

On the Fortunes of Stock Exchanges and Their Reversals: Evidence from Foreign Listing Waves

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Preliminary and incomplete

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 eighties, we document large waves in exchanges' ability to attract foreign companies. We highlight the following determinants of these waves. First, new regulations aiming to improve firm corporate governance bring more foreign listings to the exchange, but stricter disclosure requirements discourage foreign listings. Second, as corporate governance improves in the country of origin, firms become less likely to list in countries with weak investor protection, but more likely to list in the U.K. and the U.S., the countries with strongest investor protection in the sample. This can explain why U.S. and U.K. exchanges have gained foreign listings at the expense of smaller exchanges. Finally, foreign listing waves appear to be related to market timing in the same way as domestic equity issues do.

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Introduction

Attracting foreign listings is an important strategic issue for the development of a domestic financial industry and stock exchanges alike. The countries whose exchanges manage to attract more foreign listings are likely to be the winners of the competitive struggle to become (or remain) major financial centers of the global economy.

However, in the last decades there have been large shifts in firm preferences over exchanges. While there has been a tenfold increase in the number of new listings since the early eighties, only U.S. and U.K. exchanges have registered an increase in the total number of foreign listings. The number of foreign listings has decreased in all the other exchanges around the world. As a result, U.S. and U.K. exchanges that had approximately 40 percent of all foreign listings at the beginning of the eighties (and less than 34 percent in 1999) now have a share of foreign listings that is approximately 60 per cent.

Nor had the fortunes of stock exchanges a steady trend over time. The London Stock Exchange attracted a largest share of foreign listings during the eighties, but lost its primate to the U.S. in the early nineties. 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.

Similar waves in foreign listings have been observed in other markets. In the 1980s, the Tokyo Stock Exchange was relatively popular. 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 the waves in foreign listings around the world. Our large sample includes firms from more than 80 countries, which choose to cross-list across 29 different exchanges. Most crucially, we rely on a sample that includes new listings and delisting decisions starting from the early eighties. Such a large sample, unprecedented in the existing literature, both for time-series and cross-sectional coverage, allows us to investigate the role of different potential determinants of exchange competitiveness and their reversals.

We explore to what extent changes in country level corporate governance, exchanges' listing standards and market timing can contribute to explain the observed foreign listing patterns.

Our results show that all these factors may have an important role. First, we find that new regulations aiming to improve firm corporate governance bring more foreign listings to the exchange, but stricter disclosure requirements discourage foreign listings.

Second, during the sample period many countries have adopted laws and regulations aiming to improve corporate governance (De Nicoló, Laeven and Ueda, 2008). We argue that this can explain why U.S. and U.K. exchanges have gained foreign listings at the expense of many smaller exchanges. When their home country adopts a corporate governance code, firms become less likely to cross list in the smaller exchanges and in exchanges with weaker investor protection. Their probability of listing in countries with strong investor protection, however, increases.

Finally, we show that firms may choose to list in exchanges where stocks are temporarily overvalued, thus suggesting that the choice of a foreign exchange is driven by investor sentiment as firms' domestic equity issues and IPOs do (Lowry, 2003).

This paper is related to a growing literature exploring firms foreign listings' decisions. Sarkissian and Schill (2004) and Pagano, Röell, and Zechner (2002) explore how firms choose in which exchange to list, focusing on a 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 and that firms are more likely to choose familiar markets in which they are more easily recognized by investors.

Our findings also help to put in a broader perspective a number of recent papers analyzing how the Sarbanes Oxley Act has affected the competitiveness of U.S. exchanges with respect to the 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 and argue that the U.S. loss of new foreign listings can be entirely explained by a change in the characteristics of firms listing abroad. Our results that exchanges attract more foreign listings if they improve their investor protection are consistent with their findings.

Finally, our results suggest that imperfect integration of capital markets may lead to cross-border arbitrage in international capital raising activities. In this respect, we complement the findings of Baker and Wurgler (2008) who show that multinational foreign direct investment is driven by market sentiment that allows to raise cheap funding in the domestic country.

The remainder 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.

I Data

A. Foreign listings

We collect data on foreign listings starting from 1980 to 2006 using a variety of data sources. We obtain a list of the major stock exchanges from the World Federation of Exchanges. The list includes all major stock exchanges across all continents. For all the exchanges in this list, 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. We proceed as follows.

For foreign listings in U.S. exchanges, 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 actually available. 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).¹ We have a total of 1,416 foreign listings in the U.S. exchanges.

For all non-U.S. exchanges, we collect active and inactive listings by combining exchange-provided information, Datastream, SDC, as well as news searches for listing/delisting activity using Factiva and Lexis-Nexis for each individual stock exchange.

Firms regularly change listing type or exchange, and the effective dates shown in the databases provided by depository institutions and exchanges relate to their newest listing. We hand-check all active cross-listings to see whether a firm had a previous cross-listing, using Factiva, Lexis-Nexis, company reports, and news published on the Internet. With the news searches, we supplement the database by adding all listings not included in the current versions of the different databases. We also hand-check all new listings and delistings using the above-mentioned news databases, to keep track of name changes.

In the end, our final cross-listings database includes 5,007 foreign listings of firms from 89 countries in 24 countries and 29 exchanges. 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 3,643 firms that have a cross-listing or had one at some time 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

¹ The U.S. listings database is similar to the one used by Fernandes and Ferreira (2008); however, we exclude private placements and firms listed over the counter (144A and Level 1 ADRs).

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) that only include cross-listings as of January 1998 and 44 firms' countries of origin. Not only the larger cross-section and longer time-series help us to identify the determinants of changes in the geography and timing of foreign listing activities, but we also eliminate the survivorship bias by collecting data on delistings. As a result, our sample of cross-listings is twice as large. More importantly, the sample allows us to explore how changes in economic conditions, laws and regulations in origin and exchange countries affect the attractiveness of different exchanges without incurring in a survivorship bias.

Table 1 reports the number of foreign listings across the different exchanges. The first column presents the total number of foreign listings (in any given exchange) that each country has or had in the past. The next two sets of columns show the number of active and inactive foreign listings (as of 2006 end). Not surprisingly, the market with the highest number of foreign listings is the U.S. (1,416), the second largest market being the U.K. Over the sample period, close to 1000 firms have cross-listed in U.K. exchanges (LSE, and more recently, the AIM).

Countries with smaller exchanges, such as Czech Republic, and Turkey have no firms with a foreign listing, and will be excluded from our analysis as possible exchanges of destination. These markets are obviously included as origin countries. In total, we have 89 different origin markets with at least one foreign listing in our sample.

