, while Piotroski and Srinivasan find a negative impact of SOX on the propensity to cross-list in the U.S. only for small firms. Our finding that exchanges attract more foreign listings if they improve their investor protection is broadly consistent with their conclusion that SOX has not significantly hindered the competitiveness of U.S. exchanges.

The rest of the paper is organized as follows. Section I describes the data, while Section II presents the main stylized facts. Section III presents the main findings. Section IV concludes the paper and indicates avenues for further research.

## **I Data**

### *A. Foreign listings*

We collect data on foreign listings for the period 1980 to 2006, using a variety of data sources. We obtain a list of the countries hosting the major stock exchanges from the World Federation of Exchanges. For all the exchanges in these countries, we proceed to identify any foreign firms that at some point during our sample period had a listing, even though they delisted at some later date (the Appendix contains the full list of exchanges included in our analysis). We proceed as follows.

For foreign listings in U.S. exchanges (AMEX, NASDAQ, and NYSE), we use data from the primary depository institutions: Citibank, Bank of New York, JP Morgan, and Deutsche Bank. Each institution has only part of the information, and no individual database includes all U.S. cross-listings. We complement this information with data collected directly from the stock exchanges on non-U.S. listings (including Canadian and Israeli firms that list directly on U.S. exchanges). We have a total of 1416 foreign listings in U.S. exchanges, which include 849 active listings (as of 2006) and 567 foreign listings that are no longer active.

For all non-U.S. exchanges, we collect active and inactive listings by combining annual fact books of each individual exchange with other exchange-provided information, and news searches for listing/delisting activity using Factiva, LexisNexis, the Internet, Datastream, and SDC. In addition, since firms regularly change listing type or exchange, we

hand-check all cross-listings in our sample to see whether a firm had a previous cross-listing, using company reports.

In the end, our sample includes 5007 foreign listings of firms from 89 origin countries in 24 exchange countries. Countries with smaller exchanges, such as the Czech Republic and Turkey, have no firms with a foreign listing and are excluded as possible destination exchanges, but are included as origin countries if they have at least one domestic firm with a foreign listing. The same firm can enter the database several times because of multiple listings in different exchanges. Taking into account multiple foreign listings of the same firm, we end up with a total of 3643 firms that have a cross-listing or had one in the past. For each of these firms, we know exactly when each listing was initiated or terminated.

Our foreign listings database is a considerable improvement on the ones used in existing studies. In comparison to Pagano, Röell, and Zechner (2002), we are able to rely on a longer time series and a substantially larger cross section of countries, as their sample is limited to foreign listings in the U.S. and major European Union exchanges of firms incorporated in these countries between 1986 and 1997. Our sample also improves on the database collected by Sarkissian and Schill (2004), which includes active cross-listings as of January 1998 and 44 firms' countries of origin.<sup>5</sup> Not only do the larger cross section and longer time series help us to identify changes in the geography and timing of foreign listings, but we can also eliminate the survivorship bias by collecting data on delistings.<sup>6</sup> As a result, our sample of cross-listings is nearly twice as large as that of any previous study.

Table 1 reports the number of foreign listings across different exchange countries. More than half (2597) of the 5007 foreign listings are no longer active at the end of our

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<sup>5</sup> In a recent paper, Sarkissian and Schill (2009b) describe the geography of *active* foreign listings as early as 1950. Our analysis of the stock of foreign listings also includes some firms that cross-listed in the 1950s. However, we focus the analysis on a shorter period, for which we are able to also obtain information on delistings to limit the survivorship bias.

<sup>6</sup> We perform robustness checks using the most recent time period to address any lingering doubts that overrepresentation of more recent listings may affect our results.

sample period (2006). This reinforces the importance of including inactive cross-listings. Not surprisingly, the market with the highest number of foreign listings is the U.S., the second-largest market being the U.K. Over the sample period, close to 1000 firms cross-listed in U.K. exchanges (LSE, and more recently, the AIM). Nevertheless, the world of foreign listings is very diverse, with U.S. and U.K. markets accounting for less than 50% of the total number of foreign listings. In square brackets in Table 1, we report the number of foreign listed firms for which we have financial information from the Worldscope database.<sup>7</sup>

### *B. Corporate governance*

Having a wide range of exchanges across the world is not only an opportunity to explore the effects of laws and regulations aimed at improving investor protection, but also poses some challenges. Since we conjecture that changes in regulations contribute to the changing geographical profile of foreign listings, it is important for us to identify these changes. Unfortunately, most of the existing proxies for corporate governance that are available for a large cross section of countries refer to a given year (La Porta, Lopez-de-Silanes, and Shleifer, 1998, 2006). We therefore use several different time-varying measures of corporate governance in firm's countries of origin and in exchange countries.

Our first proxy exploits the dates of adoption of corporate governance codes. Corporate governance codes require listed companies to comply with some basic governance standards, such as having independent directors or disclosing executive compensation, or to explain any deviations from the recommendations of the code.

We construct a second time-varying index of corporate governance (CGQ) using market and accounting data as in De Nicoló, Laeven, and Ueda (2008). This index is a simple average of indicators of accounting standards, earning smoothing, and stock price synchronicity, and captures the actual quality of corporate governance for firms in a country.

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<sup>7</sup> We also perform an aggregate country-level analysis in which we study the determinants of the aggregate number of new listings (net of delistings) from a given country to the different exchange countries. This analysis is available upon request from the authors and fully supports the results we present hereafter.

Finally, we explore whether our results are robust to more commonly used proxies for investor protection. such as the anti-self-dealing index constructed by Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2008), which measures the ex-ante and ex-post effectiveness of regulation and enforcement against violators.

We obtain the dates of adoption of corporate governance codes from the European Corporate Governance Institute, which provides a comprehensive list of corporate governance codes worldwide. On the basis of these dates, we define two variables designed to capture changes in corporate governance. *First Code Adoption* is a dummy variable that equals one starting from the year after a country introduced a governance code and equals zero before that year.<sup>8</sup> Since our aim is to capture a significant improvement in corporate governance during the sample period, we surmise that such an event for the U.S. coincides with the adoption of SOX in 2002.<sup>9</sup>

Most codes are voluntary inasmuch as the substantive code provisions need not be implemented. Academic papers and policy reports alike, however, suggest that the comply-or-explain disclosure requirements and corporate governance provisions exert coercive power. Most importantly, the code adoption reflects an increased attention to institutional investors' and other minority shareholders' concerns about corporate governance. Overall, the evidence suggests that codes have proved highly effective in stimulating discussion of corporate governance issues and have contributed to an improvement in investor protection around the world (De Nicoló, Laeven, and Ueda, 2008). For instance, the Cadbury report formulating the U.K. Code of Best Practice was greeted with skepticism because of its voluntary nature.

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<sup>8</sup> Although it is beyond the scope of our paper to compare the stringency of different codes' provisions, different studies suggest that corporate governance codes are remarkably similar (Thomsen, 2006; European Commission, 2002). In addition, several countries introduced several corporate governance codes or significant changes to the first code. If we use the number of codes adopted instead of the first code dummy, our estimates are similar to the ones we report below.

<sup>9</sup> The U.S. had adopted a first corporate governance code in 1978 (before the start of our sample period). As will become clear later, this is captured by the country dummies. While other statements on corporate governance were issued by managers' associations for the purpose of defining the *First Code Adoption* dummy, we consider SOX the most significant improvement in corporate governance during the sample period.

However, Dahya, McConnell, and Travlos (2002) find that poor performance had a significantly stronger impact on CEO turnover after the adoption of the Code of Best Practice; only 5% of the firms chose not to at least partially comply with the code provisions. Nor are the effects limited to countries with highly developed financial systems such as the U.K. For instance, Price, Roman, and Rountree (2007) show that after the adoption of the Code of Best Practice, Mexican firms perceived noncompliance to be costly and therefore improved their corporate governance.

Depending on the country or even on the exchange, foreign firms are compelled to adopt laws and regulations of the host country to different extents (Enriques and Tröger, 2007). When we consider investor protection in the foreign countries where a firm may cross-list, we need to take into account that it is difficult to evaluate to what extent benefits derive from the adoption of foreign laws. Doidge, Karolyi, and Stulz (2008) and Doidge, Karolyi, Lins, Miller, and Stulz (2009) argue that only U.S. exchanges can provide direct bonding to foreign firms that adopt their laws through a foreign listing (i.e., level II and level III foreign listings). Others have questioned the relevance of the mechanism based on direct bonding even in the case of the U.S. For instance, Siegel (2005) shows that even in the U.S., where the SEC has the power to enforce minority shareholder rights in court, legal enforcement has been ineffective.

Even when courts have no power of enforcement, analysts, institutional investors, media, auditors, and investment banks are more reputable and sophisticated in stronger investor protection countries (Lang, Lins, and Miller, 2004) and may provide stronger bonding devices than foreign courts. These gatekeepers' more effective monitoring in strong

investor protection countries increases the reputational cost of extracting private benefits, especially if firms wish to maintain a good reputation for future equity issues.<sup>10</sup>

It is beyond the scope of this paper to distinguish the relevance of direct bonding from other reputational mechanisms. However, it is important to bear in mind that both mechanisms can apply in interpreting the effect of investor protection in the exchange country on foreign listings. In particular, market mechanisms, such as the fear of losing reputation and the possible negative impact on future equity issues, may be at least as important as a de facto adoption of foreign laws.

### *C. Other data*

As mentioned before, in order to appropriately control for firm characteristics, we merge the information on foreign listings with information on firm stock prices and financial data from Datastream and Worldscope. As we explain in detail in Section III, we use all Worldscope firms without a foreign listing to construct the control sample when we explore firms' foreign listing decisions.

Using Worldscope and Datastream, we construct measures of firm growth opportunities such as Tobin's Q (defined as firm market value plus total assets minus equity divided by total assets), proxies for firm size (such as the logarithm of firm total assets), and financial leverage. For each year, we construct Industry Q, Origin Q, and Exchange Q in a given industry, country of origin, and exchange, respectively.

To explore whether foreign listing waves are related to domestic equity issues, we obtain information on new equity issues (including domestic SEOs and IPOs) from SDC Platinum. Finally, we complement our main dataset by using stock market valuation, stock turnover, and macroeconomic performance indicators from the World Development Indicators (WDI) and Datastream, and the great-circle distance between the capital city of the country of

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<sup>10</sup> Empirical evidence shows that analyst coverage increases to a greater extent for firms that cross-list in strong investor protection countries (Crawford, 2007). This is consistent with bonding mechanisms based on market forces, often referred to as *reputational bonding*.

origin and the capital city of the country of the exchange from infoplease.com. All variables' definitions are summarized together with the descriptive statistics in Table 2.

