Cross listing waves

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2010

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First draft: June 30, 2008
This version: August 9, 2010

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ABSTRACT

Using a 57-year global panel of listings on foreign stock exchanges, we identify waves in foreign listing activity at the host market, home market, and industry levels. We observe that the waves in the host market are often due to cross-listing waves in home markets or industries that share a particular affiliation with the respective host market. We then find that cross-listing waves in a given host country or from a given home country largely coincide with the outperformance of that country's economy and financial markets relative to other competing markets. We also show that firms that list their shares during waves are associated with a temporary value premium. Our results provide novel evidence of non-monotonic market development across countries and over time.

JEL classification: G15; G32
Keywords: Firm valuation; Market competitiveness; Market timing; Stock exchanges

1. Introduction

From the 1950s to the 2000s, the home and host market and industry profile for overseas listings has changed considerably.[1] In the 1950s, the hosting of foreign equity by stock exchanges was largely a European phenomenon. The dominant host markets of the day were the Belgian, British, Dutch, and French exchanges. The leading source of these listings was American and South African stocks. The mining industry was the primary cross-listing industry. By the 1980s, Tokyo became a dominant destination for foreign listings, followed by a strong reversal of foreign listings from Tokyo in the 1990s. By the 2000s, Canadian and Indian firms were the primary source of cross listings, and the United States became the dominant host markets attracting more than 50% of all new foreign placed shares, followed by Luxembourg and the United Kingdom. Industry representation was much broader, but the electronics industry was the leading provider of foreign listed equity. Hence, it seems natural to investigate these ebbs and flows in the dynamics of overseas listings to understand the reasons for changes in the geography of listings, as well as to examine the firm valuation impact from cross-listing in markets during their most popular listing time periods.

There is some existing literature that explores various time-series patterns of cross listings. Pagano, et al. (2001) and Pagano, et al. (2002) examine several snapshots in foreign listings across European and U.S. exchanges over the 1986 to 1997 period. Edison and Warnock (2008) examine time-series patterns in listings of emerging markets country firms on U.S. exchanges. Fernandes and Giannetti (2008) examine listing patterns between 1980 and 2006. A series of recent research focuses on the time-series of U.S.-hosted foreign listings (see Berger, et al., 2005; Litvak, 2007; Zingales, 2008; Chaplinsky and Ramchand, 2008; Doidge, et al., 2009, 2010).

[1] We use the words "foreign listing," "overseas listing," "cross listing," and "cross-border listing" interchangeably, although, technically speaking, a foreign listing may not necessarily constitute a cross-listing if it is traded only in the foreign market.

This paper provides a comprehensive analysis of a hand-collected global sample of 3,592 cross-border exchange-traded only listings focusing specifically on the time-series characteristics of listing decisions and the valuation gains to listing abroad. The sample contains listings on 33 foreign stock exchanges from 73 home markets over the period from 1950 to 2006. With a global long-term view of foreign listing activity, we observe that relative surges and contractions in listing across markets are not new.

First, we show that listing on foreign exchanges has ebbed and flowed for some time in a series of cross-listing waves. Belgium was the dominate host market in the 1950s, France in the 1960s, the United Kingdom in the 1970s, Japan and the United States in the 1980s, and the United States continued to dominate the host market listings in the 1990s and 2000s. We observe similar time-series variation for the frequency of overseas listing across home markets and industries. We observe that the waves in the host market are often due to cross-listing waves in home markets or industries that share a particular affiliation with the respective host market. For example, the popularity of the United Kingdom as a host market in the 1950s was largely due to an increase in listings from South Africa that tended to commonly list in the United Kingdom. Controlling for these effects is important in understanding the time-series and cross-sectional preferences of the host market choice.

Second, we find that cross-listing waves in a given host country (or from a given home country) frequently coincide with the outperformance of that country's economy and financial markets relative to other competing markets. We show a clear positive linkage between foreign listing activity across host countries in a given year and their respective lagged real GDP growth rates and stock market returns. This relation is remains intact after accounting for other macroeconomic and financial variables, such as inflation, real return on short-term bills, and term premium. The observation that cross-listing "waves" occur in markets when the market does relatively well is consistent with the recent literature. Dittmar and Dittmar (2008) show that waves in U.S. financing decisions, such as stock repurchases, equity issuance, and mergers, are correlated with changes in country's economic conditions. Since a country's ability to draw

foreign firms to its exchanges highlights its overall financial market activity, we interpret our finding as providing novel evidence for the uneven development of capital markets across countries and over time, as documented in Rajan and Zingales (2003).

Finally, we postulate that surges in listings on host markets correlate with periods of particular gain for firms listing in that market. For example, the evidence of a wave of listings in Tokyo in the 1980s suggests by revealed preference that the gains to listing in Tokyo in the 1980s must have been relatively strong. In similar manner, we postulate that waves in listings from a particular home market suggest periods of particular gains to foreign listing for firms from that market. In addition, waves in listings from particular industries are likely to be associated with periods of increased listing gains for firms from that industry. The surge of South African mining stocks listing in London in the 1950s, for example, suggests that the generic gains to cross listing in London must have been particularly acute for this sample of firms at this point of time. A large literature reports valuation gains to cross listing (e.g., see Miller, 1999; Foerster and Karolyi, 1999; Errunza and Miller, 2000; Lang, et al., 2003; Doidge, et al., 2009).[2] Other work, such as Gozzi, et al. (2008), and Sarkissian and Schill (2009, 2010), question the magnitude of the valuation gains.

We search across the periods of most popular listing activity for host markets, home markets, and industries over a 22 year sample period (1985-2006).[3] We find that such periods are generally associated with particularly strong temporary valuation gains but observe no evidence of durable valuation gains. More specifically, we find that the listing year gains in valuation observed in literally every cross-listing study (e.g., Foerster and Karolyi, 1999; Errunza and Miller, 2000; Sarkissian and Schill, 2009) is present only among "hot" host markets irrespective of the particular set of control variables. We suspect that the temporary gains associated with

[2] The literature advocates a variety of reasons for valuation gains to listing overseas, such as overcoming cross-border barriers (Black, 1974; Solnik, 1974; Stulz, 1981; Errunza and Losq, 1985); increasing information flow (Merton, 1987; Foerster and Karolyi, 1999), achieving better liquidity (Tinic and West, 1974; Domowitz, et al., 1998; Werner and Kleidon, 1996); conforming to more stringent disclosure rules (Biddle and Suadagaran, 1992; Huddart, et al., 1999), as well as improving minority shareholder protection (Benos and Weisbach, 2004; Coffee, 1999, 2002; Doidge, 2004; Doidge, et al., 2004, 2007, 2009; Reese and Weisbach, 2002; Stulz, 1999).