Nevertheless, the world of foreign listings is much broader than the U.S. and the U.K. alone. Indeed, these markets account for less than 50 percent of the total number of foreign listings in our sample and, for instance, Canada has 253 foreign listings.

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. Until 1990, the U.K. and U.S. exchanges jointly had less than 40 percent of the total number of foreign listings. By the end of 2006, these major international exchanges had increased their market share approximately to 60 percent. The increase in the number of foreign firms listed in these exchanges has been even larger because the total number of foreign listings around the world has increased over time.

It is possible that more recent foreign listings are over-represented in our sample because it may be easier to find news about them. Therefore, in the empirical analysis, we include year dummies, which help us to control for any systematic differences in reporting over time.

B. Corporate governance and listing standards

Since we conjecture that changes in regulation contribute to the changing geography of foreign listings, it is important for us to identify these changes. We construct new time-varying measures of corporate governance at the country level using the dates of adoption of corporate governance codes. Corporate governance codes have been adopted by a wide range of countries at different dates during the last two decades. They 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 codes. While it is beyond the scope of our paper to compare the tightness of different codes' provisions, the adoption of a code signals an increased attention to corporate governance issues and an improvement in investor protection. For instance, Price, Roman and Rountree (2007) show that after the adoption of the Code of Best Practices, Mexican firms indeed improved their corporate governance and that non-compliance is perceived to be costly by firms.

We obtain the dates of adoption of corporate governance codes from the European Corporate Governance Institute that provides a comprehensive list of corporate governance codes worldwide. On the basis of these dates, we define two variables aiming to capture changes in corporate governance. *First Code Adoption* is a dummy variable that equals 1 after a country has introduced a governance code and equals zero otherwise. Many countries introduced several corporate governance codes or significant changes to the first code. For capturing this increased attention to corporate governance issues, we define a second variable *Codes*, which takes value zero if the country has no code and increases by one unit each time that the country adopts a new code or changes the original code. Since the variables *First Code Adoption* and *Codes* capture changes in corporate governance, but not the absolute quality, we use them in conjunction with country fixed effects.

We also explore whether our results are robust to more commonly used proxies for investor protection. We use the time-varying index of shareholder rights constructed by Pagano and Volpin (2005) along the lines of the (time-invariant) index of shareholder rights

proposed by La Porta, Lopez-de-Silanes, Shleifer and Vishny (1998). In addition, we also exploit the anti-self-dealing index, constructed by Djankov, La Porta, Lopez-de-Silanes and Shleifer (2008). This index measures the ex-ante and ex-post effectiveness of regulation and enforcement against violators and refers to 2003.

We identify changes in exchanges' listing requirements, such as mandatory reporting requirements, minimum size or free float requirements for listed companies, extent of reliance on public record disclosure in a issuer's home jurisdiction, rules for delisting and domestic and cross-border mergers, through news searches in Factiva and Lexis Nexis. For each of these events, we define a variable *Toughening Listing Requirements* by starting from zero and adding a 1 for each country and year if listing requirements have been made tougher and subtracting a 1 if listing requirements have been relaxed; the base value of the variable is zero.

Overall, during the sample period in most of the countries, exchanges have relaxed their listing requirements even though there are notable exceptions, such as the U.S. exchanges where as a result of the corporate scandals and the adoption of Sarbanes Oxley in 2002, listing standards have become stricter. It is important to note that also in this case our variable does not capture an absolute value of listing standards and must therefore be used in conjunction with country fixed effects.

Finally, we measure disclosure in different countries by constructing an indicator of the amount of information firms disclose. This indicator is constructed similarly to the index reported by the Center for International Financial Analysis and Research until 1993. CIFAR uses information based on the top 8 to 40 companies, depending on data availability, and on 90 items selected by professional accountant (CIFAR, 1993). To generalize the index to our longer sample period, we proceed similarly to De Nicoló, Laeven and Ueda (2008). Our indicator, to which we refer as *CIFAR*, is given by the number of reported accounting items as a percentage of 40 accounting items selected from the original CIFAR index' accounting items according to their availability in the Worldscope database.

C. Other data

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. Since we are unable to match some foreign listings with Worldscope firms, these drop out of our sample when we use firm level information. The number in parentheses in Table 1 reports the distribution of foreign listings for the companies we are able to match with

Worldscope. As we explain more in detail in Section III, we also use Worldscope firms without a foreign listing to construct the control sample when we explore firm foreign listing decisions.

Using Worldscope and Datastream, we construct measures of firm growth opportunities such as Tobin 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 size, and financial leverage. In addition, we construct Industry Q, Origin Q, and Exchange Q in a given industry, country of origin and exchange, respectively. These variables help us to identify whether firms time the market in choosing their foreign listings and to control for industry and origin country growth opportunities.

To explore whether foreign listing waves are related to domestic equity issues, we also obtain information on new equity issues and IPOs from SDC Platinum.

Finally, we complement our main dataset 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 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 Country Level Analysis

In Table 3, we explore how the number of new listings in a given exchange from a given origin country during each of the sample years depends on stock market development, macroeconomic performance, captured by the growth rate of GDP in both origin and exchange countries, the distance between the two and our main variables of interest capturing changes in investor protection and market timing. In all regressions, we include year and country of origin fixed effects to capture systematic shocks to the decision to cross-list that may affect all firms in a year or all firms from a country.

Our estimates indicate that the adoption of a corporate governance code and, more in general, improved investor protection in the exchange country bring about an increase in new listings. Similarly, fewer firms appear to list after a corporate governance code has been adopted in the country of origin thus suggesting that firms seek the bonding of foreign laws when investor rights are poorly protected in the home country. We do not find however a

significant effect of the origin country's anti-director rights index, probably due to reduced sample size and low time-series variation of the index.

The effects of governance code adoption are significant also from an economic point of view. Note that in an exchange the median number of new listing from a given country is zero. By adopting a governance code, the exchange country attracts 0.8 new listings from each of the 89 countries of origin in the sample. Even more strikingly, after the adoption of a governance code in a country, there are 32 fewer listings from that country into foreign exchanges.

We then explore whether exchanges which temporarily offer large valuations attract more foreign listings. We find that indeed the number of foreign listings increases if stock prices in the exchange, captured by the exchange Q, go up. The effect is however small from an economic point of view as a one standard deviation increase in the exchange Q accounts only for 5 percent of the standard deviation of the new listings.

If we use the annual returns during the previous year, instead of the Tobin Q, to capture the effects of stock valuation on new listings a similar picture emerge. Higher return in the exchange brings about an increase in the number of new listings but the effect is small from an economic point of view (a one standard deviation change in the exchange return explains only 3 percent of the standard deviation of the change in the stock of new listings). The low explanatory power may depend on limited importance of market timing theories, but also on the fact that the exchange valuation affects new listings but not delistings from a foreign exchange.