## II Stylized Facts

The data show a marked concentration (and increased relevance within the domestic markets) of foreign listings in the top two world exchange countries: the U.S. and U.K. Figure 1 shows the total number and the proportion of foreign listings in all the stock exchanges at the end of each year. The proportion and the number of firms listed in any foreign exchange vary widely across countries and over time. As Panel B of Figure 1 illustrates, until 1990, the U.K. and U.S. exchanges jointly had less than 40% of the total number of foreign listings. By the end of 2006, these major international exchanges had increased their market share to approximately 60%.

Figure 2 documents an increasing number of foreign listings over time.<sup>11</sup> To understand the relative importance of cross-listings in the universe of publicly listed firms, the figure also reports (as bars) the foreign listed firms as a percentage of all domestic companies listed in the exchanges of our sample. The relevance of cross-listings peaks in 1997, when they represent close to 12% of all firms listed in the exchanges in our sample. However, since the early 2000s this number has decreased, and as of 2006, foreign listed firms represent 8.8% of domestic listed firms. Importantly, the figure also shows that the number of foreign firms increased relative to the number of domestic companies in the U.S. and U.K. (as opposed to the remaining stock exchanges in our sample). In 1988, foreign listed firms represented 5.6% of firms listed in the U.K. and U.S., whereas in 2006 they accounted for more than 17% of the number of firms.

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<sup>11</sup> The sample in Figure 2 starts from 1988 because the total number of listed companies in each country from the World Development Indicators is only available for that year.



Table 3 further characterizes the extent of foreign listing waves. On average, each exchange attracts 6.7 new listings per year. However, there is a large difference between the average number of listings an exchange receives per year and the maximum number of listings an exchange is able to attract at the peak of its popularity. For instance, on average, Japan receives 5 new listings per year. However, in 1987, the year of highest popularity, 35 new foreign firms listed in Japan.

Similarly, we observe strong waves in delistings. A firm can delist from a stock exchange not only voluntarily but also because it went bankrupt, was acquired or merged, or failed to comply with the exchange's regulations. On average, 3.9 firms delist from each exchange in any given year. There is a large difference between this average and the maximum number of delistings in each market. For instance, in the U.K. on average 14 firms delist. However, in 2001, a total of 57 firms delisted from U.K. exchanges.

### **III Results**

#### *A. Methodology*

The number of foreign firms listed in a country at any given date depends on the number of newly listed firms, and also on firms that had obtained a listing in the past but subsequently delisted. Therefore, we explore the determinants of the stock of listings, delistings, and new listings in different exchanges. Since firms can list in different exchanges at the same time, we consider all possible firm–exchange pairs. That is, any firm in *Worldscope* is considered to be capable of listing in any of the exchange countries in our sample. To take into account that a given firm's decision regarding whether to list in any of the exchanges can be affected by the same unobservable shocks, in all models we cluster errors at the firm level.

Unless otherwise noted, we include country of origin fixed effects to capture systematic shocks to the decision to cross-list that may affect all firms from a country. Similarly, we include exchange country fixed effects to eliminate the effects of time-invariant characteristics in the exchange country. Importantly, when we use *First Code Adoption* to capture improvements in corporate governance, the fixed effects also control for the absolute levels of investor protection in different countries. Finally, to mitigate concerns that more recent foreign listings are overrepresented in our sample and to control for any time effects (for instance, in Figure 2 we report an upward trend in the number of cross-listings), we include year dummies, which help us to control for any systematic differences in reporting over time.

Thus, when we analyze the stock of listings and new listings, our dependent variable is a dummy that equals one if a company is cross-listed in that exchange in that year. We explore the effects of origin country, exchange country, and firm characteristics on the probability of a foreign listing using logit regressions. When we look at new listings, we recognize that we do not observe new listings after the end of our sample period. To take into account the effects of this right censoring, we use a Cox proportional hazard model.

Finally, when we explore delistings, we restrict the sample to firms that are listed in a given foreign exchange at  $t - 1$  and analyze the determinants of the decision to delist from that foreign exchange during the sample period, using a Cox proportional hazard model.

#### *B. Foreign listings, corporate governance, and listing standards*

Panel A of Table 4 shows that changes in corporate governance and investor protection can help explain the changing patterns of foreign listings. Since we include country of origin and country of exchange fixed effects, our estimates in column 1 can be interpreted as follows. Improvements in corporate governance as captured by the adoption of the first corporate governance code bring more foreign listings to a given country. More importantly,

fewer firms list abroad when investor rights gain better protection in the origin country. The effects are not only statistically, but also economically significant. As is common with logit models, we evaluate the economic significance of the estimates using marginal effects, calculated at the mean of all independent variables. Marginal effects for dummy variables are calculated as the discrete change in the expected value of the dependent variable (the probability of having a foreign listing) when the dummy variable changes from zero to one.<sup>12</sup> The probability that any given firm decides to obtain a foreign listing after the adoption of a corporate governance code in the home country decreases by 10%; when a country adopts a governance code, the probability that any firm seeks a foreign listing there increases by almost 12%. The effect of the first governance code adoption appears even more relevant if one considers that, since we directly control for stock market development, the effect of investor protection we detect does not capture the indirect effects through market capitalization and liquidity.

In columns 2 to 3, we report similar results using different proxies for investor protection. First, in column 2, we use the anti-self-dealing index. Since we have no time-series variation for this index, we cannot include country of origin and country of exchange fixed effects. The results, however, confirm our previous finding that firms from countries with stronger corporate governance are less likely to have a foreign listing, and that most foreign listings are made in countries with strong investor protection.<sup>13</sup> Second, in column 3, we show that our results are once again invariant when we measure a country's quality of corporate governance and its changes using the CGQ index.

We then ask whether firms sort differently depending on the characteristics of the origin countries. Even though firms are less likely to cross-list when corporate governance

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<sup>12</sup> In what follows, we express marginal effects as a percentage of the predicted probability of listing in order to improve clarity.

<sup>13</sup> In unreported specifications, we find that firms are more likely to list in exchanges with stronger investor protection than that provided by their home country.

improves in the origin country, this does not affect all exchanges equally. In column 4, the interaction term between the dummy that equals one if the firm comes from a country that has adopted a corporate governance code and a dummy that equals one for the U.S. and the U.K. stock exchanges, the only truly global exchanges, implies that firms are more likely to cross-list in the global exchanges after the adoption of a corporate governance code in the origin country.<sup>14</sup> The economic impact is large: After the adoption of a corporate governance code in the origin country, any firm becomes 10% less likely to seek a foreign listing in any exchange that is not in the U.K. or the U.S. However, the probability of listings in the latter two countries increases by 13%.

In general, we find that after the adoption of a corporate governance code in the origin country, firms are more (less) likely to list in countries with stronger (weaker) corporate governance, as measured by a dummy that takes the value one if the anti-self-dealing index of the exchange is above the median (columns 5 and 6). Consistent with the interpretation of our previous results, firms are less likely to list abroad after the adoption of a corporate governance code if they are from countries with an initially higher level of investor protection.

Again, this result does not depend on the specific index of corporate governance. In column 7, the results are qualitatively similar when we measure corporate governance using the CGQ index. Finally, results are invariant if we exclude U.S. firms, which constitute a large fraction of the sample and have low inclination to seek foreign listings (column 8).

Overall, these results suggest, consistent with Doidge, Karolyi, and Stulz (2004), that for firms in environments with weak corporate governance, the cost of listing in the exchanges with the strongest investor protection may be too large even if conforming to the standards of these exchanges provides the biggest benefits in limiting the extraction of private benefits of control. Improvement of investor protection in the origin country reduces the incremental cost

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<sup>14</sup> Note that here we are not calculating a cross-derivative, but are simply looking at the marginal effect of the proxy for corporate governance in the country of origin given that the global exchange dummy (or the high investor protection exchange dummy) is equal to one.

of listing in the highest investor protection exchanges and leads to concentration of listings in the countries where investors are better protected. To the extent that the benefits of listing are larger, this also leads to more foreign listings. Interestingly, our results suggest that looking for bonding is not a binary decision. On the contrary, the extent to which firms look for bonding appears to be related to the level of investor protection in their own country, in addition to the level of protection granted by the foreign exchange.

The probability of being listed in a foreign exchange depends on new listing and delisting decisions. In Panel B of Table 4, we thus explore whether an improvement in corporate governance in the domestic country weakens incentives to obtain new foreign listings or even strengthen firms' incentives to delist.<sup>15</sup>

The determinants of new listings appear to be the same as the determinants of the existing stock of listings. In column 1, an exchange country is 61% more likely to attract a new listing after the adoption of a governance code.<sup>16</sup> Consistent with our previous findings, the probability of a new listing decreases by 25% if a governance code is adopted in the origin country. Interestingly, when we consider differences across exchanges (column 2), we find that the probability of a new listing in a high investor protection exchange nearly doubles after the adoption of a corporate governance code in the country of origin. The probability of listing in exchanges with weaker investor protection decreases by over 60%.

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<sup>15</sup> In the regressions in which we explore the number of new foreign listings, the number of observations is slightly higher than in those in which we focus on the stock of foreign listings even though in the latter we also include firms that have been listed on a foreign exchange for more than one year. This is because Stata drops observations for which a set of regressors is a great predictor of the outcome. In our case, Stata drops a number of observations relative to the failures of firms from some countries to list in certain exchanges (i.e., if the country of origin dummy completely predicts the outcome). Given the large size of our control sample, this should not be a problem. Also, the estimates we obtain for the stock of listings are very similar if we use a linear probability model, for which no observations are dropped.

<sup>16</sup> The economic effect when we use the Cox proportional hazard model is expressed as a percentage change of the hazard rate for a one-unit change of the relevant independent variable and is obtained as follows:  $(e^{\hat{\beta}} - 1) * 100$ . When we consider the additional effect of the independent variable when interacted with a dummy variable, the economic effect is calculated as  $(e^{\hat{\beta} + \hat{\gamma}} - 1) * 100$ , where  $\hat{\gamma}$  is the coefficient of the dummy variable.

Stronger investor protection reduces the likelihood of a delisting. After a country adopts a governance code, the probability that a firm delists from its exchanges drops by 50%. Improvements in corporate governance in the origin country appear to reduce the likelihood of a delisting from foreign exchanges as well. In this case, the probability of a delisting drops by 35%. Although we are unable to distinguish between voluntary and involuntary delistings, we note that this effect is consistent with the results of Marosi and Massoud (2008), who analyze foreign firms' decisions to abandon U.S. capital markets and find that firms from weak investor protection countries are more likely to do so. Thus, it seems that if firms have to comply with stricter standards in the country of origin, the costs of remaining listed in a foreign exchange are lower. This interpretation is also supported by the fact that firms with a larger number of foreign listings are less likely to delist.<sup>17</sup> Having to comply with different exchanges laws and regulations, they probably consider each foreign listing to be less costly.