[3] The sample period is constrained by the availability of market and accounting data on *Worldscope*.

listings in highly visible host markets may constitute an important feature that attracts firms to cross list on their exchanges. Such temporary gains are consistent in any cost of capital gains to foreign listing as subsequent investment would be expected to eliminate the value premium (see Gozzi, et al., 2008). In addition, our results show that permanent systematic valuation gains to overseas listing is a very rare event. Overseas firms listed in the "hot" host markets experience significantly lower long-term valuations not only relative to their domestically listed counterparts but also those cross-listed firms that are placed on foreign exchanges outside their most attractive time periods.

Thus, the relative foreign market outperformance does not provide sufficient conditions for a firm to directly benefit from it by shifting some of its trading away from its lesser developed domestic market. This result can be viewed as a reflection of country-level findings reported in Rajan, et al. (2007) at the firm level. It appears that just like those countries that rely on capital in more developed countries do not grow faster than those that do not, firms that rely on capital in foreign markets that are more developed than their domestic market do not achieve better valuation than those that do not.

The rest of the paper is organized as follows. Section 2 describes the chronology of overseas listings from 1950 to 2006 and documents wave effects in the frequency of home, host, and industries. Section 3 links the changes in the relative attractiveness of each of the top eight host markets to the changes in their relative economic and financial market performance. Section 4 presents the results of firm valuation tests around the time of foreign listing placement that control for the foreign listing intensity in the host market. Section 5 concludes.

2. The Chronology of Overseas Listings

2.1. The Overseas Listing Data

The sample of foreign listings is constructed based on three surveys of world stock exchanges completed by the authors at the end of 1998, 2003, and 2006. Surveys were completed of all country exchanges indicated as having foreign listings by the World Federation of Exchanges except for corporate tax haven markets, such as the Cayman Islands, Bermuda, Jersey, and exchanges outside main boards of country stock exchanges. In each survey we asked the exchange research department for a summary of all foreign companies, excluding investment funds and trusts, listed on their exchange. In the 2003 and 2006 surveys we also asked for a history of all previous foreign companies that had since delisted their shares. For some exchanges (e.g., Tokyo) the requested data was available through the exchange website. Listings of foreign shares were received for all exchanges, although there was variation in the quality of the lists of delisted shares. In some cases full delisted share histories were received in other cases the lists were only partial (e.g., delists over the past 10 years) or unavailable.[4] For the U.S. firms, approximately one-third of the sample listings had subsequently been delisted prior to 2006. The resulting sample includes 3592 listings from 73 home countries in 33 host markets.

Table 1 shows the distribution of overseas listings by calendar decade from the 1950s through the 2000s for each host market (Panel A), home market (Panel B), and industry group (Panel C). Since the 1950s, the scope of host markets attracting foreign listings has grown dramatically. The 2000s witnessed the largest single-time expansion of the geography of host markets for overseas listings, with many smaller developed and emerging markets joining the club, e.g., Argentina, Finland, Israel, Mexico, Poland, Portugal, Taiwan, and the United Arab Emirates (UAE). The table reports the total number of listings from each home country, host market, and industry. The eight largest host markets are France (194), Germnay (193), Japan (138), Luxembourg (285), Netherlands (135), Switzerland (166), the United Kingdom (471), and the United States (1403). The eight largest suppliers of listings are Australia (172), Canada (630), Germany (147), India (164), Israel (149), Japan (234), the United Kingdom (283), and the United

[4] For outside the U.S., the incomplete delisted history was complemented with ADR delist codes from CRSP following the procedure of Chaplinsky and Ramchand (2008). The CRSP sample added a total of 202 listings to the final sample.

States (524). The data is consistent with strong bilateral home-host market pairs, e.g., 88% of Canadian listings are to the United States, 74% of Indian listings are to Luxembourg, and 51% of Australian listings are to New Zealand.

It is also apparent from this panel that over the sample period the popularity of various host markets has waxed and waned. Belgium, France, Netherlands, and the U.K. were the dominant host markets in the 1950s, France in the 1960s, and then back to the United Kingdom in the 1970s. By the 1980s, overseas listing frequency began to broaden across host markets with the United States and Japan hosting a surge of listings. The United States also dominated foreign listings in the 1990s and 2000s while listing waves materialized in Germany and Luxembourg. Similar patterns can be observed in the other panels for cross listings organized by home market and industry group. Prominent home market waves include the Japanese wave in the 1980s and the South African wave in the 1940s and 1950s which also corresponds with the Mining wave of the same time frame.

2.2. Dominant Home and Host Markets by Decade

Although we observe waves across the three specified dimensions, that is, host market, home market, and industry, we are unable to determine how such waves interact across the various dimensions. To shed some light on this issue, Table 2 reports the listing share of each home and host market pair for the largest six host and home markets in each decade from the 1950s to the first half of the 2000s.

We can see a number of characteristics of overseas listing behavior in Table 2. First, there is wide variation in the ranking of the top host and home markets. This observation suggests that cross-listing waves exist. Second, the cross-listing market tends to be concentrated across markets. For the most part, although the composition of the top host markets changes, these markets attract between 78% and 94% of all overseas listings placed during each of the five decades. There is less concentration among the home markets that drops from nearly 90% early in the sample period to about 50% later in the sample period.