Domestic equity issues and foreign listings appear to be related. In particular a standard deviation change in the amount of domestic equity issues explains 15 per cent of the standard deviation of foreign listings. The variation of new listings explained by the capital raised in IPOs in the exchange is slightly larger (17 per cent). To the extent that both IPOs and domestic equity issues have been shown to be related to market timing, these results also suggest that firms time the market for their foreign listings.

This interpretation is also supported by the fact that stock prices, equity issues and IPOs in the origin country, which should arguably be more related to growth opportunities of the firms seeking foreign listings, are not significantly related to the number of new listings. On the contrary, larger amounts of equity issued in the home country appear to discourage foreign listings.

This analysis overall suggest that changes in investor protection and market timing are related to cross-listing waves event though they seem to be able to account only for a small portion of them.

However, this analysis is only exploratory because controlling for firm characteristics is important to give a causal interpretation of the results. For instance, while the previous estimates suggest that cross-listings and domestic equity issues have similar determinants, industry and firm level growth opportunities could drive our estimates. Controlling for firm characteristics is equally important when we analyze the effects of changes in investor protection. Countries could change regulation when firms that would seek a foreign listing otherwise need to raise capital.

Controlling for firm characteristics is even more crucial when we explore the effects of disclosure because we measure disclosure using the percentage of accounting items reported by the to 30 firms in a country. It is well-known that large firms tend to disclose more and that large firms are more likely to have foreign listings. Thus, if we did not control for firm size, we could observe that countries with large firms disclose more and have more foreign listings, but we would not be able to attribute this effect to disclosure in the origin country. While the inclusion of country of origin fixed effects certainly mitigates these problems, the firm level analysis corroborates the above results.

IV Firm Level Analysis

A. Methodology

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 with market capitalization above the one of firms that chooses to have a foreign listing in a given year is considered to be at risk of a foreign listing in any of the 24 exchange countries in our sample. To take into account that a given firm’s decision 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.

Thus, when we analyze the stock of listings and new listings, our dependent variable is a dummy that equals one if 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 foreign exchange and analyze the determinants of the decision to delist during the sample period using a Cox proportional hazard model.

A. Foreign listings, corporate governance and listing standards

Panel A of Table 4 shows that changes in corporate governance and investor protection can help explaining the changing patterns of foreign listings. Since we include country of origin and country of exchange fixed effects, our estimates can be interpreted as follows. Improvements in corporate governance as captured by the adoption of the first corporate governance code (Column 1) bring more foreign listings to a given country. Furthermore, fewer firms list abroad when investor rights become better protected in the origin country. The effects are not only statistically, but also economically significant. 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 2.5 per cent; when a country adopts a governance code the probability that any firm seeks a foreign listing there increases by 3 per cent.

We interpret this as evidence that firms seek an optimal amount of bonding through their listing/exchange choices. Once the home market standards become stricter, the need to be certified by listing in a foreign exchange diminishes.

The effect of the first governance code adoption appears even more relevant if one considers that it probably represents a lower bound for the impact of investor protection, as we control for market capitalization and liquidity, proxied by stock turnover, both in the origin and the exchange countries. These variables capturing stock market development are well known to be related to investor protection (La Porta, Lopez-de-Silanes, Shleifer and Vishny, 1997). It appears that countries with more liquid and better capitalized stock markets attract more foreign listings and generate fewer of them. 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. It rather suggests that firms from countries with weak investor protection and similar stock market development are more likely to look for the bonding of foreign laws in countries where investor protection is strongest.

In Columns 2 to 4, we explore the robustness of this result to the use of different proxies for investor protection. First, since several countries adopted more than one corporate governance code, we use the number of codes adopted instead of the first code dummy. Our estimates are qualitatively invariant. Second, we use more conventional proxies for investor protection. When we use the anti-director rights index that Pagano and Volpin (2005) construct along the lines of La Porta, Lopez-de-Silanes, Shleifer and Vishny (1997) for the period 1993-2002, our sample is greatly reduced. While we still find that improvements in investor protection in the exchange country attract more foreign listings, investor protection in the country of origin is no longer statistically significant. Like in the country-level analysis, this is probably due to the fact that the index has limited time-series variation.

In Column 4, we use the anti-selfdealing 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 of foreign listings are directed to countries with strong investor protection.

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 improve in the origin country, this does not affect all exchanges equally. In Column 5, the interaction term between the dummy that takes value one if the firms comes from a country that has adopted a corporate governance code and a dummy that takes value 1 for the U.S. and the U.K. stock exchanges, the only truly global exchanges, implies that firms become more likely to cross-list in the global exchanges after the adoption of a corporate governance code in the origin country. The economic magnitudes are large: After the adoption of a governance code in the origin country, any firm becomes 10 per cent less likely to seek a foreign listing in any exchange that is not in the U.K. or the U.S. The probability of listings in the latter two countries actually increases by 13 percent.

This effect is most likely due to the fact that the U.S. and the U.K. offer stronger investor protection. In fact, we also find that after the adoption of a corporate governance code in the origin country, firms are more likely to list in countries with stronger corporate governance, as measured by the anti-selfdealing index (Columns 6 and 7). Not surprisingly, firms are less likely to list abroad after the adoption of a corporate governance code if they are from countries with initially higher level of investor protection.

In Panel B of Table 4, we explore how new listings and delistings contribute to explain the stock of foreign listings. The determinants of new listings appear to be the same of

the determinants of the stock of listings, even though the number of codes adopted in the origin country loses significance. A country is 61 percent more likely to attract a new listing after the adoption of a governance code.² Consistently with our previous findings, the probability of a new listing decreases by 25 per cent if a governance code is adopted in the origin country.

Stronger investor protection reduces the likelihood of a delisting. After a country adopts a governance code, the probability that a firm delists from its exchange drops by 50 per cent. 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 per cent. Thus, it seems that if firms have to comply with stricter standards in the country of origin, the cost of remaining listed in a foreign exchange is lower.

In Table 5, we include the CIFAR index to measure the extent of firm disclosure. It appears that investor protection and firm disclosure have opposite effects on an exchange's ability to attract foreign listings. In Column 3, a one unit increase in the exchange country's CIFAR decreases by 6 per cent 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 requirements may be difficult to meet the first time a company attempts to, but are less costly to maintain. This is consistent with the evidence that firms from high disclosure countries are more likely to have a foreign listing. It is also consistent with previous studies showing that firms listed in a foreign exchange are typically from countries with stricter disclosure requirements (Biddle and Saudagaran, 1989 and Saudagaran and Biddle, 1992).