In column 1 of Table 5, we explore more directly the relevance of reputational mechanisms as opposed to legal enforcement in guaranteeing better investor protection as follows. We consider as cross-listed the 1781 firms in our sample that are (or were) listed over the counter in the U.S. (144A and Level 1 ADRs). The adoption of corporate governance codes in domestic and foreign countries has an effect similar to the one we report when we consider only exchange-listed foreign firms. Even though firms listed over the counter do not have to comply with the SEC or present financial statements using U.S. GAAP, over-the-counter listings have similar determinants as exchange listings. Results (not reported) are also similar if we do not consider foreign listings in the AIM, the U.K. secondary exchange, where listing requirements are less stringent than in the LSE. These additional tests support the idea that legal enforcement is not the only way firms can improve their corporate governance, and that market mechanisms (reputational bonding) may be relevant.

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<sup>17</sup> We include the number of listings as a control only when we explore delistings because in these specifications the sample includes firms that are listed in a foreign exchange at  $t - 1$  and, therefore, the number of observations per firm depends on the number of its foreign listings.

In columns 2, 4, and 5 of Table 5, we control for disclosure in the countries of origin and of the exchange. The indicator of disclosure is constructed similarly to the index provided by the Center for International Financial Analysis and Research (CIFAR) until 1993. CIFAR uses information based on the top 8 to 40 companies, depending on data availability, and on 90 items selected by professional accountants (CIFAR, 1993). To generalize the index to our longer sample period, we proceed in a similar manner as De Nicoló, Laeven, and Ueda (2008). Our indicator, which we refer to as *CIFAR*, is given by the number of reported accounting items as a percentage of 40 accounting items selected from the original CIFAR index' items according to their availability in Worldscope.

While our main results on the effects of investor protection are qualitatively invariant, similarly to Pagano, Randl, Röell, and Zechner (2001), we find that investor protection and firm disclosure have opposite effects on an exchange's ability to attract foreign listings. A one-unit increase in the exchange country's *CIFAR* decreases by 6% the probability that the average foreign firm lists in that exchange. Firms, however, do not appear to delist from exchanges with high disclosure requirements, suggesting that disclosure costs are lower than the cost of delisting. Also, firms from high-disclosure countries are more likely to have a foreign listing. This is consistent with previous studies showing that firms listed in a foreign exchange are typically from countries with stricter disclosure requirements (Biddle and Saudagaran, 1989; Saudagaran and Biddle, 1992).

In column 3 of Table 5, we consider more directly whether the adoption of SOX in 2002 indeed decreased the attractiveness of U.S. exchanges for foreign firms, by including a dummy variable that equals one after 2002 if the exchange country is the U.S. Strikingly, the coefficient of the dummy variable is positive and statistically significant. Since SOX has arguably stronger implications for investor protection than the average corporate governance code, the positive coefficient of the dummy capturing its effect is fully consistent with our

previous results suggesting that stronger investor protection increases an exchange's popularity with foreign firms. More generally, this result indicates that after the adoption of SOX the number of foreign firms listed in the U.S. was larger — not smaller — than what firm characteristics and market conditions around the world would have implied. This is fully consistent with the results of Doidge, Karolyi, and Stulz (2008).

Finally, it may be of interest to note that our estimates also reveal that, consistent with previous studies, larger firms and firms with higher growth opportunities are more likely to cross-list, and that larger distance between the country of origin and the foreign exchange decreases the probability of a foreign listing.<sup>18</sup>

### *C. Market timing*

An exchange's popularity in attracting foreign listings could be correlated with the level of the stock market in the same way as domestic equity issues, IPOs, and merger activity are. Managers may time cross-listings in overvalued markets to obtain a temporary boost to their valuation in order to issue overpriced equity or to allow current shareholders to sell equity at high prices.

We follow a testing strategy suggested by Lamont and Stein (2006), who assume that aggregate stock prices reflect a greater proportion of investor sentiment than the same-sized movement in firm-level stock prices. As a consequence, they attribute a larger response of firm (domestic) equity issuance activity to (domestic) aggregate price movements than to firm-specific price movements as evidence of market timing.

This strategy can be adapted and fine-tuned in the context of foreign listings. Not only can we control for fundamentals-driven changes in prices using the Tobin's Q of the firm, but we can also control for global growth opportunities in the firm's industry, using the Tobin's Q of the industry, and for the growth opportunities of the firm's origin country, using the

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<sup>18</sup> In the specifications we report, we do not include other firm-level controls such as the percentage of foreign sales or the free float, because we would lose further observations on foreign listings. Including these further controls leaves our results qualitatively unchanged.



Tobin's Q of the origin country. After controlling for year, country of origin, and exchange fixed effects, we interpret a positive effect of aggregate exchange valuation on the probability that a foreign firm is listed in that exchange as evidence of market timing.<sup>19</sup>

Panel A of Table 6 shows that firms are more likely to be listed in exchanges with higher valuations. A marginal increase in the exchange's stock prices increases the probability that a firm is listed in that exchange by 75%.

The new listings estimates in Panel B of Table 6 are, however, more appropriate to test whether firms indeed chase the highest valuation when selecting the foreign exchange in which to list: A one-unit increase in the valuation of the exchange increases the probability of a new listing by 175%. The corresponding increase for any of the variables that may capture firm growth opportunities is lower: A one-unit increase in firm valuation increases the probability of a new listing by only 10%. Analogous increments in the industry's and the origin country's stock market prices lead to an increase in foreign listing probability of 125% and 143%, respectively. Thus, the variable capturing temporarily higher stock prices in the exchange has greater impact on the probability of a new foreign listing in that exchange than the variables potentially related to growth opportunities.

As alternative proxies for market timing, we include returns in the origin and the exchange country, both in U.S. dollars. Once again, the exchange country's returns should reflect less information about the prospects of a firm than returns in the origin country and the firm's Tobin's Q. We find that a 1 percentage point increase in market returns in the exchange increases by the same amount the probability that a firm chooses to list in that exchange, quite a large effect given that the standard deviation of the exchange return is approximately 25 percentage points.

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<sup>19</sup> Note that in this context it is also harder to argue that the exchange market valuation, as opposed to the origin country, industry, or the firm's valuations, should predict the clustering of foreign listings leading to pseudo market timing, as pointed out by Schultz (2003) in the context of (domestic) IPOs and SEOs.

The total proceeds from equity issuance in each country and year are also related to the attractiveness of different markets (for firms). Consistent with our hypothesis that foreign listing waves and domestic equity issues may be related, we find that firms are more likely to have a foreign listing in exchanges in which firms raise more equity and in which there are more primary equity issues. A 1 million USD increase in an exchange's new equity issues (one unit of the independent variable) increases the probability of a new listing by 1%. This increase is substantial as the standard deviation of proceeds in new equity issues across exchanges is nearly 350 million USD in our sample.

Although the decision to cross-list in a given exchange when this offers higher valuations or when firms issue more equity may indicate market timing, neoclassical models with market segmentations would imply that firms cross-list in exchanges where they can obtain a higher price for their stocks. These may well be exchanges with high Q, as we find, but the decision may depend on rational factors such as lower interest rates than those prevailing in the rest of the world.

Baker and Wurgler (2007) suggest that if investor sentiment can explain firm equity issuance activities, then the firms more inclined to be market timers should be the ones subject to more difficulties and subjectivity in the determination of their own value and/or stocks, for which arbitrage is particularly risky and costly. According to this criterion, Baker and Wurgler consider the following firms to be particularly mispricing prone: firms that up to a given date have paid no dividends, firms having many intangible assets, unprofitable firms, and firms with high stock return volatility. We construct a dummy variable to identify firms prone to mispricing as follows. The dummy variable equals one if any two of the following four criteria are satisfied: (1) the firm has high tangible assets as demonstrated by a fraction of research and development expenses over total sales larger than that of the median firm in the

sample; (2) the firm has negative earnings; (3) the firm has so far paid no dividends; and (4) the standard deviation of firm monthly returns is above the median.

In column 5 of Panel B of Table 6, we allow this dummy variable to interact with the exchange Q.<sup>20</sup> As before, our results suggest that all firms are significantly more likely to cross-list in exchanges where stock prices are temporarily higher. Firms whose valuations are expected to benefit more than others should become even more inclined to cross-list. This is precisely what we find. For firms that we classify as “mispricing prone,” the effect of a one-unit increase in exchange Q is 180%.

In column 6 of Panel B of Table 6, we define a dummy variable that equals one if the firm's stock returns over the following three years are negative. We allow this variable to interact with exchange Q as before. The positive and significant effect of the interaction terms shows that these firms are indeed more likely to cross-list in a given foreign exchange when stock valuations are higher. On the contrary, in columns 7 and 8 we define a dummy that equals one if the firm is unable to fund all capital expenditures with the current earnings. Such a firm would need cash for investment. Interestingly, we find that these firms are less likely to cross-list in exchanges with high Q, possibly because they do not have the flexibility to wait for the most appropriate moment to time the market.

Finally, in Panel C, we explore the determinants of delistings. Firms are less likely to delist from overvalued exchanges. Consistent with previous literature, firms are less likely to delist when they have stronger growth opportunities (higher Tobin's Q). Similarly, firms delist when stock prices in their industry or country of origin are low: A one-unit decrease in the Tobin's Q of the industry (Tobin's Q of the origin country) increases the probability of a delisting by 14% (70%). Firms are also less likely to delist if a lot of capital is being raised in IPOs (or SEOs) in the domestic or in the exchange's stock markets.

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<sup>20</sup> Note that here too we are not calculating a cross-derivative, but the marginal effect of the exchange Q conditionally on the dummy variable being equal to 1.

Overall, these results suggest that the decision to cross-list in a given exchange and its timing are at least partially explained by market timing.

#### *D. Robustness*

In Panel A of Table 7, we include jointly all the variables that we have identified as important for foreign listings. All our estimates for the stock of listings, new listings, and delistings remain qualitatively invariant.

So far, our interpretation of the results implies that changes in the institutional environment and market-level mispricing are important drivers of foreign listing decisions. A concern is that firms may herd, being influenced by prior decisions of other firms, or choose markets that are specialized in evaluating their industry or firms from their own country.<sup>21</sup> The large number of controls we include should mitigate concerns about omitted factors. Nevertheless, to assuage any lingering doubts, we include the following additional control variables: the number of new listings from the firm's origin country in a given exchange, the number of new listings from the firm's industry in that exchange, and the total number of new listings in that exchange during the previous year. We further control for the fact that an exchange may be specialized in evaluating firms in a given industry by including the total number of foreign firms in that industry listed in the exchange during the previous year. In column 5 of Panel A of Table 7, we do find that firms are more likely to list in a given exchange in years that follow a large number of new listings in that exchange, a large number of firms from the same origin country listing in that exchange, and especially a large number of firms from the same industry listing in that exchange. More importantly, all our previous results remain unchanged, and we find even stronger effects for the variable capturing market timing, as a one-unit increase in exchange Q more than doubles the probability of a new listing.