Third, the listing activity is concentrated in the intersection of the six home and host markets which comprise between to 89% to 99% of all cross listings (i.e., the "Other Host Market" and "Other Home Market" cell in the bottom right corner of each panel maintains a small proportion of listings). The waves of activities originate and are hosted in a select few markets. Fourth, popular host markets often do not emerge as universally popular but rather as uniquely bilaterally popular. In the 1950s, Belgium was the most popular host market for foreign listings. It is clear, however, that Belgium was not universally popular. Almost all of the foreign listings in Belgium originated from the United States and Canada. Without listings from these two home markets, Belgium's share of cross listings would have dropped from 21.1% to 3.6%. For the United Kingdom, most of its listings originated from South Africa. Without the 11 South African listings in London, the U.K.'s share would have dropped from 19.3% to 9.7%. Despite Belgium's popularity among U.S. firms, there was not a single U.S. firm that was listed in the United Kingdom in the 1950s. U.S. firms also were attracted to the Netherlands and Switzerland. Without the United States listings, neither of these host markets would have been among the top six host markets. In that decade, France is the only market that appears to have had broad appeal as it attracts large overseas listing of firms from South Africa, Germany, the United States, Canada, and the Netherlands. For the most part, the popularity of a host market is determined by firms from unique sets of home markets that tend to bilaterally prefer that particular host market. To some extent, host markets frequently become popular not because of any general characteristic of that market but rather because firms from a particular home market decide to cross-list and that the paired host market is their preferred bilateral choice.

We observe similar bilateral effects in other decades. In the 1960s, France's popularity becomes more restricted to the United States (as well as Belgian) firms; the U.K.'s popularity is linked to U.S. and South African firms; the U.S.'s popularity is tied with Canadian firms. In the 1970s, the U.K.'s popularity is linked to listings by U.S. and Irish firms, the U.S.'s popularity is linked to listings by Japanese and Canadian firms, and Switzerland's popularity is linked to U.S. listings. In the 1980s, the U.S. popularity is linked to listings by Canadian, U.K., and Israeli

firms; and Japanese popularity is linked to listings by U.S. and U.K. firms. In the 1990s, the U.S.'s popularity is tied to Canadian and broad listing from firms from many emerging market countries; popularity of the U.K. and Luxembourg markets were also linked to firms from emerging markets; whereas Germany was linked to U.S. firms and New Zealand was linked to Australian firms. Similar patterns exist in the 2000s. Many of the bilateral pairs appear to fit with the proximity patterns observed by Sarkissian and Schill (2004) with firms sharing common geography, history, industrial structure, or language. It may be that the popularity of the host market sometimes has much less to do with time-varying changes in the host market and much more to with time-varying changes in the home markets.

We see drastic changes in the ranking of the top listing markets, both home and host, in different historical periods. For instance, over the course of more than 50 years, the United States has changed its position in global equity markets from the biggest provider to the biggest recipient of foreign shares. Canada has been the major supplier of foreign listings in the 1990s and 2000s but most of them were only in the United States. This table shows that the emergence of a particular host market as a preferred place for foreign listing placement is often related to time-series cross-listing effects in a very limited set of home markets.

2.3. The Time-series Trends in the Top Eight Markets

To further explore the evidence of cross-listing waves, we examine the time series of foreign listing decisions across the top eight host markets, top eight home markets, and top eight industries over the 1950 to 2006 period. The cut off at eight is motivated by the tradeoff of covering as many markets or industries as possible while avoiding instances of excessively thin listing activity. Note that only two countries (Italy and New Zealand) that are in the top six host markets group in Table 2 at least during one of the calendar decades over our sample period are excluded from consideration. By symmetry, we also consider the eight largest home markets. These are Australia, Canada, Germany, India, Israel, Japan, the United Kingdom, and the United States. Finally, the most represented eight industries in the cross listing market are consumer

goods, electrical and electronics equipment, financials, diversified industrials, mining, oil and gas, business support, and telecommunication and media.

Figure 1 depicts the annual five-year moving-year proportion of new foreign listing placement across the top eight host markets (Plot A), eight home markets (Plot B), and industries (C) in each year in 1950-2006. The figures illustrate our observation from Tables 1 and 2 regarding the existence of overseas listing waves across host and home markets and industries. For instance, we can see that while Japan was the second most attractive host market in the 1980s, the peak in its attractiveness occurred during the very late 1980s, coinciding with the highest valuation of their equity market in 1989. However, the peak in the Japanese firms' listings overseas occurred about a decade earlier, at the end of the 1970s and beginning of the 1980s. The United States as a host market experienced a number of waves in its attractiveness for foreign stocks, including a period in the early 1970s and then again during the mid 1980s, as well as the wave in the late 1990s and early 2000s.

By home countries, the listing abroad of Canadian firms is concentrated in the 1950s and 1980s, German firms is concentrated in the 1960s and late 1970s and early 1980s, Indian firms in the late 1990s and 2000s, Japanese firms in the 1970s, and U.S. firms in the 1950s and 1970s. Interesting patterns exist in industries as well. For instance, electronics experienced the first run-up in the share of the total number of foreign listings in the late-1950s to mid-1960s. This period coincided with the beginning of wide commercial use of transistors and first computers. It is also not surprising to see that Telecom industry achieved its largest proportion in foreign listing placements in the late 1990s. Mining firms were the largest providers of foreign listings in 1950s and they, in fact, reached the highest absolute proportion of any single industry share in overseas listing market during the entire sample period. Clearly, there is large cross-country and cross-industry variation in when firms choose to list abroad.

2.4. Clustering Analysis

In Table 3, we present statistical evidence for the existence of foreign share placement clusters in various host and home markets and industries. Panel A shows the clustering intensity in each of the eight host markets. The intensity is the proportion of foreign listings per year in a given host market relative to the total number of foreign listings in that year. The clusters are defined based on the average Euclidean distance using the cut-off value of 0.075, i.e., in 7.5% increments of cross-listing intensity. This implies that the first cluster (lowest ranking) corresponds to the instances of complete absence of foreign listing activity in a given host market or when this activity in that market is less than 7.5% a year. Consistent with Table 1, some markets such as the Netherlands, the United Kingdom, and the United States have gone through various levels of relative attractiveness over time (between five and seven clusters), while others, such as Germany, Luxembourg, or Switzerland have only two or three cluster groups.