To summarize, we find that improvements in corporate governance make exchanges more competitive, as they attract a higher number of foreign listings. Stricter disclosure requirements, however, seem to discourage foreign listings. Furthermore, when corporate governance improves in the origin country, fewer firms seek foreign listings. The firms that list abroad are more likely to choose U.S. and U.K. exchanges or, more in general, countries with higher standards of investor protection. This suggests that the worldwide improvement in investor protection can explain why the cross-listings share of smaller exchanges has decreased over time.

Finally, it may be interesting to note that our estimates also reveal that consistently with previous studies, larger firms and firms with higher growth opportunities are more likely

² The economic effect when we use the Cox proportional hazard model is obtained from the hazard rate as follows: $\approx (e^{\hat{\beta}} - 1) * 100$.

to cross-list, and that larger distance between the country of origin and the foreign exchange decreases the probability of a foreign listing.

B. Market Timing

The exchange 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. Clustering of domestic as well as foreign equity issues may have a neoclassical explanation because higher stock prices could reflect either changes in future cash flows or in discount rates, and, as a consequence, firms could optimally issue more equity to fund investment. However, behavioral explanations are also possible as managers may time equity issues to take advantage of stock prices that are sometimes too high relative to fundamentals.

We explore to what extent behavioral theories may help explaining exchanges' popularity in attracting foreign listings. To our knowledge, there has not been any previous large sample investigation of the effects of market timing on foreign listings. Pagano, Roell and Zechner (2002) propose that mispricing could be related to foreign listings. However, they do not study how stock prices in different exchanges affect the decision where to obtain a foreign listing over time.³

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

This strategy can be adapted to the context of foreign listings. Not only we can control for fundamental-driven changes in prices using the firm's Tobin Q, but we can also control for global growth opportunities in the industry of the firm, using the industry's Tobin Q, and for the firm's origin country growth opportunities, using the (aggregate) origin country's Tobin Q. After controlling for year, country of origin and exchange fixed effects, we interpret a positive effect of stock valuation in the exchange, proxied by the exchange Tobin Q, on the probability that a foreign firm is listed in that exchange as evidence of market timing

³ They explore whether the average market to book ratio of several foreign exchanges affect the decision to have a foreign listing in any of these exchanges. They find no evidence of mispricing probably because they explore the average valuation of different exchanges and use a sample with limited time-series and cross-sectional variation.

In Table 6, we do find evidence that firms chase the highest valuation when selecting in which foreign exchange to list. A marginal increase in the exchange's stock prices increases the probability that a firm is listed in the exchange by 75 per cent, an effect that is nearly 10 times the one of the firm Tobin Q, which should capture the firm growth opportunities. Interestingly, firms appear to be less likely to be listed in a foreign market when stock prices in the domestic country are high. This effect is, however, reversed, if we explore only new listings (Panel B). A marginal increase in industry valuation increases the probability that a firm is listed in a foreign exchange by 85 percent. This could capture industry growth opportunities that may not be reflected in the firm stock price if the firm is temporarily undervalued. It may also capture the fact that firms are more likely to seek a foreign listing when their industry is temporarily overvalued as it happened, for instance during the IT boom when many IT firms were seeking foreign listings.

The new listings estimates suggest a similarly large effect for investor sentiment: A one-unit increase in the valuation of the exchange increases the probability of a new listing by 175 per cent. 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 percent. Analogous increments in industry's and origin country's stock market prices lead to an increase in foreign listing probability of 125 and 143 per cent, respectively. While these increases are substantial and, as we argue above, may capture firm growth opportunities that are not reflected in the firm's Tobin Q, they could also be related to investor sentiment in some industries or some origin countries. Most importantly, the variable capturing temporary misvaluation in the exchange's stock prices is the one with larger impact on the probability of a new foreign listing.

These effects are even larger if instead of the Tobin Q we use the return during the previous year to measure misvaluation. We include both returns in the origin and the exchange country. Once again the exchange country return should contain less information about the prospects of a firm than returns in the origin country and the firm Tobin Q. While we find that firms with more growth opportunities are indeed more likely to cross-list (a one-unit increase in Tobin Q increases the probability by 15 percent), the market return in the origin country appears to have no effect. A 1 percentage point increase in market returns in the exchange increases by the same size the probability that a firm chooses to list in that exchange.

Interestingly, firms are also less likely to delist from overvalued exchanges. Consistently with previous literature, firms are less likely to delist when they have stronger

growth opportunities as the impact of the firm Tobin Q on the probability that a firm renounces to its foreign listing is negative. Similarly, firms delist when stock prices in their industry or country of origin are low: A one-unit decrease in the industry Tobin Q (origin country's Tobin Q) increases the probability of a delisting by 14 (70) percent.

As an alternative proxy for the attractiveness of different markets (for firms), we use the total proceeds from equity issuance in each country/year. Consistently 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 one million dollar increase in an exchange's new equity issues increases the probability of a new listing by 1 percent. This increase is substantial if one considers that the variance of proceeds in new equity issues across exchanges is nearly 200 million dollars in our sample.

Estimates in columns 5 to 8 explore the determinants of delistings. Interestingly, firms' probability of delisting increases by nearly 40 percent if returns in the domestic market have been increasing during the previous year. While this could suggest a sort of reverse market timing in the decision to abandon foreign exchanges, it is important to note that eventual temporary increases in market return may have long-lasting effects on an exchange stock of foreign listings as firms do not appear to delist when the foreign exchange drop. Demand for capital also seem important in explaining why firms maintain their foreign listings as firms are less likely to delist if a lot of capital is being raised in the domestic or in the exchange's stock markets in primary or new equity issues.

C. Robustness

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

Nor are our results dependent on the control sample we use.⁴ So far, we have assumed that all firms listed in the domestic country may consider a foreign listing in any exchange. However, foreign listings are quite rare events and firm size, which we measure using the logarithm of firm assets has a large predicting power, as is common in previous literature (see, for instance, Pagano Roell and Zechner, 2002). For this reason, we follow Doidge, Karolyi,

⁴ Clearly, we do not replicate the estimates on delisting in Panel B, because in this case the control sample is composed by firms with a foreign listing that do not delist.

Lins, Miller and Stulz (2008), and include in the control sample only firms that have more than 10 million US Dollar in assets.⁵

Estimates are reported in Panel B of Table 7 and show that our results are qualitatively invariant. The economic magnitude of the effects for the stock of listings are now much bigger. For instance, in column 1, a marginal increase in the exchange Q increases the probability of a foreign listing by 2 percent, an effect nearly 40 times bigger than the one estimated in Panel A. This is a very large effect if one considers that in Panel B less than 3 per cent of the observations refer to firms with a foreign listing. The effects of code adoption are increased by a similar amount of the exchange Q. However, the effect is smaller than the one we find for market timing. The adoption of a corporate governance code in the exchange (origin) country increases (decreases) the probability of a foreign listing by 1 (0.7) percent.