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<sup>21</sup> Chemmanur and Fulghieri (2006) show theoretically that the presence of investors specialized to evaluate certain types of companies is an important factor in firms' choice of exchange.

Our results are not dependent on the control sample we use. So far, we have assumed that all firms listed in the domestic country may consider a foreign listing in any exchange. We find similar results when we follow Doidge, Karolyi, Lins, Miller, and Stulz (2009), and include in the control sample only firms that have more than 10 million USD in assets (Panel B of Table 7).<sup>22</sup> These results are reassuring also for the following reason. The coverage of firms in Worldscope has been increasing over time. Although this should not affect our results, because we include year dummies, coverage may have increased differently across countries. Increases in coverage are less relevant when we focus our control sample on the largest firms in the country.

Finally, we perform a number of additional robustness checks we do not report. First, we consider that capital flows may determine the cross-listing patterns. We control for capital inflows to the exchange country by including the ratio of net capital inflows to GDP. A related concern is that firms may be less likely to cross-list after the adoption of corporate governance codes, not because this affects their benefits from bonding, as we argue, but because foreign investors become more likely to hold equity in their country of origin. This could be driven by a mechanical correlation if the adoption of the corporate governance code coincides with the removal of restrictions to capital inflows, which have been shown to affect a firm's propensity to seek a foreign listing (Siegel, 2009). We evaluate whether this is the case by controlling for capital inflows to the origin country of the firm.

Second, the propensity of firms from a foreign country to list in a given exchange may be affected by factors that are not fully accounted for by the physical distance between the two. For instance, similar industrial profile, economic linkages, shared language, and cultural familiarity may matter. To take this into account, we include origin-country–exchange-

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<sup>22</sup> In unreported specifications, we include only firms with assets of more than 100 million USD in the control sample. Results are qualitatively similar to the ones we report.

country pair dummies.<sup>23</sup> Third, we rerun our regressions considering only observations after 1992. Fourth, we drop all observations relative to exchanges that have less than 10 foreign listings in a given year. In all cases, our results are statistically and qualitatively invariant.

#### **IV Conclusions**

This paper documents large changes in exchanges' ability to attract foreign listings and explores some possible determinants of these cross-listing waves and trends. We find not only that strong investor protection positively affects the popularity of an exchange with foreign firms, but also that improvements in investor protection in the firms' countries of origin matter. In particular, once their home country becomes more attentive to investor rights, fewer firms choose to list in countries with relatively weak investor protection. Improvements in corporate governance around the world have strengthened the competitive advantage of U.S. and U.K. exchanges, where regulations and market forces guarantee particularly strong protection of investor rights.

We also find that market timing plays an important role in explaining cross-listing waves. Firms choose to list in countries where stock prices are temporarily high and where domestic firms raise large amounts of capital in IPOs and SEOs, which have been shown to be driven by investor sentiment. More importantly, firms more inclined to be mispriced and firms that are to experience negative returns over the following three years are more likely to cross-list in exchanges with higher valuation, whereas firms that need to raise capital for investment are less likely to do so. Thus, imperfect integration of capital markets may lead to cross-border arbitrage in international capital-raising activities. These findings are on the same lines as those of Baker and Wurgler (2009), who show that multinational foreign direct

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<sup>23</sup> We estimate the probability of having a foreign listing in a given country using a linear probability model because the large number of dummies causes convergence problems in the maximum likelihood estimation that needs to be performed for the logit model.

investment is driven by market sentiment and the possibility of obtaining cheap funding in the domestic country.

Our results can potentially help to explain the conflicting findings in the literature on whether cross-listing leads to permanent valuation gains. We show that firms' decisions may be driven by the need to limit extraction of private benefit of control as well as by the desire to enjoy temporarily higher valuations. Since different motives driving listing decisions may lead to opposite implications for post-listings returns, the effect of foreign listing on firm value and the driving factors of the decision to cross-list should be explored jointly. We believe that this is an exciting area for future research.

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**Table 1**  
**The distribution of foreign listings**

The first column presents the total number of foreign listings by country. The next two columns show the number of active and inactive foreign listings (as of 2006 end) in each country. In square brackets, we report the number of foreign listings in each category that we are able to match with Worldscope.

Country of Exchange	(3)					
	(1)		(2)		(3)	
	Status of Foreign Listings in 2006					
Country of Exchange	Total Sample		Inactive		Active	
Australia	131	[91]	76	[49]	55	[42]
Austria	56	[47]	45	[37]	11	[10]
Belgium	166	[144]	111	[92]	55	[52]
Canada	253	[159]	201	[128]	52	[31]
Denmark	13	[11]	8	[7]	5	[4]
France	312	[274]	244	[211]	68	[63]
Germany	225	[200]	134	[125]	91	[75]
Greece	1	[0]	0	[0]	1	[0]
Hong Kong	173	[143]	36	[29]	137	[114]
Ireland	35	[34]	29	[28]	6	[6]
Italy	32	[32]	6	[6]	26	[26]
Japan	151	[130]	126	[106]	25	[24]
Luxembourg	237	[202]	114	[96]	123	[106]
Malaysia	2	[1]	0	[0]	2	[1]
Netherlands	215	[193]	179	[161]	36	[32]
New Zealand	87	[78]	65	[59]	22	[19]
Norway	45	[24]	23	[12]	22	[12]
Singapore	65	[50]	33	[29]	32	[21]
South Africa	39	[30]	12	[6]	27	[24]
Spain	45	[45]	8	[8]	37	[37]
Sweden	42	[37]	22	[21]	20	[16]
Switzerland	277	[265]	158	[147]	119	[118]
United Kingdom	989	[635]	400	[278]	589	[357]
United States	1416	[1204]	567	[506]	849	[698]
<b>Total</b>	<b>5007</b>	<b>[4029]</b>	<b>2597</b>	<b>[2141]</b>	<b>2410</b>	<b>[1888]</b>

**Table 2**  
**Descriptive statistics**

This table presents the source and the descriptive statistics of the main variables used in the empirical analysis. “New listings” is the increase in the number of listings from a given country to a given exchange in a given year. Foreign Listed Dummy is a dummy that equals one if the firm is listed at time  $t$  in exchange  $e$  and equals zero otherwise. Newly Listed Dummy is a dummy that equals one if the firm has obtained a foreign listing at time  $t$  in exchange  $e$  and equals zero otherwise. Observations relative to firms that have been cross-listed in a given exchange for more than one year have been excluded. Delisted Dummy is a dummy that equals one if the firm delists at time  $t$  from exchange  $e$  and equals zero otherwise. Only observations relative to firms with a foreign listing in a given exchange are included. The sample period of the foreign listings database is from 1980 to 2006. First Code Adoption and Codes are time-varying measures of adoptions of corporate governance codes: First Code Adoption is a dummy that equals one starting from the year after a country adopts the first corporate governance code and equals zero otherwise; Codes is a variable that at time  $t$  takes the value of the number of codes adopted in a country at time  $t - 1$ . Anti-Self-Dealing is from Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2008) and measures the ex-ante and ex-post effectiveness of regulation and enforcement against violators. Equity Issues is the number of equity issues in that country/year. IPO Equity Issues is the number of IPOs in that country/year. CGQ is a yearly average of indicators of accounting standards, earning smoothing, and stock price synchronicity estimated as in De Nicoló et al. (2008), and captures the actual quality of corporate governance for firms in a country. CIFAR represents the disclosure in different countries, and is based on Worldscope data for the top 30 companies in the country. Exchange Q is the median Tobin’s Q in the exchange. Origin Q is the median Tobin’s Q in the country of origin. GDP Growth is the per capita GDP growth in the country in USD. Market Capitalization is the stock market capitalization of the country divided by the GDP. Turnover is the value traded in the country stock market divided by GDP. Distance is the physical distance in kilometers between the stock exchange and the capital city of the country where the firm is domiciled. Industry Q is the median Q of all world firms in the industry in that year. Leverage is the ratio of total debt to total assets. Log Assets is the log of total assets in USD. No. of Listings is the total number of listings from that firm in all the foreign exchanges in that year. Q is Tobin’s Q, defined as firm market value plus total assets minus equity divided by total assets. d(Mispricing-prone) is a dummy variable that equals one if two of the following conditions are met: (1) the firm has negative earnings; (2) the firm has never paid dividends up to a given year; (3) during the previous year, the firm has experienced a volatility of monthly returns in U.S. dollars above the median firm; and (4) the firm has a ratio of research and development expenses to sales that is above the median. d(Mispricing-prone) equals zero otherwise. d(Negative future returns) is a dummy variable that equals one if the firm experiences negative returns in U.S. dollars over the following three years, and equals zero otherwise. d(Need cash) is a dummy variable that equals one if the capital expenditures of the firm are larger than its earnings before depreciation and taxes and its excess leverage is positive, and equals zero otherwise. A firm’s excess leverage is defined as the residuals of the regressions of leverage on 4-digit SIC dummies, the logarithm of firm assets, ROA, and the ratio of research and development expenses to sales.