To determine whether the waves in foreign listings activity are statistically significant and occur at different times from each other, we use correlation analysis. More specifically, we compare the foreign listing intensity in each of the eight markets with the uniform distribution. The bottom panel of Table 3 reports cross-correlations and their statistical significance between the clusters of foreign listing intensity among the top eight host and home markets, as well as industries and uniformly distributed random variable. The correlation coefficients with the random variable are based on the average from 5,000 Monte Carlo Simulations. We use the Dunn-Sidak adjustment to correct for standard errors. The panel offers two important observations. First, the correlation between foreign listing intensity in each of top eight host markets and the random variable is insignificant, implying that the waves of cross-listings are indeed statistically different from a uniform distribution. Second, the only highly significant correlation of listing intensity among our eight host markets is between France and the United States, but it is negative, implying that generally waves of listings occur in different countries at different times. The only positive but significant only at the 10% level correlation is found between the Netherlands and the United Kingdom. This reflects the fact that these two European

countries had somewhat similar time-series dynamics in their relative attractiveness as markets for overseas listing destination (also see Figure 1, Plot A).

Panels B and C of Table 3 show clustering intensity and correlation tests in each of the eight most represented home markets and industries that contribute overseas listings, respectively. Among the top home markets, the United States has seen the widest range of overseas listing placement intensity (eight clusters). Note that Israel, although having numerous listings in the 1990s and 2000s, did not contribute any substantial volume to the total number of foreign listing during those two decades. Across industries, the overall range of listing intensity is lower than for the home or host markets. The industry panel shows that consumer goods, industrials and mining all had time of very significant contribution to the overall count of foreign listings – these three industries have five clusters, while support industry has only two. The correlation tests again confirm that the dynamics of changes in the proportion of overseas listings across individual home markets and industries is different from the uniform distribution.

2.5. Correlation Analysis

To provide a more rigorous analysis of the time series dimensions of the listing decisions and the aggregate series, we perform the following analysis. We construct a variable N(i,j,k,t) which measures the number of foreign listings from home market *i* and industry *j* in host market *k* in year *t*. We use this variable for the top eight home markets, host markets, and industries over the 1950 to 2006 period. We run the following regression

$$N(i,j,k,t) = b_1 N(i,t) + b_2 N(j,t) + b_3 N(k,t) + b_3 N(i,j) + b_3 N(j,k) + b_3 N(i,k) + e(i,j,k,t) \qquad (1)$$

where the independent variables are the aggregate number of listings across the specified dimensions. N(i, t), N(k, t), and N(j, t) represents the total number of listings from the respective home market, host market or industry, respectively, in the respective year. N(i, j), N(j, k), and N(i, k) represent the aggregate number of listings across the sample period for the respective

bilateral pair of specified characteristics. N(i, j) captures the global home-industry tendency. N(j, k) captures the global industry-host tendency. N(i, k) captures the global home-host tendency. To facilitate comparison of the regression coefficients across markets, the variables are transformed by subtracting the sample mean and dividing by the sample standard deviation for the variable. The results are reported in Table 4. The first specification contains only the bilateral pairs variables N(i,j), N(j, k), and N(i, k). These variables control for the overall tendency for listings to follow a particular bilateral profile such as that observed in Sarkissian and Schill (2004). The coefficient on N(i, k) maintains the largest value at 0.269 suggesting that a unit standard deviation increase in the tendency of firms to list across a bilateral pair of markets is associated with a 0.269 standard deviation increase in listing across the home-host market pair. Since the regression represents regressing components of the distribution of listings on various dimensions of aggregations of the distribution the residuals from the regression are not independent of the regressors. This correlation biases the standard errors. Although we acknowledge this bias we report the approximate statistical significance of the coefficients in the table for reference only. Because the variables have been standardized, we can fairly compare the coefficient values across variables. In specifications 2 and 3 we add the time-series aggregates to the regression, N(Home, t), N(Host, t), and N(Inds, t). We observe that all of the aggregation dimensions seem to matter. Listings tend to cluster by home market, host market, and industry group. However, the host market effect seems to be the dominate one and the industry effect is the least important.

In Panels B, C, and D of Table 4 we report regression coefficient values by various subsamples of host market, home market, and industry. Across these 24 regressions, the host market time-series volume provides the dominate time series effect in 18 of the regression. Exceptions include the regressions with the sum samples of only U.S. host market listings, listings from Australia, Germany, India, and Japanese markets, and listings by financial firms. For listings from Australia, India, and Japan it is the home market wave that appears to matter more. For Germany, the industry wave is important. For listings in the United States, the waves appear to be most correlated with home market and industry waves. Financial firms tend to

particularly cross list with other financial firms in addition to home and host market effects. Mining firms tend to be particularly clustered by home market.

Thus, the time-series patterns of the cross-listing experience shown in Tables 1 through 4 as well as Figure 1 provide evidence that overseas listings tend to cluster in different foreign markets in waves. The question is then what are the primary reason(s) which drive some host markets to prominence during certain time periods. In the following sections, we explore the answers to this question.

3. Foreign Listings and Host Country Performance

Having observed the clustering of foreign listings across the top eight host markets both in economic and statistical terms, we now move to relating this evidence to their country-level performance over time. Indeed, based even on casual observation from Figure 1 it appears that many countries become major market for overseas listed securities during good economic times and strong market performance.

We consider two main economic and financial market indicators – real GDP growth and real equity market return in U.S. dollars. Besides, we use three other variables that are available from 1950s for our main host markets for foreign listings. These are inflation, short-term bill return in US dollars, and bond maturity premium (term spread), which is the difference in yields between long-term bonds and short-term bills.

Table 5 shows the summary of these variables across the top eight host markets. The real GDP values come from the historical statistics for the world economy by Angus Maddison.[5] The other four variables are provided by the *Morningstar Dimson, Marsh, & Staunton* global returns database. All variables are reported in percent per year. We can see that often high GDP growth rates and/or stock market return coincide with period of particularly strong foreign listing hosting

[5] All GDP numbers are in 1990 International Geary-Khamis dollars.

activity. For example, in the 2000s, the GDP growth rate was the highest in Luxembourg, the United Kingdom, and the United States, and these three markets are the main destinations for foreign shares in the same time period. Alternatively, GDP growth rate and market return were very high in Japan in 1970s and 1980s, and we already from previous tables that Japan was a major market for foreign firms specifically during those decades. However, when we look at average numbers across calendar decades for the other three variables we are unable to detect any consistent patterns. For example, the U.S. exchanges were the most prominent place for overseas firms in the 1990s, yet its inflation, short-term bill return, or bond maturity premium is neither the smallest not the largest at that time.