IV Conclusions

This paper documents the large changes in exchanges' ability to attract foreign listings and explores some possible determinants of these cross-listing waves. We find not only that improvements in investor protection in some exchange countries can explain why some exchanges have become more popular, but also that investor protection in the country of origin matters. In particular, once their country has become more attentive to investor rights, fewer firms choose to list in countries with relatively weak investor protection. Thus, it appears that improvements in corporate governance around the world have strengthened the competitive advantage of U.S. and U.K. exchanges were regulations and market forces guarantee particularly strong protection of investor rights.

Similarly, also the improvement of disclosure standards in the home country appears to stimulate foreign listings.

We also find that market timing may play an even more important role in explaining cross-listing waves. Firms appear to choose to list in countries where stock prices are highest. In addition, firm choose exchanges where domestic firms are currently able to raise large amounts of capital in IPOs and seasoned equity offerings. Since both IPOs and seasoned equity offerings have been shown to be driven by investor sentiment, this suggest that a more thorough investigation of market timing explanations can help to shed light on the fortunes of stock exchanges and their reversals.

⁵ In unreported specifications, we include only firms with assets of more than 100 million US dollars in the control sample. Results are qualitatively similar to the ones we report.

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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.

Country of Exchange	(1)		(2)			
	Total Sample		Status of Foreign Listings in 2006			
			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	[]	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]
Total	5007	[4029]	2597	[2141]	2410	[1888]

Table 2

This table presents the source and the descriptive statistics of the main variables used in the empirical analysis. New listing is the number of new listings from a given country to a given exchange in a given year. Foreign listed dummy is a dummy that takes value 1 if the firm is listed in a foreign exchange during a given year and takes value zero otherwise. Newly listed dummy is a dummy that takes value 1 if the firm has obtained a foreign listing in a given exchange at time t and value 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 takes value equal to 1 if the firm delists at time t from exchange e and equal zero otherwise. Only observations relative to firms with a foreign listing in a given exchange are included. First code adoption and Codes are time-varying measures of adoptions of corporate governance codes. Anti-director Rights is the shareholders' protection rights index from Pagano and Volpin (2005). Anti-Selfdealing 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. 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 US Dollars. 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 distance between the stock exchange and the origin 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 total debt to total assets. Log Assets is the log of total assets in US dollars. No of Listings is total number of listings from that firm in all the foreign exchanges in that year. Q is Tobin Q defined as firm market value plus total assets minus equity divided by total assets.

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-director Rights	Pagano and Volpin (2005)	3.879	1.203	3.000	4.000	5.000	3,740
Anti-Selfdealing	Djankov, et al (2008)	0.578	0.271	0.283	0.544	0.813	11,043
Equity issues	SDC	443.510	347.711	200.000	353.000	590.032	9,615
IPO Equity Issues	SDC	183.057	158.503	72.200	143.162	245.584	8,094
CIFAR	Worldscope	70.026	11.885	58.981	73.889	79.907	10,829
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

Table 3
Cross-country Analysis of New Listings Determinants

The dependent variable is the number of new listings during the last year (new listings). All other variables are defined in Table 2. Estimates are obtained by ordinary least squares. Robust standard errors corrected for heteroskedasticity 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)
First Code Adoption	-0.323*** (0.081)						0.0628 (0.063)
First Code Adoption -Exchange	0.0928* (0.055)						-0.287*** (0.087)
Anti-director Rights		-0.00760 (0.076)					
Anti-director Rights-Exchange		0.171*** (0.035)					
Origin Q				0.216 (0.18)			0.249 (0.18)
Exchange Q				0.631*** (0.17)			0.599*** (0.18)
Previous Year Return			-0.00223 (0.058)				
Previous Year Return-Exchange			0.289** (0.14)				
Equity Issues					-0.000254* (0.00015)		
Equity Issues - Exchange					0.000862*** (0.00013)		
IPO Equity Issues						-0.0000823 (0.00028)	
IPO Equity Issues - Exchange						0.00246*** (0.00038)	
Market capitalization	0.000565 (0.00041)	-0.000294 (0.00085)	0.00110** (0.00049)	0.000447 (0.00041)	0.000555 (0.00050)	-0.000629 (0.00059)	0.000459 (0.00040)
Market capitalization -Exchange	0.00118*** (0.00044)	-0.000633 (0.00058)	0.00154*** (0.00050)	0.00133*** (0.00045)	0.000951* (0.00050)	0.00131** (0.00061)	0.00134*** (0.00046)
GDP Growth	0.00312 (0.0051)	-0.00453 (0.011)	-0.00549 (0.0064)	-0.00641 (0.0065)	-0.00686 (0.0070)	-0.0166* (0.0097)	-0.00334 (0.0065)

GDP Growth -Exchange	-0.000420 (0.0085)	0.0171 (0.015)	0.00254 (0.0096)	-0.0104 (0.0096)	0.0125 (0.011)	0.00411 (0.014)	-0.00927 (0.0097)
Distance	-0.0000139** (0.0000067)	0.00000267 (0.0000096)	-0.0000141** (0.0000070)	-0.0000175** (0.0000070)	-0.0000291*** (0.0000094)	-0.0000356*** (0.000011)	-0.0000176** (0.0000070)
Year FE	Y	Y	Y	Y	Y	Y	Y
Country of Origin FE	Y	Y	Y	Y	Y	Y	Y
Observations	8047	2900	7183	7470	6327	4633	7470
R-squared	0.06	0.10	0.07	0.06	0.08	0.11	0.06

Table 4
Foreign Listings and Investor Protection

Panel A. The stock of foreign listings

The dependent variable is a dummy that takes value 1 if the firm is listed in a foreign exchange during a given year and takes value zero otherwise (Foreign listed dummy). 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)
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)
Codes		-0.0976*** (0.016)					
Codes-Exchange		0.0301*** (0.0097)					
Anti-director Rights			0.00657 (0.051)				
Anti-director Rights-Exchange			0.166*** (0.054)				
Anti-Selfdealing				2.062*** (0.030)			
Anti-Selfdealing-Exchange				-0.138*** (0.036)			
Global Exchange x First Code Adoption					0.659*** (0.052)		
Anti-Selfdealing x First Code Adoption							-0.788*** (0.14)
Anti-Selfdealing-Exchange x First Code Adoption						0.777*** (0.093)	0.742*** (0.10)
Anti-Selfdealing-Exchange x First Code Adoption- Exchange							0.151 (0.11)
Market capitalization	-0.00130*** (0.00043)	-0.00207*** (0.00045)	-0.00135** (0.00053)	-0.00542*** (0.00015)	-0.00101** (0.00042)	-0.00129*** (0.00043)	-0.000818* (0.00042)
Market capitalization –Exchange	0.00188*** (0.00026)	0.00222*** (0.00026)	0.000251 (0.00035)	0.00148*** (0.000090)	0.00197*** (0.00025)	0.00199*** (0.00026)	0.00197*** (0.00026)
Turnover	-0.00242***	-0.00218***	-0.00290***	-0.00922***	-0.00227***	-0.00232***	-0.00218***