Variable	Source	Mean	St. Dev.	25%	50%	75%	Obs.
<i>Dependent Variables</i>							
New Listings	Hand-collected	1.64	1.65	0	0	0	10,634
Foreign Listed Dummy	Hand-collected	0.003	0.055	0	0	0	11,429,548
Newly Listed Dummy	Hand-collected	0.0003	0.018	0	0	0	11,392,264
Delisted Dummy	Hand-collected	0.03	0.18	0	0	0	36,095
<i>Independent Variables</i>							
<i>Country of Exchange</i>							
First Code Adoption	Hand-collected	0.359	0.519	0.000	0.000	1.000	11,043
Codes	Hand-collected	1.113	2.112	0.000	0.000	1.000	11,043
Anti-Self-Dealing	Djankov et al. (2008)	0.578	0.271	0.283	0.544	0.813	11,043

Equity Issues (million USD)	SDC	443.510	347.711	200.000	353.000	590.032	9,615
IPO Equity Issues (million USD)	SDC	183.057	158.503	72.200	143.162	245.584	8,094
CGQ	Worldscope	63.72	10.53	55.84	64.18	72.11	8,473
CIFAR	Worldscope	70.026	11.885	58.981	73.889	79.907	10,829
Toughening Listing Requirements	Hand-collected	-0.157	0.364	0	0	0	11,043
Exchange Q	Worldscope	1.180	0.167	1.059	1.155	1.276	8,334
GDP Growth	WDI	2.914	2.378	1.683	2.793	4.034	11,043
Market Capitalization	WDI and Datastream	82.459	68.524	29.125	68.775	119.202	10,607
Turnover	WDI and Datastream	64.337	47.590	30.091	53.400	86.648	8,571
Previous Year Return–Exchange	Datastream	14.1	25.7	-4.3	13.1	28.0	10,453
<i>Country of Origin</i>							
First Code Adoption	Hand-collected	0.254	0.436	0.000	0.000	1.000	11,043
Codes	Hand-collected	0.664	1.495	0.000	0.000	1.000	11,043
Anti-Self-Dealing	Djankov et al. (2008)	0.510	0.245	0.283	0.457	0.654	9,855
Equity Issues (million USD)	SDC	425.807	348.705	192.286	342.222	561.000	7,867
IPO Equity Issues (million USD)	SDC	189.749	166.702	73.053	149.619	268.500	6,577
CIFAR	Worldscope	70.017	11.626	60.556	74.074	79.352	8,470
Toughening Listing Requirements	Hand-collected	-0.279	0.464	-1	0	0	11,043
Exchange Q	Worldscope	1.168	0.199	1.028	1.132	1.270	8,385
GDP Growth	WDI	3.148	4.047	1.555	3.100	4.779	10,540
Market Capitalization	WDI and Datastream	66.771	69.857	20.495	43.778	93.338	8,764
Turnover	WDI and Datastream	44.800	57.243	5.796	22.536	61.083	7,598
Distance	infoplease.com	5587.399	4737.447	1265.37	5367.15	9261.99	11043
Previous Year Return	Datastream	12.7	22.3	-8.9	12.4	27.2	7,833
<i>Firm Level</i>							
Leverage	Worldscope	24.307	25.088	4.509	18.918	35.895	458,545
Log Assets	Worldscope	12.091	2.387	10.674	12.045	13.523	458,650
No. of Listings	Hand-collected	0.078	0.439	0.000	0.000	0.000	459,475
Industry Q	Worldscope	1.176816	0.080372	1.12821	1.18889	1.23977	8433
Q	Worldscope	1.918	2.684	0.981	1.189	1.762	408,125
d(Mispricing-prone )	Worldscope	0.397	0.489	0	0	0	408,125
d(Negative future returns)	Worldscope	0.296	0.456	0	0	0	408,125
d(Need cash)	Worldscope	0.249	0.432	0	0	0	408,125

**Table 3**  
**Characterizing Foreign Listing Waves**

This table presents for each exchange country, the mean number and the maximum over the sample period of new listings and delistings, respectively, and the year when the maximum was achieved. The sample period is from 1980 to 2006.

Exchange Country	New Listings			Delistings		
	Mean per year	Maximum	Date of max	Mean per year	Maximum	Date of max
Australia	4.5	12	1996	2.7	9	2002
Austria	1.3	7	1992	1.6	11	1999
Belgium	3.8	33	1986	4.1	16	2006
Canada	8.6	26	1991	7.1	19	1995
Denmark	0.5	3	1994	0.3	2	2000
France	8.5	85	1989	8.6	45	1998
Germany	7.8	42	1988	4.8	32	1998
Greece	0	1	2000	0	0	
Hong Kong	6.3	23	2006	1.3	9	2006
Ireland	1.1	6	1993	1.0	6	2000
Italy	1.2	21	2006	0.2	2	2005
Japan	5	35	1987	4.6	17	1994
Luxembourg	7.6	51	1994	3.9	20	2000
Malaysia	0	0		0	0	
Netherlands	5.3	27	1997	6.3	43	2001
New Zealand	3.1	16	1997	2.3	10	2000
Norway	1.6	9	2005	0.8	4	2003
Singapore	1.9	10	2006	0.9	7	1989
South Africa	1.3	15	1990	0.3	2	1998
Spain	1.7	8	2001	0.3	1	2001
Sweden	1.5	4	2000	0.8	4	2002
Switzerland	7.8	107	1990	5.8	22	1999
United Kingdom	29.4	125	2006	14.5	57	2001
United States	50.3	127	2000	20.9	67	2001
Total	6.7	33.1	1996	3.9	16.9	2000

**Table 4**  
**Foreign Listings and Investor Protection**

*Panel A. The stock of foreign listings*

The dependent variable is a dummy that equals one if the firm is listed in a foreign exchange during a given year and equals zero otherwise (Foreign Listed dummy). High Anti-Self-Dealing (High Anti-Self-Dealing–Exchange) is a dummy that takes a value equal to one if the anti-self-dealing index of the origin (exchange) country is above the median, and zero otherwise. All the other variables are defined in Table 2. We present coefficient estimates from a logit regression. Robust standard errors corrected for heteroskedasticity and clustered at the firm level are presented in parentheses. \*\*\*, \*\*, \* denote that a coefficient is significant at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8) Excluding U.S. firms
First Code Adoption	-0.0859** (0.035)			-0.367*** (0.043)	-0.529*** (0.063)	-0.0634 (0.11)		
First Code Adoption–Exchange	0.108*** (0.026)			0.132*** (0.027)	0.146*** (0.026)	0.0583 (0.065)		
Anti-Self-Dealing		-0.138*** (0.036)						
Anti-Self-Dealing –Exchange		2.062*** (0.030)						
CGQ Index			-0.00180*** (0.000685)				-0.00696*** (0.000714)	-0.0170*** (0.00178)
CGQ Index–Exchange			0.0592*** (0.00106)				0.0573*** (0.00101)	0.0609*** (0.00121)
Global Exchange x First Code Adoption				0.659*** (0.052)				
High Anti-Self-Dealing x First Code Adoption							-0.788*** (0.14)	
High Anti-Self-Dealing–Exchange x First Code Adoption					0.777*** (0.093)	0.742*** (0.10)		
High Anti-Self-Dealing–Exchange x First Code Adoption–Exchange						0.151 (0.11)		
High Anti-Self-Dealing–Exchange x CGQ Index							0.00677*** (0.000240)	0.00950*** (0.000307)
Market Capitalization	-0.00130*** (0.00043)	-0.00135** (0.00053)	-0.00538*** (0.000170)	-0.00101** (0.00042)	-0.00129*** (0.00043)	-0.000818* (0.00042)	-0.00523*** (0.000166)	0.000531* (0.000274)
Market Capitalization–Exchange	0.00188*** (0.00026)	0.000251 (0.00035)	0.00284*** (0.00007)	0.00197*** (0.00025)	0.00199*** (0.00026)	0.00197*** (0.00026)	0.00282*** (0.00007)	0.00205*** (0.00009)
Turnover	-0.00242***	-0.00290***	-0.00932***	-0.00227***	-0.00232***	-0.00218***	-0.00904***	0.000235



Turnover–Exchange	(0.00040) 0.00119***	(0.00042) 0.000425*	(0.000206) 0.00546***	(0.00039) 0.000491**	(0.00039) 0.000981***	(0.00040) 0.000913***	(0.000203) 0.00606***	(0.000237) 0.00587***
GDP Growth	(0.00023) -0.00573	(0.00025) 0.00742	(0.000134) 0.166***	(0.00023) -0.00749*	(0.00023) -0.00616	(0.00023) -0.00311	(0.000136) 0.162***	(0.000164) -0.0104**
GDP Growth–Exchange	(0.0043) 0.0000268***	(0.0051) 0.0000598***	(0.00351) 0.00003***	(0.0042) 0.00000796**	(0.0043) 0.0000205***	(0.0042) 0.0000191***	(0.00346) 0.00003***	(0.00431) 0.00003***
Distance	(0.0000032) -0.000194***	(0.0000050) -0.000190***	(0.000007) -0.00009***	(0.0000034) -0.000191***	(0.0000033) -0.000193***	(0.0000033) -0.000193***	(0.0000007) -0.000101***	(0.00009) -0.000161***
Log Assets	(0.0000091) 0.622***	(0.000010) 0.653***	(0.000002) 0.563***	(0.0000090) 0.624***	(0.0000090) 0.623***	(0.0000090) 0.623***	(0.000002) 0.564***	(0.000003) 0.562***
Leverage	(0.015) -0.00366***	(0.016) -0.00335**	(0.00254) -0.00469***	(0.015) -0.00363***	(0.015) -0.00365***	(0.015) -0.00359***	(0.00255) -0.00469***	(0.00311) -0.00470***
Q	(0.0012) 0.153***	(0.0013) 0.165***	(0.000275) 0.134***	(0.0012) 0.154***	(0.0012) 0.153***	(0.0012) 0.154***	(0.000275) 0.135***	(0.000341) 0.149***
	(0.0068)	(0.0072)	(0.00219)	(0.0069)	(0.0069)	(0.0068)	(0.00218)	(0.00284)
Year FE	Y	Y	Y	Y	Y	Y	Y	Y
Country of Origin and Country of Exchange FE	Y	N	Y	Y	Y	Y	Y	Y
Observations	4697910	2563135	4731855	4697910	4697910	4697910	4731855	2549420

*Panel B. New listings and delistings*

In columns 1 and 2, the dependent variables are dummies that equal one if the firm has obtained a foreign listing in a given exchange at time  $t$ , and equal zero otherwise (Newly Listed dummy). Observations relative to firms that have been cross-listed in a given exchange for more than one year have been excluded. In columns 3 and 4, the dependent variable is a dummy that equals one if the firm delists at time  $t$  from exchange  $e$ , and equals zero otherwise (Delisted dummy). Only observations relative to firms with a foreign listing in a given exchange are included. All other variables are defined in Table 2. We present coefficient estimates from a Cox proportional hazard model. Robust standard errors corrected for heteroskedasticity and clustered at the firm level are presented in parentheses. \*\*\*, \*\*, \* denote that a coefficient is significant at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)
	New listings		Delistings
First Code Adoption	-0.280*** (0.087)	-0.954*** (0.149)	-0.416*** (0.14)
First Code Adoption–Exchange	0.478*** (0.081)	0.160** (0.0809)	-0.717*** (0.12)
High Anti-Self-Dealing x First Code Adoption		1.031*** (0.191)	
Market Capitalization	0.000724 (0.0012)	0.000528 (0.00121)	-0.00316** (0.0015)
Market Capitalization–Exchange	0.000854 (0.00056)	0.000763 (0.000553)	-0.00557*** (0.0012)
Turnover	-0.00144* (0.00084)	0.00329*** (0.000746)	-0.00394*** (0.0012)
Turnover–Exchange	0.00298*** (0.00073)	-0.00123 (0.000862)	-0.000118 (0.00086)
GDP Growth	0.0248* (0.014)	0.0225 (0.0138)	0.0558** (0.025)
GDP Growth–Exchange	0.0000413*** (0.0000083)	0.00003*** (0.000006)	-0.0000449*** (0.0000091)
Distance	-0.000183*** (0.0000076)	-0.000182*** (7.59e-06)	0.0000149 (0.000015)
Log Assets	0.390*** (0.013)	0.391*** (0.0129)	0.120*** (0.014)
Leverage	-0.0100*** (0.0012)	-0.0100*** (0.00124)	0.00423** (0.0019)
Q	0.145*** (0.0061)	0.146*** (0.00613)	-0.0521** (0.025)
No. of Listings			-0.996*** (0.12)
Year FE	Y	Y	N
Country of Origin and Country of Exchange FE	Y	Y	Y
Observations	4,699,112	4,699,112	30,568