To visualize the aforementioned patterns more generally, in Figures 2 and 3, we present scatterplots showing a cross-sectional relation between foreign shares being listed in a given host market in a given decade and changes in its main economic and financial indicators, GDP and stock market performance, respectively. We select two extreme decades with all ten years being available, the 1950s and 1990s. For each decade we transform the number of foreign listed firms logarithmically.[6] We observe in both figures an upward trend in the scatterplots. As expected, from previous results, there is also a big change in the leading host markets for foreign listings from the 1950 to the end of the 20th century.

Our next step is to relate foreign listing activity to changes in economic and financial conditions of a country in statistical terms. While a positive relation between country's ability to host foreign listings and its attractiveness as proxied by changes in its GDP growth and equity market performance is interesting, this relation may not be robust after considering other potential variables. Therefore, we now proceed to regression tests, where the dependent variable is the number of foreign listings and the independent variables, besides annual changes in the GDP and market performance, are the other three variables from Table 6, namely, inflation, bill return, and maturity premium.

[6] For these figures GDP growth and stock market performance is computed for each specific calendar decade, rather than per annum.

The test results are reported in Table 6 for the entire panel of foreign listings across the top eight host markets and their respective economic and financial market performance measures. Since it is likely that the decision about foreign listings in a particular host market is driven by the observed performance of that market, we show the test results for either the first or the second lags of changes in GDP and market performance. When the second lags of GDP growth and stock market returns are used, for consistency, we use the first lags of the other three variables. In all regressions, we double cluster standard errors by country and year as suggested by Petersen (2009). The table reports the slope coefficients, their corresponding t-statistics, and the root mean squared error for each regression specification. Panel A shows the tests results for the whole sample, while Panel B focuses on the second sub-period, from 1975 till 2006. Across both panels, Regressions 1 and 2 as well as 4 and 5 show simple bivariate tests between new listings in a given year and lagged annual changes in the GDP or the equity market. Regressions 3 and 6 include all five independent variables. Finally, Regressions 7 and 8 include both lags of both relative market development proxies with the first and the second lags of the other three variables, respectively.

In both panels of Table 6, we observe a positive and consistently significant (most often at the standard 5% level) coefficient on stock market performance, irrespective of the lag of this measure. This confirms that domestic stock market outperformance in a country which is in the pool of potential host markets for foreign listings, is drastically increases the chances of this market to attract more foreign shares. We can make the same statement for the second lag of the GDP growth, although it manifests itself only the latter part of the sample in Panel B. Importantly, the three other variables effectively do not show significance in any of the samples or test specifications (except one case in Panel B at the 10% level), confirming our earlier observation that among the set of various economic and financial variables, such country aggregates as GDP growth and stock market return seem to be the most important determinants of hosting foreign listing activity.

To account for the changing competitiveness of the main markets for foreign stocks over time, we now construct two measures of relative market performance for each of the top eight home and host countries, namely:

$$R\left(GDP_{i,t}\right)=\left(\frac{GDP_{i,t}}{GDP_{i,t-5}}\right)-\frac{1}{8}\sum_{i=1}^{8}\left(\frac{GDP_{i,t}}{GDP_{i,t-5}}\right). \quad (2)$$

and

$$R\left(MCAP_{i,t}\right)=\left(\frac{MCAP_{i,t}}{MCAP_{i,t-5}}\right)-\frac{1}{8}\sum_{i=1}^{8}\left(\frac{MCAP_{i,t}}{MCAP_{i,t-5}}\right), \quad (3)$$

where $GDP_{i,t}$ and $MCAP_{i,t}$ are the GDP and stock market capitalization of country i in year t, respectively, while $R(GDP_{i,t})$ and $R(MCAP_{i,t})$ denote the relative valuation of a country's real economy and financial market, respectively, vis-à-vis other countries. We standardize market capitalization to unity in 1946 and compute subsequent values using available stock market return index data.[7]

We highlight the important linkage between listing activity in a given host market and county's performance in the top eight host markets over the 1950-2006 period in Figures 4 and 5. In Figure 4, we plot the dynamics of foreign listing placement (foreign listing intensity, FLI, defined as the annual share in global foreign listings) together with relative host country GDP growth using equation (2). In Figure 5, we plot foreign listing intensity together with relative host market performance using equation (3). To facilitate the comparability between listing intensity and relative market performance measures, all three variables are averaged over the preceding five years including the current year. [8]

[7] To avoid the post World War Two impact on the economies of Germany and Japan, both their relative country performance measures start in 1965.

[8] We also shift the two relative market performance series to non-negative values by adding a constant that corresponds to the largest negative observation for the respective series in each country.

We observe many synchronous waves in the proportion of listings across host markets and their relative GDPs and especially their relative market performances. For example, France was attracting many foreign listings in the 1950 and 1960s and its relative market performance was the highest over the whole sample during this time period. Germany exhibits a coherency in the foreign listing intensity and relative GDP growth both of which had their troughs in the mid-1980s and first peaks in the 1970s. Japan shows an amazing synchronicity between hosting foreign listings and its relative market performance, so that the peaks in both these time-series occur in the 1970s and 1980s. Luxembourg has a sizable upward trend in hosing of foreign listings and relative GDP growth over the whole 57-year sample period, while its relative market performance closely matches peaks in the listing activity towards the late 1970-s and after 1990s.

Such markets as the Netherlands and Switzerland seem to display a bit lower visible correlation between their foreign listing attractiveness potential and their respective two relative country-wide performance measures over the whole sample period. Yet, over significant sub-periods the relation between those series is again quite substantial (e.g., a period between 1950s and late-1980s for Switzerland). For the United Kingdom, we can observe that both performance measures generally match the inverse U-shaped pattern of foreign listing activity between 1950s and 1970s and 1980s, while the country's relative GDP growth shows synchronous movements with listings from the 1980s till the end of the sample period. One can also easily notice a strong relation between the changes in foreign listing intensity and market performance in the United States. The correlation is observed from 1970 until the end of the sample in 2006. Thus, Figures 4 and 5 confirm the link between a country's financial and economic development and its increased probability of becoming an attractive place for foreign listings.