Turnover-Exchange	(0.00040)	(0.00039)	(0.00042)	(0.00015)	(0.00039)	(0.00039)	(0.00040)
	0.00119***	0.000965***	0.000425*	0.00924***	0.000491**	0.000981***	0.000913***
GDP Growth	(0.00023)	(0.00023)	(0.00025)	(0.00013)	(0.00023)	(0.00023)	(0.00023)
	-0.00573	-0.00638	0.00742	0.145***	-0.00749*	-0.00616	-0.00311
GDP Growth –Exchange	(0.0043)	(0.0041)	(0.0051)	(0.0031)	(0.0042)	(0.0043)	(0.0042)
	0.0000268***	0.0000220***	0.0000598***	0.0000632**	0.00000796**	0.0000205***	0.0000191***
Distance	(0.000032)	(0.0000032)	(0.0000050)	(0.0000088)	(0.0000034)	(0.0000033)	(0.0000033)
	-0.000194***	-0.000194***	-0.000190***	0.000110***	-0.000191***	-0.000193***	-0.000193***
Log Assets	(0.0000091)	(0.0000091)	(0.000010)	(0.0000015)	(0.0000090)	(0.0000090)	(0.0000090)
	0.622***	0.624***	0.653***	0.564***	0.624***	0.623***	0.623***
Leverage	(0.015)	(0.015)	(0.016)	(0.0026)	(0.015)	(0.015)	(0.015)
	-0.00366***	-0.00356***	-0.00335**	-0.00472***	-0.00363***	-0.00365***	-0.00359***
Q	(0.0012)	(0.0012)	(0.0013)	(0.00031)	(0.0012)	(0.0012)	(0.0012)
	0.153***	0.154***	0.165***	0.135***	0.154***	0.153***	0.154***
Year FE	(0.0068)	(0.0068)	(0.0072)	(0.0028)	(0.0069)	(0.0069)	(0.0068)
Country of Origin and Country of Exchange FE	Y	Y	Y	Y	Y	Y	Y
	Y	Y	Y	N	Y	Y	Y
Observations	4697910	4697910	2563135	4731823	4697910	4697910	4697910

Panel B. New listings and delistings

In columns 1 and 2, the dependent variables is a dummy that takes value 1 if the firm has obtained a foreign listing in a given exchange at time t and value 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 takes value equal to 1 if the firm delists at time t from exchange e and equal 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)	(4)
	New Listings		Delistings	
First Code Adoption	-0.280*** (0.087)		-0.416*** (0.14)	
First Code Adoption –Exchange	0.478*** (0.081)		-0.717*** (0.12)	
Codes		0.0234 (0.028)		-0.445*** (0.042)
Codes-Exchange		0.0552** (0.025)		-0.0639** (0.027)
Market capitalization	0.000724 (0.0012)	0.000399 (0.0012)	-0.00316** (0.0015)	-0.00761*** (0.0018)
Market capitalization – Exchange	0.000854 (0.00056)	0.00126** (0.00057)	-0.00557*** (0.0012)	-0.00462*** (0.0012)
Turnover	-0.00144* (0.00084)	-0.00144* (0.00085)	-0.00394*** (0.0012)	-0.00244* (0.0014)
Turnover-Exchange	0.00298*** (0.00073)	0.00316*** (0.00076)	-0.000118 (0.00086)	0.000791 (0.00086)
GDP Growth	0.0248* (0.014)	0.0166 (0.014)	0.0558** (0.025)	0.0306 (0.028)
GDP Growth –Exchange	0.0000413*** (0.0000083)	0.0000319*** (0.0000091)	-0.0000449*** (0.0000091)	-0.0000180** (0.0000091)
Distance	-0.000183*** (0.0000076)	-0.000183*** (0.0000076)	0.0000149 (0.000015)	0.0000157 (0.000014)
Log Assets	0.390*** (0.013)	0.389*** (0.013)	0.120*** (0.014)	0.116*** (0.014)
Leverage	-0.0100*** (0.0012)	-0.0101*** (0.0012)	0.00423** (0.0019)	0.00392** (0.0019)
Q	0.145*** (0.0061)	0.145*** (0.0061)	-0.0521** (0.025)	-0.0520** (0.025)
No of Listings			-0.996*** (0.12)	-0.988*** (0.11)
Year FE	Y	Y	Y	Y
Country of Origin and Country of Exchange FE	Y	Y	Y	Y
Observations	4699112	4699112	30568	30568