**Table 5**  
**Investor Protection, Disclosure, and Foreign Listings**

In columns 1 to 4, the dependent variable is a dummy that equals one if the firm is listed in a foreign exchange during a given year, and equals zero otherwise (Foreign Listed dummy). In column 5, the dependent variables is a dummy that equals one if the firm has obtained a foreign listing in a given exchange at time  $t$ , and equals zero otherwise (Newly Listed dummy); observations relative to firms that have been cross-listed in a given exchange for more than one year have been excluded. In column 6, the dependent variable is a dummy that equals one if the firm delists at time  $t$  from exchange  $e$ , and equals zero otherwise (Delisted dummy); only observations relative to firms with a foreign listing in a given exchange are included. All the independent variables are defined in Table 2 with the exception of SOX, which is a dummy variable that equals one after 2002 if the exchange country is the U.S., and equals zero otherwise. In columns 1 and 2, we present coefficient estimates from a logit regression. In columns 3 and 4, we present coefficient estimates from a Cox proportional hazard model. Robust standard errors corrected for heteroskedasticity and clustered at the firm level are presented in parentheses. \*\*\*, \*\*, \* denote that a coefficient is significant at the 1%, 5%, and 10% levels, respectively.

	(1) Including U.S. OTC listings	(2) Stock of listings	(3)	(4) New listings	(5) Delistings
SOX			0.537*** (0.0521)		
CIFAR		0.0371*** (0.0051)		-0.00929 (0.0091)	-0.00505 (0.015)
CIFAR–Exchange		-0.0497*** (0.0039)		-0.0574*** (0.0089)	-0.0385*** (0.014)
First Code Adoption	-0.618*** (0.0618)	-0.150*** (0.034)	-0.518*** (0.0624)	-0.268*** (0.088)	-0.355*** (0.14)
First Code Adoption–Exchange	0.0751*** (0.0220)	0.140*** (0.027)	0.0714*** (0.0234)	0.509*** (0.084)	-0.652*** (0.12)
High Anti-Self-Dealing–Exchange x First Code Adoption	0.900*** (0.0935)		0.745*** (0.0917)		
Market Capitalization	-0.000804*** (0.000263)	-0.000781* (0.00041)	-0.00141*** (0.000432)	0.000821 (0.0012)	-0.00324** (0.0013)
Market Capitalization–Exchange	0.00237*** (0.000249)	0.00178*** (0.00025)	0.00212*** (0.000262)	0.000571 (0.00055)	-0.00577*** (0.0012)
Turnover	-0.00179*** (0.000338)	-0.00186*** (0.00038)	0.00124*** (0.000244)	-0.00129 (0.00084)	-0.00388*** (0.0010)
Turnover–Exchange	0.000933*** (0.000202)	0.000419* (0.00021)	-0.00218*** (0.000388)	0.00204*** (0.00076)	-0.000300 (0.00097)
GDP Growth	-0.00515 (0.00338)	-0.00313 (0.0043)	-0.00698 (0.00425)	0.0239* (0.014)	0.0590** (0.023)
GDP Growth–Exchange	0.00002***	0.0000204***	0.00001***	0.0000406***	-0.0000410***

	(0.000003)	(0.0000034)	(0.000006)	(0.0000094)	(0.0000096)
Distance	-0.000129***	-0.000195***	-0.000194***	-0.000183***	0.0000140
	(7.58e-06)	(0.0000091)	(0.000009)	(0.0000076)	(0.000012)
Log Assets	0.605***	0.624***	0.624***	0.392***	0.121***
	(0.0132)	(0.015)	(0.0146)	(0.013)	(0.013)
Leverage	-0.00233**	-0.00362***	-0.00361***	-0.0100***	0.00427***
	(0.000981)	(0.0012)	(0.00115)	(0.0012)	(0.0015)
Q	0.143***	0.154***	0.153***	0.146***	-0.0511**
	(0.00648)	(0.0068)	(0.00684)	(0.0061)	(0.023)
No. of Listings					-0.998***
					(0.037)
Year FE	Y	Y	Y	Y	N
Country of Origin and Country of Exchange FE	Y	Y	Y	Y	Y
Observations	4697910	4697910	4697910	4699112	30568

**Table 6**  
**Foreign Listings and Market Timing**

*Panel A. The stock of foreign listings*

The dependent variable is a dummy that equals one if the firm is listed in a foreign exchange during a given year and equals zero otherwise (Foreign Listed dummy). We present coefficient estimates from a logit regression. Robust standard errors corrected for heteroskedasticity and clustered at the firm level are presented in parentheses. \*\*\*, \*\*, \* denote that a coefficient is significant at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)
Industry Q	0.850*** (0.057)		
Exchange Q	0.722*** (0.091)		
Origin Q	-0.576*** (0.079)		
Equity Issues		-0.000862*** (0.00012)	
Equity Issues–Exchange		0.000377*** (0.000055)	
IPO Equity Issues			-0.000131*** (0.000039)
IPO Equity Issues–Exchange			0.0000646*** (0.000014)
Market Capitalization	-0.000882** (0.00043)	-0.000441 (0.00041)	-0.00119*** (0.00043)
Market Capitalization–Exchange	0.00151*** (0.00026)	0.00182*** (0.00026)	0.00320*** (0.00031)
Turnover	-0.00244*** (0.00041)	-0.00146*** (0.00038)	-0.00210*** (0.00041)
Turnover–Exchange	0.00120*** (0.00024)	0.000867*** (0.00023)	0.00100*** (0.00027)
GDP Growth	0.0000271*** (0.0000033)	0.0000265*** (0.0000033)	0.0000364*** (0.0000035)
GDP Growth–Exchange	-0.00290 (0.0043)	-0.0194*** (0.0043)	-0.0145*** (0.0046)
Distance	-0.000195*** (0.0000091)	-0.000194*** (0.0000092)	-0.000192*** (0.0000089)
Log Assets	0.655*** (0.015)	0.625*** (0.015)	0.620*** (0.015)
Leverage	-0.00283** (0.0012)	-0.00390*** (0.0012)	-0.00387*** (0.0011)
Q	0.0856*** (0.0087)	0.158*** (0.0068)	0.158*** (0.0065)
Year FE	Y	Y	Y
Country of Origin and Country of Exchange FE	Y	Y	Y
Observations	4,697,910	4,533,005	3,962,971

*Panel B. New listings*

The dependent variable is a dummy that equals one if the firm has obtained a foreign listing in a given exchange at time  $t$  and equals zero otherwise (Newly Listed dummy). Observations relative to firms that have been cross-listed in a given exchange for more than one year have been excluded. All the other variables are defined in Table 2. We present coefficient estimates from a Cox proportional hazard model. Robust standard errors corrected for heteroskedasticity and clustered at the firm level are presented in parentheses. \*\*\*, \*\*, \* denote that a coefficient is significant at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Industry Q	0.812*** (0.042)				0.783*** (0.043)	0.815*** (0.047)	0.830*** (0.047)	0.808*** (0.042)
Exchange Q	1.013*** (0.21)				0.890*** (0.21)	1.423*** (0.24)	1.593*** (0.24)	1.072*** (0.21)
Exchange Q*d(Mispricing-prone )					0.400*** (0.038)			
Exchange Q*d(Negative future returns)						0.173*** (0.049)		0.158*** (0.042)
Exchange Q*d(Need cash)							-0.391*** (0.042)	-0.385*** (0.042)
Origin Q	0.889*** (0.17)				0.889*** (0.17)	0.404* (0.22)	0.439** (0.22)	0.769*** (0.18)
Previous Year Return		-0.00127 (0.0010)						
Previous Year Return–Exchange		0.0160*** (0.0014)						
Equity Issues			-0.00270*** (0.00031)					
Equity Issues–Exchange			0.00142*** (0.00010)					
IPO Equity Issues				-0.000108 (0.000098)				
IPO Equity Issues–Exchange				0.000103** (0.000049)				
Market Capitalization	-0.00122 (0.0013)	-0.00235*** (0.00085)	-0.00750*** (0.00063)	-0.00900*** (0.00066)	-0.00134 (0.0013)	-0.00115 (0.0012)	-0.000988 (0.0012)	-0.00122 (0.0013)
Market Capitalization–Exchange	0.000914 (0.00060)	-0.0228*** (0.0011)	0.00325*** (0.00021)	0.00300*** (0.00020)	0.000927 (0.00059)	-0.000510 (0.00083)	-0.000491 (0.00083)	0.000855 (0.00059)
Turnover	-0.00113	-0.00271***	-0.00962***	-0.0137***	-0.00160*	-0.00108	-0.00104	-0.00106

	(0.00087)	(0.00078)	(0.00088)	(0.00087)	(0.00086)	(0.00090)	(0.00090)	(0.00086)
Turnover–Exchange	0.00372***	−0.00968***	0.00908***	0.0103***	0.00378***	0.00146*	0.00143*	0.00381***
	(0.00074)	(0.0010)	(0.00041)	(0.00044)	(0.00074)	(0.00080)	(0.00080)	(0.00074)
GDP Growth	−0.000283	0.0360***	0.205***	0.232***	0.00482	0.0000519***	0.0000516***	0.0000367***
	(0.013)	(0.011)	(0.012)	(0.012)	(0.013)	(0.000011)	(0.000011)	(0.0000088)
GDP Growth–Exchange	0.0000360***	−0.000412***	0.0000174***	0.0000159***	0.0000371***	0.0177	0.0169	0.000669
	(0.0000088)	(0.000020)	(0.0000022)	(0.0000023)	(0.0000088)	(0.013)	(0.013)	(0.013)
Distance	−0.000185***	−0.000179***	−0.0000999***	−0.0000968***	−0.000185***	−0.000196***	−0.000196***	−0.000185***
	(0.0000077)	(0.0000076)	(0.0000060)	(0.0000062)	(0.0000077)	(0.0000083)	(0.0000083)	(0.0000076)
Log Assets	0.424***	0.424***	0.364***	0.341***	0.451***	0.446***	0.445***	0.437***
	(0.013)	(0.0097)	(0.012)	(0.012)	(0.013)	(0.014)	(0.014)	(0.013)
Leverage	−0.00878***	−0.0100***	−0.0121***	−0.0130***	−0.00930***	−0.00712***	−0.00559***	−0.00752***
	(0.0013)	(0.0011)	(0.0012)	(0.0012)	(0.0012)	(0.0013)	(0.0013)	(0.0012)
Q	0.0954***	0.143***	0.143***	0.137***	0.0913***	0.101***	0.0991***	0.0908***
	(0.0077)	(0.0054)	(0.0057)	(0.0058)	(0.0078)	(0.0086)	(0.0086)	(0.0077)
Year FE	Y	Y	Y	Y	Y	Y	Y	Y
Country of Origin and Country of Exchange FE	Y	Y	Y	Y	Y	Y	Y	Y
Observations	4,699,112	4,695,194	4,533,418	3,967,452	4,699,112	4,699,112	4,699,112	4,699,112