In the Appendix, we list significant economic and financial market events in the seven major host markets for foreign listings outside the United States that can be linked to the changes in their relative foreign listing attractiveness and relative market performance over time. For instance, the relative outperformance of France in the 1960s both in economic terms and as a host market for foreign firms coincides with a wide scale liberalization of 1965-1967. Another good

example is Japan: the first wave of foreign listing in that market of the mid-1970s occurred right after it opened its Foreign Stock Section on the Tokyo Stock Exchange in 1973, while the second wave of the mid- to late-1980s followed after the beginning of large-scale privatization process that started in 1984.[9]

In sum, we find strong evidence that foreign listing activity tends to cluster in certain countries during certain time periods. These cross-listing waves may occur in a given host market when it does relatively well (based on various performance measures) with respect to other competing host markets for overseas listings. Listings also move to foreign markets where the relative performance of home markets is strong. Since the ability of a country to attract foreign shares can be viewed as some measure of the country's overall financial market activity, our findings are consistent Rajan and Zingales (2003) who document that the development of the financial sector is not a monotonic process across countries and the time dimension.[10]

4. Valuation under Different Foreign Listing Intensity Periods

Given strong evidence of cross listing waves at the host and home market as well as industry levels, our valuation tests are designed to look at the magnitude of valuation gains to listing in the United States and elsewhere during *specific* periods of intense listing activity. Given substantial time-series variations in foreign listings, we should expect that periods of intense listing activity are associated with particularly strong short- and especially long-term valuation benefits. For example, the evidence of a surge of listings in Tokyo in the 1980s suggests, by

[9] Fernandes and Giannetti (2008) also find that time-series changes in exchange listing are correlated with equity market and real economy effects. In addition, they find that investor protection variables explain additional time-series effects in cross listings. We are cautious about their conclusions as many of these variables are static and therefore may be considered poor regressors in explaining large time-series variations in overseas listing activity. Also, the risk of spurious regression bias becomes problematic with highly autocorrelated variables (see Granger, Hyung, and Jeon, 2001).

[10] In a related study, Zingales (2008) analyzes the competitiveness of the U.S. equity market using trends in global IPOs shares and finds a significant drop in the U.S. market share over a short time period between 2000 and 2005. He attributes this effect to a possible improvement in the competitiveness of other markets, primarily those in Europe.

revealed preference, that the gains to listing in Tokyo in the 1980s must have been relatively strong. In a similar manner, we postulate that waves in listings from a particular home market or industry suggest periods of particular gains to be realized to foreign listing for firms from that market or industry.

All firm valuation ratios and characteristic controls for U.S. firms are from *Compustat*, and from *Worldscope* for non-U.S. firms. Our initial dataset contains the full panel of world firms (whether cross listed or not). To establish the appropriate control firms we omit firms from those countries that do not have any stock traded overseas based on our cross-listing sample (e.g., Pakistan). We also allocate firms into fifteen industry groups based on the detailed industry definitions in *Compustat* (SIC codes) and *Worldscope* (industry descriptions). These industry groups are Chemicals, Construction, Consumer Goods (automobiles, personal goods, and food), Financials, Healthcare (pharmaceuticals, biotechnology, and medical equipment), Leisure, Industrial Goods, Oil & Gas, Resources (industrial metals, mining, and forestry and paper), Distributors (retail and wholesale), Support Services (including all business, engineering, legal, and medical services), Technology (electronic and computer equipment, software), Telecommunications (including media), Transportation, and Utilities.[11] To construct our valuation measure, Tobin's Q, for each firm, we follow the established practice in the literature. Specifically, we define Q as follows:

$$Q = \frac{Total\ \ Asset\ \ Value - Book\ \ Value\ \ of\ \ \ Equity + Market\ \ Value\ \ of\ \ \ Equity}{Total\ \ Asset\ \ Value}. \qquad (4)$$

The full sample is a panel of 228,060 firm-year observations across 55 countries and the 22-year sample period. This is the same sample as in Sarkissian and Schill (2009). Following Doidge, et al. (2009), we control for a firm sales growth, defined as the inflation-adjusted two-year

[11] Since U.S.-based SIC codes and *Worldscope* industry descriptions do not coincide, it is imperative in our study to have a uniform industry classification for constructing both proper industry controls and conducting any industry-level tests.

geometric average net sales growth, and a firm size, defined as the natural logarithm of a firm's net sales.

Table 7 shows mean and standard deviation of Tobin's Q, net sales, and sales growth. Panel A reports these statistics separately for firms with foreign listings and those without foreign listings for the whole sample period as well as two equal eleven-year sub-periods, 1985-1995 and 1996-2006. The listing sub-sample has 15,957 observations, the non-listing – 212,103. The average firm Q for both listed and non-listed firms in foreign markets is higher in the second period. This pattern is not observed for other two firm characteristics. Also, we see that on average Tobin's Q of listed companies is no higher than that of companies with only domestic presence. However, this could be the result of an impact of highly valued U.S. firms with no presence on foreign exchanges. In addition, any valuation differences can be related to differences in firm size that this panel does not control for.

Panel B of Table 7 shows firm characteristics over three periods around the foreign listing event: pre-listing years, listing year, and post-listing years. Consistent with previous studies, we see on firms are valued more in the year of listing than before or after the event. The average Q of firms in the listing year is almost 1.9 versus close to 1.7 before or after the listing. The caveat here though is to remember that firm's Q may reach its maximum prior to the listing year (e.g., see Sarkissian and Schill, 2010) or, possibly, after, but our numbers show the averages over the whole sample period before and after the listing. Interestingly, foreign listings do not seem to enhance company's growth opportunities – the average sales growth after the listing is smaller than prior to the listing.