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

In columns 1 and 2, the dependent variable is a dummy that takes value 1 if the firm is listed in a foreign exchange during a given year and takes value zero otherwise (Foreign listed dummy). In column 3, the dependent variables is a dummy that takes value 1 if the firm has obtained a foreign listing in a given exchange at time t and value 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 takes value equal to 1 if the firm delists at time t from exchange e and equal 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. 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)	(2)	(3)	(4)
	Stock of Listings		New listings	Delistings
Cifar	0.0343*** (0.0050)	0.0371*** (0.0051)	-0.00929 (0.0091)	-0.00505 (0.015)
Cifar1-Exchange	-0.0489*** (0.0039)	-0.0497*** (0.0039)	-0.0574*** (0.0089)	-0.0385*** (0.014)
First Code Adoption		-0.150*** (0.034)	-0.268*** (0.088)	-0.355*** (0.14)
First Code Adoption -Exchange		0.140*** (0.027)	0.509*** (0.084)	-0.652*** (0.12)
Market capitalization	-0.000935** (0.00041)	-0.000781* (0.00041)	0.000821 (0.0012)	-0.00324** (0.0013)
Market capitalization -Exchange	0.00177*** (0.00025)	0.00178*** (0.00025)	0.000571 (0.00055)	-0.00577*** (0.0012)
Turnover	-0.00193*** (0.00039)	-0.00186*** (0.00038)	-0.00129 (0.00084)	-0.00388*** (0.0010)
Turnover-Exchange	0.000492** (0.00022)	0.000419* (0.00021)	0.00204*** (0.00076)	-0.000300 (0.00097)
GDP Growth	-0.00607 (0.0041)	-0.00313 (0.0043)	0.0239* (0.014)	0.0590** (0.023)
GDP Growth -Exchange	0.0000187*** (0.0000034)	0.0000204*** (0.0000034)	0.0000406*** (0.0000094)	-0.0000410*** (0.0000096)
Distance	-0.000195*** (0.0000091)	-0.000195*** (0.0000091)	-0.000183*** (0.0000076)	0.0000140 (0.000012)
Log Assets	0.624*** (0.015)	0.624*** (0.015)	0.392*** (0.013)	0.121*** (0.013)
Leverage	-0.00363*** (0.0012)	-0.00362*** (0.0012)	-0.0100*** (0.0012)	0.00427*** (0.0015)
Q	0.154*** (0.0068)	0.154*** (0.0068)	0.146*** (0.0061)	-0.0511** (0.023)
No of Listings				-0.998*** (0.037)
Year FE	Y	Y	Y	N
Country of Origin and Country of Exchange FE	Y	Y	Y	Y
Observations	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 takes value 1 if the firm is listed in a foreign exchange during a given year and takes value 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)	(4)
Industry Q	0.850*** (0.057)			0.850*** (0.057)
Exchange Q	0.722*** (0.091)			0.571*** (0.17)
Origin Q	-0.576*** (0.079)			0.307** (0.15)
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)	
Distance x Origin Q				-0.000143*** (0.000020)
Distance x Exchange Q				0.00000855 (0.000024)
Market capitalization	-0.000882** (0.00043)	-0.000441 (0.00041)	-0.00119*** (0.00043)	-0.000740* (0.00042)
Market capitalization -Exchange	0.00151*** (0.00026)	0.00182*** (0.00026)	0.00320*** (0.00031)	0.00138*** (0.00026)
Turnover	-0.00244*** (0.00041)	-0.00146*** (0.00038)	-0.00210*** (0.00041)	-0.00260*** (0.00040)
Turnover-Exchange	0.00120*** (0.00024)	0.000867*** (0.00023)	0.00100*** (0.00027)	0.00132*** (0.00024)
GDP Growth	0.0000271*** (0.0000033)	0.0000265*** (0.0000033)	0.0000364*** (0.0000035)	0.0000243*** (0.0000033)
GDP Growth -Exchange	-0.00290 (0.0043)	-0.0194*** (0.0043)	-0.0145*** (0.0046)	-0.000514 (0.0043)
Distance	-0.000195*** (0.0000091)	-0.000194*** (0.0000092)	-0.000192*** (0.0000089)	-0.0000284 (0.000029)
Log Assets	0.655*** (0.015)	0.625*** (0.015)	0.620*** (0.015)	0.656*** (0.015)
Leverage	-0.00283** (0.0012)	-0.00390*** (0.0012)	-0.00387*** (0.0011)	-0.00276** (0.0012)
Q	0.0856*** (0.0087)	0.158*** (0.0068)	0.158*** (0.0065)	0.0857*** (0.0087)
Year FE	Y	Y	Y	Y
Country of Origin and Country of Exchange FE	Y	Y	Y	Y
Observations	4697910	4533005	3962971	4697910

Panel B. New listings and delistings

In columns 1 to 4, the dependent variables is a dummy that takes value 1 if the firm has obtained a foreign listing in a given exchange at time t and value 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 5 to 8, the dependent variable is a dummy that takes value equal to 1 if the firm delists at time t from exchange e and equal 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)	(4)	(5)	(6)	(7)	(8)
	New listings				Delistings			
Industry Q	0.812*** (0.042)				-0.144* (0.083)			
Exchange Q	1.013*** (0.21)				-1.731*** (0.23)			
Origin Q	0.889*** (0.17)				-0.962*** (0.29)			
Previous Year Return		-0.00127 (0.0010)				0.327* (0.18)		
Previous Year Return-Exchange		0.0160*** (0.0014)				-0.141 (0.22)		
Equity Issues			-0.00270*** (0.00031)				-0.000679** (0.00031)	
Equity Issues - Exchange			0.00142*** (0.00010)				-0.00142*** (0.00022)	
IPO Equity Issues				-0.000108 (0.000098)				-0.0000905 (0.00015)
IPO Equity Issues - Exchange				0.000103** (0.000049)				-0.000155* (0.000083)
Market capitalization	-0.00122 (0.0013)	-0.00235*** (0.00085)	-0.00750*** (0.00063)	-0.00900*** (0.00066)	-0.00320** (0.0013)	-0.00480*** (0.0016)	-0.00466*** (0.0013)	-0.00493*** (0.0014)
Market capitalization -Exchange	0.000914 (0.00060)	-0.0228*** (0.0011)	0.00325*** (0.00021)	0.00300*** (0.00020)	-0.00520*** (0.00056)	-0.00687*** (0.0012)	-0.00549*** (0.00060)	-0.00887*** (0.0014)
Turnover	-0.00113 (0.00087)	-0.00271*** (0.00078)	-0.00962*** (0.00088)	-0.0137*** (0.00087)	-0.00401*** (0.00097)	-0.00410*** (0.0012)	-0.00383*** (0.0010)	-0.00482*** (0.0011)
Turnover-Exchange	0.00372*** (0.00074)	-0.00968*** (0.0010)	0.00908*** (0.00041)	0.0103*** (0.00044)	-0.00378*** (0.00067)	-0.000370 (0.00089)	-0.00376*** (0.00071)	-0.000297 (0.0011)
GDP Growth	-0.000283 (0.013)	0.0360*** (0.011)	0.205*** (0.012)	0.232*** (0.012)	0.0479** (0.023)	0.0633** (0.027)	0.0498** (0.025)	0.0880*** (0.027)