*Panel C. Delistings*

The dependent variable is a dummy that equals one if the firm delists at time  $t$  from exchange  $e$ , and equals zero otherwise (Delisted dummy). Only observations relative to firms with a foreign listing in a given exchange are included. All the other variables are defined in Table 2. We present coefficient estimates from a Cox proportional hazard model. Robust standard errors corrected for heteroskedasticity and clustered at the firm level are presented in parentheses. \*\*\*, \*\*, \* denote that a coefficient is significant at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)
Industry Q	-0.144* (0.083)		
Exchange Q	-1.731*** (0.23)		
Origin Q	-0.962*** (0.29)		
Equity Issues		-0.000679** (0.00031)	
Equity Issues–Exchange		-0.00142*** (0.00022)	
IPO Equity Issues			-0.0000905 (0.00015)
IPO Equity Issues–Exchange			-0.000155* (0.000083)
Market Capitalization	-0.00320** (0.0013)	-0.00466*** (0.0013)	-0.00493*** (0.0014)
Market Capitalization–Exchange	-0.00520*** (0.00056)	-0.00549*** (0.00060)	-0.00887*** (0.0014)
Turnover	-0.00401*** (0.00097)	-0.00383*** (0.0010)	-0.00482*** (0.0011)
Turnover–Exchange	-0.00378*** (0.00067)	-0.00376*** (0.00071)	-0.000297 (0.0011)
GDP Growth	0.0479** (0.023)	0.0498** (0.025)	0.0880*** (0.027)
GDP Growth–Exchange	-0.00000786** (0.0000038)	-0.00000251 (0.0000041)	-0.0000639** * (0.000010)
Distance	0.00000828 (0.0000089)	0.00000607 (0.0000086)	0.0000188 (0.000012)
Log Assets	0.125*** (0.013)	0.147*** (0.012)	0.110*** (0.014)
Leverage	0.00314** (0.0015)	0.00449*** (0.0015)	0.00420*** (0.0016)
Q	-0.0332 (0.024)	-0.0472** (0.024)	-0.0599** (0.025)
No. of Listings	-0.992*** (0.039)	-0.984*** (0.039)	-0.967*** (0.040)
Year FE	N	N	N
Country of Origin and Country of Exchange FE	Y	Y	Y
Observations	30,568	29,616	25,872



**Table 7**  
**Explaining foreign listings**

In columns 1 and 2, the dependent variable is a dummy that equals one if the firm is listed in a foreign exchange during a given year, and equals zero otherwise (Foreign Listed dummy). In column 3, the dependent variable is a dummy that equals one if the firm has obtained a foreign listing in a given exchange at time  $t$ , and equals zero otherwise (Newly Listed dummy). Observations relative to firms that have been cross-listed in a given exchange for more than one year have been excluded. In columns 4, the dependent variable is a dummy that equals one if the firm delists at time  $t$  from exchange  $e$  and equals zero otherwise (Delisted dummy). Only observations relative to firms with a foreign listing in a given exchange are included. All the other variables are defined in Table 2 except the following. No. of New Listings  $t - 1$  is the total number of new listings in the exchange country during the previous year; No. of New Listings–Origin  $t - 1$  is the number of new listings from the firm's country of origin to that exchange during the previous year; No. of New Listings–Industry  $t - 1$  is the number of new listings in the same industry of the firm in that exchange during the previous year; and No. of Listings in the Same Industry is the stock of foreign listed firms in the same industry of the firm during the previous year. In columns 1 and 2, we present coefficient estimates from a logit regression. In columns 3 and 4, we present coefficient estimates from a Cox proportional hazard model. Robust standard errors corrected for heteroskedasticity and clustered at the firm level are presented in parentheses. \*\*\*, \*\*, \* denote that a coefficient is significant at the 1%, 5%, and 10% levels, respectively.

*Panel A.*

	(1) Stock of listings	(2)	(3) New listings	(4) Delistings	(5) New listings
First Code Adoption	-0.102*** (0.035)	-0.159*** (0.035)	-0.304*** (0.087)	-0.288** (0.14)	-0.319*** (0.091)
First Code Adoption–Exchange	0.120*** (0.026)	0.145*** (0.027)	0.484*** (0.086)	-0.680*** (0.12)	0.240*** (0.085)
CIFAR		0.0341*** (0.0048)	-0.00393 (0.0091)	-0.0252 (0.016)	
CIFAR–Exchange		-0.0447*** (0.0037)	-0.0511*** (0.0092)	-0.0550*** (0.015)	
Industry Q	0.851*** (0.057)	0.851*** (0.057)	0.814*** (0.042)	-0.182** (0.083)	0.761*** (0.047)
Exchange Q	0.729*** (0.091)	0.379*** (0.086)	0.631*** (0.22)	-1.275*** (0.38)	1.186*** (0.25)
Origin Q	-0.583*** (0.079)	-0.419*** (0.074)	0.883*** (0.18)	-1.230*** (0.32)	0.546** (0.22)
No. of New Listings $t - 1$					0.00495*** (0.0011)
No. of New Listings–Origin $t - 1$					0.0216*** (0.0059)
No. of New Listings–Industry $t - 1$					-0.0762* (0.046)
No. of Listings in the Same Industry					0.118** (0.047)
Market Capitalization	-0.000777* (0.00042)	-0.000531 (0.00042)	-0.000848 (0.0013)	-0.00216* (0.0013)	-0.000705 (0.0012)
Market Capitalization–Exchange	0.00151*** (0.00026)	0.00161*** (0.00025)	0.000673 (0.00057)	-0.00441*** (0.0012)	-0.000763 (0.00082)
Turnover	-0.00241*** (0.00040)	-0.00192*** (0.00039)	-0.00108 (0.00086)	-0.00435*** (0.0010)	-0.000869 (0.00090)
Turnover–Exchange	0.00115*** (0.00024)	0.000481** (0.00022)	0.00250*** (0.00076)	-0.00116 (0.00099)	0.00180** (0.00083)
GDP Growth	-0.000920 (0.0044)	0.000197 (0.0044)	0.00890 (0.013)	0.0630*** (0.024)	0.0338** (0.013)
GDP Growth–Exchange	0.0000284*** (0.0000033)	0.0000224*** (0.0000034)	0.0000406*** (0.0000094)	-0.0000122 (0.000011)	0.0000522*** (0.000012)
Distance	-0.000195*** (0.0000091)	-0.000195*** (0.0000091)	-0.000185*** (0.0000077)	0.0000148 (0.000012)	-0.000187*** (0.0000084)
Log Assets	0.656*** (0.015)	0.657*** (0.015)	0.427*** (0.013)	0.115*** (0.014)	0.398*** (0.015)

Leverage	-0.00282** (0.0012)	-0.00279** (0.0012)	-0.00871*** (0.0013)	0.00325** (0.0016)	-0.00606*** (0.0013)
Q	0.0859*** (0.0087)	0.0860*** (0.0088)	0.0967*** (0.0077)	-0.0260 (0.023)	0.0970*** (0.0081)
No. of Listings				-0.998*** (0.037)	
Year FE	Y	Y	Y	N	Y
Country of Origin and Country of Exchange FE	Y	Y	Y	Y	Y
Observations	4,697,910	4,697,910	4,699,112	30,568	3,830,683

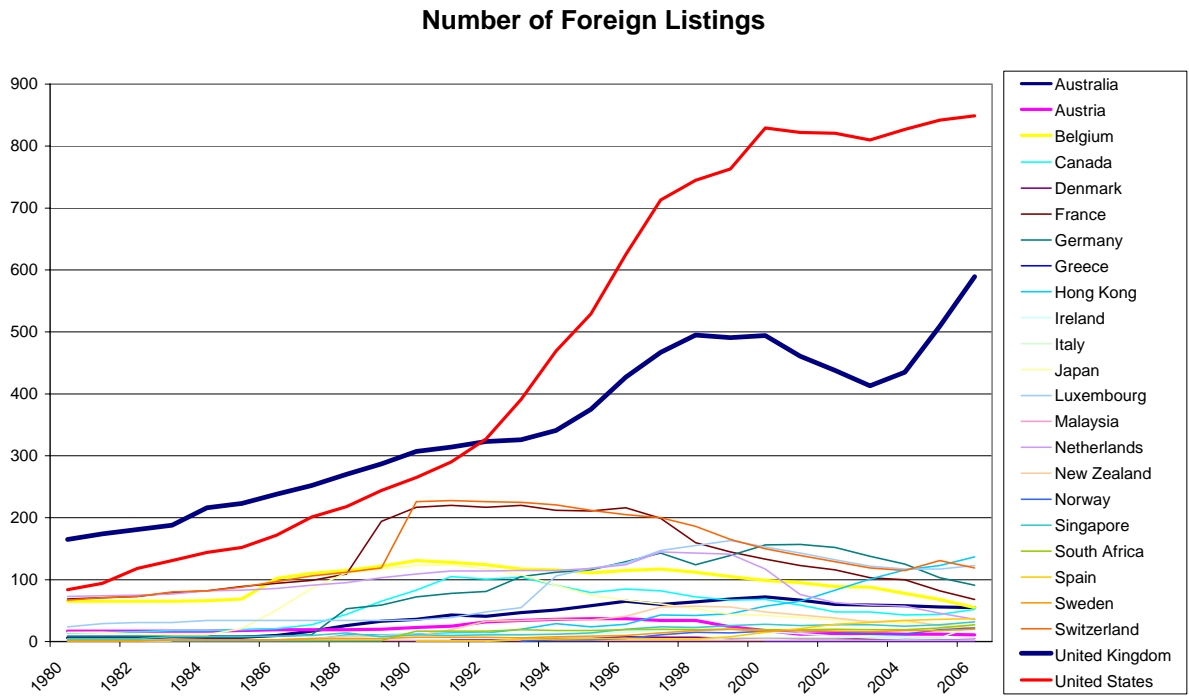
*Panel B. Restricting the control sample.*

All variables are defined as in the previous panel, but the control sample includes only firms with more than 10 million USD in assets. All firms that experience a foreign listing during the sample period are included.