Our proxy for the foreign listing intensity (FLI) in a given host market, home market, or industry is the proportion of global overseas listing in a particular year for that host market, home market, or industry. We extend the test specifications in Doidge, et al. (2009) and Sarkissian and Schill (2009) by adding interaction variables that link the series of dummy variables for foreign listing with the level of listing intensity:

$$Q_{j,t} = \alpha_i + \delta_{-1} FL(<0)_j + \delta_\tau \sum_{\tau=0}^{+4} FL(\tau)_j + \delta_{FLI,\tau} \sum_{\tau=0}^{+4} FL(\tau)_j \times FLI(Market,0) +$$
$$+ \gamma_1 Sales\ Growth_{j,t} + \gamma_2 Log(Sales)_{j,t} + \gamma_3 Home\ Q_{i,t} + \quad . \quad (5)$$
$$+ \gamma_4 Firm\ Q_k + \gamma_5 Industry\ Effects_k + \gamma_6 Year\ Effects_t + \varepsilon_{j,t}$$

In this regression model, $Q_{j,t}$ is the Tobin's Q of firm j in year t of the listing firm. $FL(\tau)_j$ denotes an indicator variable that is equal to 1 in year τ before or after the foreign listing year for firm j, and τ is between -4 and +4. To conserve space and improve the tractability of results, we aggregate all pre-listing dummies into a single dummy variable, FL(< 0). Year +4 denotes all years on or beyond the forth year after the listing.[12] FLI(Market, 0) is the foreign listing intensity of the host, home, or industry market in the listing year of firm j. Furthermore, given home market performance's impact on the valuation of cross-listed firms, we also account for the annual home market Q (Home Q), firm pre-listing Q (Firm Q), as well as fixed industry and calendar year effects. In all regressions, errors are clustered by firm. Since we are interested in the after-listing performance, we interact FLI(Market, 0) only with post-listing indicators.

Table 8 presents the estimation results for all firms and listings and for the sub-sample that excludes U.S. firms. It reports the number of observations, point estimates, and the t-statistics. The first four columns give the estimation results for all firms and listings under four foreign listing intensity control scenarios: none, host market, home market, and industry. We observe in column one that without the interaction with listing intensity terms the valuation there is a significant increase in the Q premium among cross-listed firms in the listing year, as shown in many studies. The magnitude of the valuation premium diminishes in economic and statistical terms over the four years after the listing. In this pooled test, the valuation premium drops in magnitude to negative values starting from the second year after the listing. The next three columns add the interactive coefficients between listing year dummies and three foreign listings intensity variables: host, home, and industry. Importantly, the second column shows that firms

[12] Our event window is similar to that in Doidge, et al. (2009).

that list their shares in host markets that attract high proportion of the overall count of foreign listings experience extraordinary bad performance in the long-run. The coefficient on the extended interaction term, $FL(\geq+4)\times FLI(Host, 0)$, is negative and significant at the 5% level. In columns 3 and 4, we also observe rather negative valuation effects for foreign listings coming from active home markets and industries, especially in the medium-term of three years after the listing, although the long-run effect remains insignificant.

Columns five to eight of Table 8 repeat the earlier estimation but without U.S. firms. Since U.S. firms constitute a large part of our firm and listing samples, their relative valuation can impact the overall results. As before, for the first specification we observe a temporary positive and highly significant valuation effect in the year of listing that quickly dissipates to below zero values in subsequent years. In this case, the long-run valuation of cross-listed firms is significantly more negative than that for the control group, consistent with Sarkissian and Schill (2010). Interestingly, the second column shows that firm valuation is markedly higher in the listing year in host markets that attract high proportion of the overall count of foreign listings. The coefficient value on the interactive listing year variable is statistically significant at the 5% level. This suggests that listing firms are associated with a certain level of valuation uplift when they list in markets that attract a large proportion of foreign listings. The general uplift in valuation, however, is extremely short lived. The abnormal Q ratio drops to a highly significant negative levels by the year four after the listing and remains at that level thereafter. It appears that non-U.S. firms that list during surges in host market activity are associated with worse long-term valuation effects than those that list during a less intense period. In columns 7 and 8, we find no important valuation patterns for listings off home or industry surges in listing activity, except for the temporary valuation gain in the listing year that takes place on the industry wave.

Our results in Table 8 highlight a particular importance of the host market listing intensity on long-term valuation dynamics of cross-listed firms. Therefore, we now estimate equation (5) for each of the top eight host markets separately. Since our valuation sample coincides with the recent relative attractiveness of the U.S. market for foreign firms, the most interesting result in

the table is the changes in Tobin's Q after the cross-listing for firms placed on U.S. exchanges. The U.S. non-interactive cross listing indictors show no significance and no trends across the entire event window. However, the interactive post-listing terms show a steady downtrend. While the coefficient on $FL(0) \times FLI(Host, 0)$ is positive and marginally significant, the slopes on further terms are quickly decreasing becoming strongly negative and significant after the fourth year after the listing. This implies that firms do not tend to achieve any systematic valuation benefits regardless of whether they place their overseas listings on U.S. exchanges during or outside of the U.S. host market listing wave. There is very little pattern in valuation gains across the other host countries and no evidence of sustained gains in the intense listing periods. There is a modestly positive coefficient on the extended-term interactive Luxembourg variable, but the volatility in the coefficients over the preceding years make the positive sign less tenable. Our conclusion is that firms listing abroad do not appear to achieve any sustained valuation benefits even when the listings occur during periods of intense listing activity.

Thus, consistent with Gozzi et al. (2008) and Sarkissian and Schill (2009, 2010), we show that even when one looks at the periods of most intense foreign listing activity in the host or home market or industry, there is no evidence of long-term valuation benefits to cross listing. Yet, the temporary gains in valuation of cross-listed companies that are widely documented in the literature tend to occur specifically in times when firms place their shares in those host markets that exhibit an extraordinary high attractiveness for overseas listings.

5. Conclusion

This study makes three important contributions to the literature on overseas listings. First, we document the extent of waves in cross-border listing at the host market, home market, and industry level over a more than fifty-year year chronology. A substantial portion of host market waves are due to underlying waves in the home market or industry listing in markets that

maintain some bilateral appeal over the sample period. Second, we find that the relative performance of the equity market and the real economy provide explanatory power for the time series of host market and home market listings. This relation is widely present across all major host markets, and it is immune to other macroeconomic and financial variables. Third, we find that foreign listing waves are associated with systematic value gains to those firms that list abroad, and that such gains are transitory. Moreover, the long-term valuation of firms with overseas listings placed in the most popular host markets is lower than that firms that are placed on foreign exchanges outside their most attractive time periods.

Our findings are consistent with Rajan and Zingales (2003) in that we provide new evidence that market development changes across countries and over time, since the changing ability of a country to attract foreign shares can be viewed as a measure of the country's overall financial market activity. We also show the general irrelevance of the access to more developed (highly valued) foreign capital markets at the firm level, similar to the country-level results in Rajan, et al. (2007).