GDP Growth -Exchange	0.0000360*** (0.0000088)	-0.000412*** (0.000020)	0.0000174*** (0.0000022)	0.0000159*** (0.0000023)	-0.00000786** (0.0000038)	-0.0000548*** (0.0000088)	-0.00000251 (0.0000041)	-0.0000639*** (0.000010)
Distance	-0.000185*** (0.0000077)	-0.000179*** (0.0000076)	-0.0000999*** (0.0000060)	-0.0000968*** (0.0000062)	0.00000828 (0.0000089)	0.0000151 (0.000014)	0.00000607 (0.0000086)	0.0000188 (0.000012)
Log Assets	0.424*** (0.013)	0.424*** (0.0097)	0.364*** (0.012)	0.341*** (0.012)	0.125*** (0.013)	0.114*** (0.015)	0.147*** (0.012)	0.110*** (0.014)
Leverage	-0.00878*** (0.0013)	-0.0100*** (0.0011)	-0.0121*** (0.0012)	-0.0130*** (0.0012)	0.00314** (0.0015)	0.00399** (0.0019)	0.00449*** (0.0015)	0.00420*** (0.0016)
Q	0.0954*** (0.0077)	0.143*** (0.0054)	0.143*** (0.0057)	0.137*** (0.0058)	-0.0332 (0.024)	-0.0558** (0.025)	-0.0472** (0.024)	-0.0599** (0.025)
No of Listings					-0.992*** (0.039)	-0.988*** (0.12)	-0.984*** (0.039)	-0.967*** (0.040)
Year FE	Y	Y	Y	Y	N	N	N	N
Country of Origin and Country of Exchange FE	Y	Y	Y	Y	Y	Y	Y	Y
Observations	4699112	4695194	4533418	3967452	30568	30435	29616	25872

Table 7
Explaining foreign listings

In columns 1 and 2, the dependent variable is a dummy that takes value 1 if the firm is listed in a foreign exchange during a given year and takes value zero otherwise (Foreign listed dummy). In column 3, the dependent variables is a dummy that takes value 1 if the firm has obtained a foreign listing in a given exchange at time t and value 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 takes value equal to 1 if the firm delists at time t from exchange e and equal 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. 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)	(2)	(3)	(4)
	Stock of listings		New listings	Delistings
First Code Adoption	-0.102*** (0.035)	-0.159*** (0.035)	-0.304*** (0.087)	-0.288** (0.14)
First Code Adoption -Exchange	0.120*** (0.026)	0.145*** (0.027)	0.484*** (0.086)	-0.680*** (0.12)
Cifar		0.0341*** (0.0048)	-0.00393 (0.0091)	-0.0252 (0.016)
Cifar1-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)
Exchange Q	0.729*** (0.091)	0.379*** (0.086)	0.631*** (0.22)	-1.275*** (0.38)
Origin Q	-0.583*** (0.079)	-0.419*** (0.074)	0.883*** (0.18)	-1.230*** (0.32)
Market capitalization	-0.000777* (0.00042)	-0.000531 (0.00042)	-0.000848 (0.0013)	-0.00216* (0.0013)
Market capitalization -Exchange	0.00151*** (0.00026)	0.00161*** (0.00025)	0.000673 (0.00057)	-0.00441*** (0.0012)
Turnover	-0.00241*** (0.00040)	-0.00192*** (0.00039)	-0.00108 (0.00086)	-0.00435*** (0.0010)
Turnover-Exchange	0.00115*** (0.00024)	0.000481** (0.00022)	0.00250*** (0.00076)	-0.00116 (0.00099)
GDP Growth	-0.000920 (0.0044)	0.000197 (0.0044)	0.00890 (0.013)	0.0630*** (0.024)
GDP Growth -Exchange	0.0000284*** (0.0000033)	0.0000224*** (0.0000034)	0.0000406*** (0.0000094)	-0.0000122 (0.000011)
Distance	-0.000195*** (0.0000091)	-0.000195*** (0.0000091)	-0.000185*** (0.0000077)	0.0000148 (0.000012)
Log Assets	0.656*** (0.015)	0.657*** (0.015)	0.427*** (0.013)	0.115*** (0.014)
Leverage	-0.00282** (0.0012)	-0.00279** (0.0012)	-0.00871*** (0.0013)	0.00325** (0.0016)
Q	0.0859*** (0.0087)	0.0860*** (0.0088)	0.0967*** (0.0077)	-0.0260 (0.023)
No of Listings				-0.998*** (0.037)
Year FE	Y	Y	Y	N
Country of Origin and Country of Exchange FE	Y	Y	Y	Y
Observations	4697910	4697910	4699112	30568

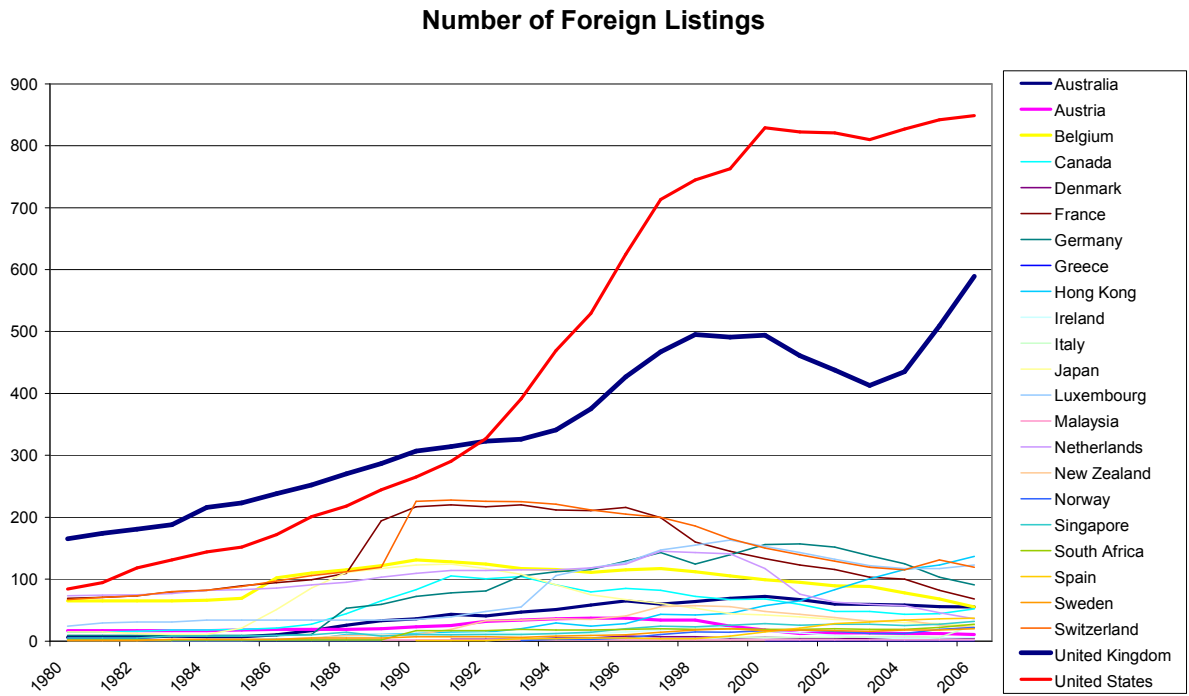
Panel B. Restricting the control sample.

All variables are defined like in the previous panel, but the control sample includes only firms with more than 10 million USD. 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)
Cifar1-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	473104	473104	443315

Figure 1

Panel A



Panel B