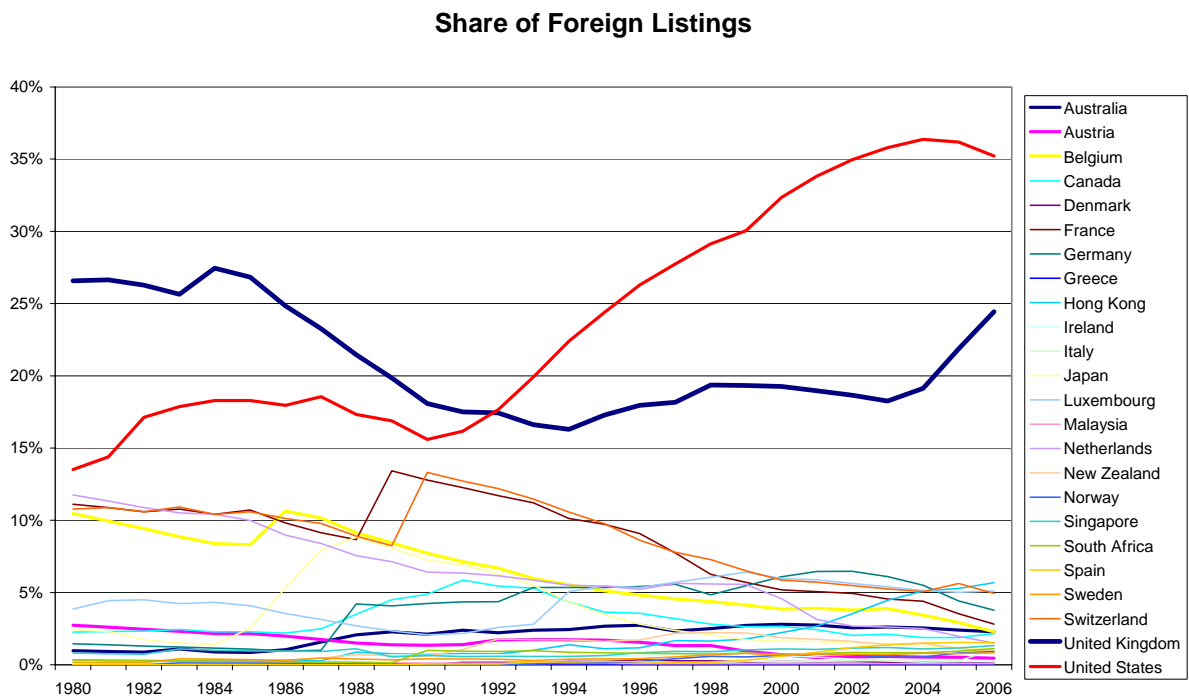
	(1)	(2)	(3)
	Stock of listings		New listings
First Code Adoption	-0.0921*** (0.027)	-0.140*** (0.028)	-0.287*** (0.082)
First Code Adoption–Exchange	0.133*** (0.026)	0.160*** (0.026)	0.488*** (0.081)
CIFAR		0.0279*** (0.0028)	-0.0118 (0.0081)
CIFAR–Exchange		-0.0428*** (0.0027)	-0.0527*** (0.0091)
Industry Q	0.486*** (0.017)	0.486*** (0.017)	0.377*** (0.046)
Exchange Q	0.778*** (0.072)	0.457*** (0.075)	0.789*** (0.22)
Origin Q	-0.671*** (0.059)	-0.508*** (0.060)	0.790*** (0.16)
Market Capitalization	-0.000243 (0.00030)	-0.0000598 (0.00031)	-0.000731 (0.0012)
Market Capitalization–Exchange	0.00169*** (0.00019)	0.00176*** (0.00019)	0.00126** (0.00058)
Turnover	-0.00242*** (0.00023)	-0.00200*** (0.00023)	-0.00203*** (0.00079)
Turnover–Exchange	0.000974*** (0.00023)	0.000290 (0.00023)	0.00246*** (0.00074)
GDP Growth	0.00313 (0.0045)	0.00466 (0.0045)	0.00798 (0.012)
GDP Growth–Exchange	0.0000278*** (0.0000026)	0.0000229*** (0.0000028)	0.0000437*** (0.0000091)
Distance	-0.000204*** (0.0000027)	-0.000204*** (0.0000027)	-0.000213*** (0.0000089)
Log Assets	0.126*** (0.0037)	0.126*** (0.0037)	-0.0659*** (0.012)
Leverage	-0.000352 (0.00031)	-0.000269 (0.00031)	-0.00438*** (0.0011)
Q	0.0379*** (0.0054)	0.0380*** (0.0054)	0.0518*** (0.012)
Year FE	Y	Y	Y
Country of Origin and Country of Exchange FE	Y	Y	Y
Observations	473,104	473,104	443,315

Figure 1

Panel A

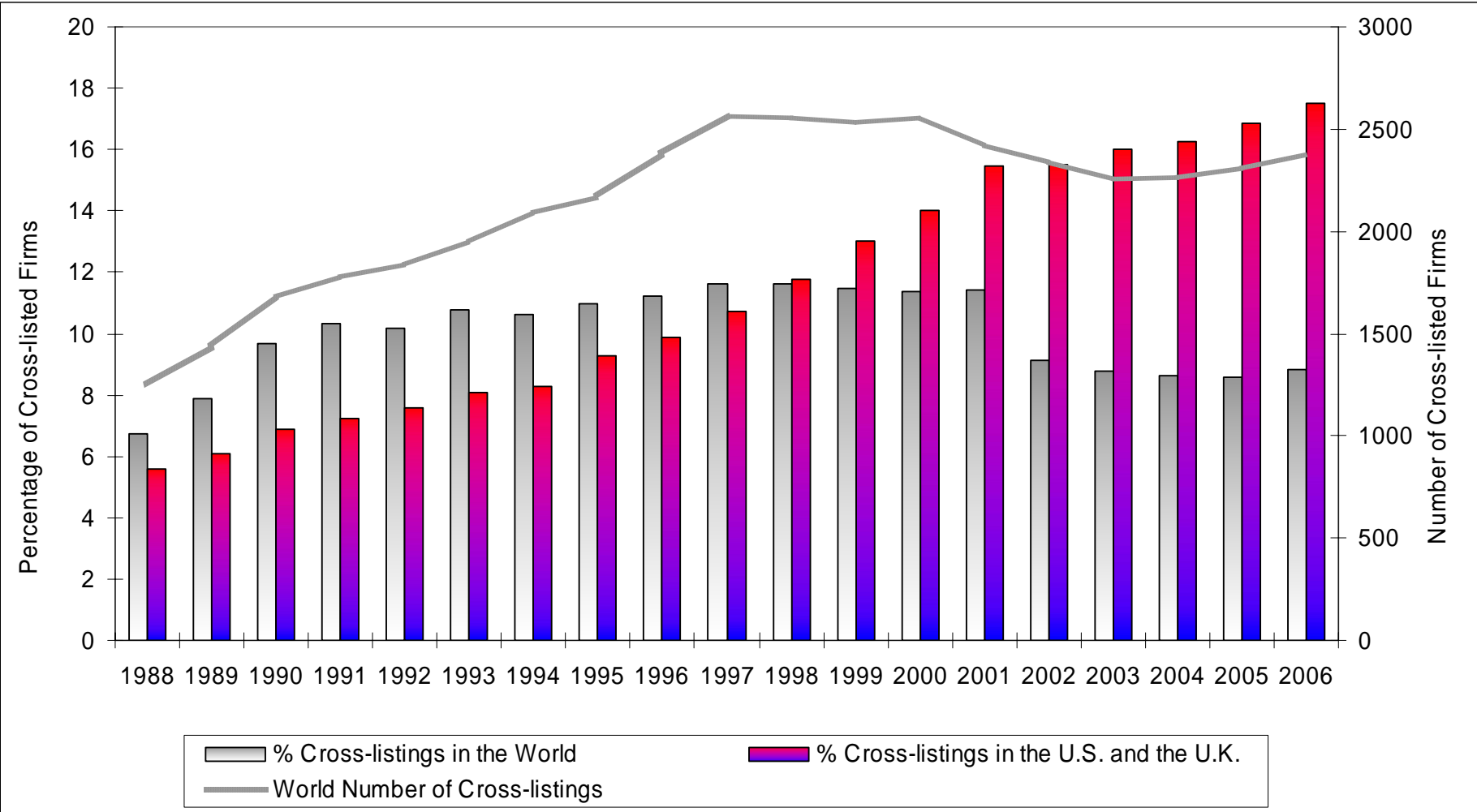


Panel B



**Figure 2 – The Role of Foreign Listings over Time**

This figure reports the number of foreign listed firms in absolute terms, and also as a percentage of all domestic companies listed in the exchanges of our sample. The total number of listed companies in each country, which we use to compute the percentage of foreign listed firms, is from the World Development Indicators and starts in 1988. The bars report the foreign listed firms as a percentage (left axis) of all domestic companies listed in the exchanges of our sample (and separately for the U.S. and the U.K.). The line represents the total number of active cross-listings in all the exchanges at the end of each year.



## Appendix Stock Exchanges

This table lists the stock exchanges that are venue of foreign listings and that we consider in the empirical analysis.

Exchange Name	Country	Region
Johannesburg Stock Exchange	South Africa	Africa
Australian Stock Exchanges	Australia	Asia
Stock Exchange of Hong Kong	Hong Kong	Asia
Tokyo Stock Exchange	Japan	Asia
Korea Stock Exchange	Korea	Asia
Kuala Lumpur Stock Exchange	Malaysia	Asia
New Zealand Stock Exchange	New Zealand	Asia
Stock Exchange of Singapore (SES)	Singapore	Asia
Vienna Stock Exchange	Austria	Europe
Copenhagen Stock Exchange	Denmark	Europe
Paris Stock Exchange	France	Europe
Frankfurt Stock Exchange	Germany	Europe
Athens Stock Exchange	Greece	Europe
Irish Stock Exchange	Ireland	Europe
Borsa Italiana	Italy	Europe
Bourse de Luxembourg	Luxembourg	Europe
Oslo Stock Exchange	Norway	Europe
Madrid Stock Exchange	Spain	Europe
Stockholm Stock Exchange	Sweden	Europe
Swiss Exchange	Switzerland	Europe
Amsterdam Stock Exchange	The Netherlands	Europe
Alternative Investment Market	United Kingdom	Europe
London Stock Exchange	United Kingdom	Europe
Montreal Stock Exchange	Canada	America
Toronto Stock Exchange	Canada	America
TSX Venture Exchange	Canada	America
AMEX	United States	America
New York Stock Exchange (NYSE)	United States	America
NASDAQ	United States	America