Appendix

Significant economic and financial events in major host markets for overseas listings outside the United States during the second half of the 20th century

France

Date	Event
1956	Suez Canal crisis
1958	Payments related to current account transactions were liberalised.
1965-1967	Liberalization of the French financial markets.
1982	Nationalization of 36 deposit banks, increasing influence of the government.
1983	Second Marché for small and medium-sized enterprises is opened.
1983	Venture capital mutual investment funds were introduced.
1984-1986	Trade-related operations were gradually liberalised.
1986	The beginning of large-scale privatizations starting with the privatization of Saint Gobain.
1986	Currency hedging for foreign currency denominated imports was totally liberalised.
1986	French residents were allowed to freely buy shares listed on foreign markets.
1986	MATIF (Marche de Terme Internationel de France) – French futures market is created**.**
1987	MONEP (le Marché d'Options Négociables de Paris) – Paris options market is created.

1988	Elimination of lending restrictions and currency controls and removed many of the administrative barriers that had compartmentalised credit institutions' business in Europe.
1989	Residents were allowed to freely open and keep foreign currency denominated accounts in France and foreign currency and franc-denominated accounts abroad.
1989	Abolition all remaining foreign exchange controls.
1996	Creation of the Nouveau Marché
1997	Creation of the Banque du développement des PME for small and medium-sized firms.
1998	Law of 1998 created the new accounting standards' setting body, the Comité de la réglementation comptable – CRC.
1999	Creation of ParisBourse
2000	Creation of Euronext

Germany

Date	**Event**
1959	Minor Reform of Stock Corporation Law to stimulate stock demand among working class people, including the restructuring of income statements, and allowing a company to purchase its own stocks in order to allocate shares to their employees.
1965	Major Reform of Stock Corporation Law (Law regarding the capital increase through a company's own resources) including increase in incentives to strengthen stock holders' rights within a business, provision of better and faster information for shareholders, limitation of membership in supervisory boards of public limited companies.
1969	Company Disclosure Law on the extension of company information requirements.
1970	Introduction of forward and futures trading.
1975	Amendment of the Stock Exchange Act, which included improvement of self-administration of exchanges, strengthening of exchange brokers' status, obligation to establish official broker chambers, reorganization of penal provisions.
1976	Abolition of double taxation of stocks.
1989	Amendment of the Stock Exchange Act made legal prerequisites for electronic platform for exchange trading, forward and futures trading, and notation of securities in foreign currencies and units of account.
1990	Reunification of Germany.
1990	First Financial Markets Advancement Law that included the abolition of tax charges, broader business opportunities for investment companies, and the admission of restricted funds and fixed income funds.
1994	Second Financial Markets Advancement Law that included the implementation of the European Investment Services Directive and the Foundation of the Federal Securities Supervisory Office.
1998	Third Financial Markets Advancement Law on the adjustment of investment company law including the facilitation of admission to the exchange for new issuers.

Japan

Date	**Event**
1956	Bond market reopened.
1966	Japan becomes a member of the OECD and agrees to liberalize its capital markets.
1970	Tokyo Stock Exchange (TSE) joined FIBV, the International Federation of Stock Exchanges
1973	Foreign Stock Section opened.
1980	The new Foreign Exchange and Foreign Control Law is in effect that decontrol international capital flows.
1981	Banking Law is passed with the objective of fixing healthy and appropriate operations in the

	banking business and thus the promotion of the healthy development of the national economy.
1982	Constitutional restrictions on the membership of foreign securities companies removed.
1984	The beginning of large-scale privatizations.
1986	The Tokyo exchange permits non-Japanese brokerage firms to become members.
1989	Tokyo International Financial Futures Exchange (TIFFE) established
1996	The Financial System Reform, "Japanese Big Bang" started. Under the three principles of "free, fair, and global," aiming to rebuild the Japanese financial market into an international market comparable to the New York and London markets.
1998	Abolition of restriction on off-exchange trading for listed securities.
2000	Nasdaq Japan Market of the OSE established.

Luxembourg

Date	**Event**
1959	Creation of the Luxembourg's first "Fonds Commun de Placement" (FCP) (mutual funds).
1963	The first Eurobond, denominated in Eurodollars, is issued in Luxembourg because of low costs involved and the favourable tax regime.
1969	The world's first international foreign-currency bond was quoted in Luxembourg.
1970	Luxembourg becomes member of ICSID.
1983	Creation of the Luxembourg Monetary Institute (IML), which is responsible, in particular, for the supervision of the financial sector and for issuing currency.
1984	Adopted the European Union's Fourth Directive. Introduced special financial reporting regulations in Luxembourg.
1990	Grand-Ducal regulation which laid down current issuance and listing procedures.
1993	Law on the Financial Sector provided a solid foundation for the fight against money laundering and financing of terrorism.
1998	Creation of the BCL – Banque centrale du Luxembourg.
2001	Law on the circulation of securities and other financial instruments.

The Netherlands

Date	**Event**
1961	Following the deutschemark, the guilder was devalued.
1985	Securities Trading Act which regulates the fight against undesirable developments that arise in the securities trade.
1990	The Acts on the Supervision of Collective Investment Schemes and Investment Institutes are passed for the promotion of adequate functioning of the financial and securities markets and protection of (potential) investors in these markets.
1996	Disclosure of Major Holdings in Listed Companies Act.
1997	The Amsterdam Stock Exchange and the European Option Exchange merged.
1998	The Bank Act is passed aimed at the implementation of monetary policy within the European Community (EC), and the supervision of banks, investment institutions, and exchange offices.

Switzerland

Date	**Event**
1951	The 1951 Treaty (between Switzerland and the USA), which stipulated that no information will be exchanged which would disclose any trade, business, industrial or professional secret.

1953	National Bank Law that designated the Swiss National Bank to carry out the tasks which the Confederation has assigned to it in the fields of payment transactions, coinage, administration of moneys and securities, investment of public funds, administration of the national debt and issue of bonds. It must advise the federal authorities in monetary matters.
1959	Switzerland became a member of the European Free Trade.
1979	Foreigners were first permitted to acquire Swiss Franc denominated assets.
1993	The settlement process was reformed and offered additional services such as value date monitoring and cash-planning. This change speeds the settlement process, making the market more liquid.
1995	Switzerland's three stock exchanges in Geneva, Basle and Zurich are merged to form the SWX.
1996	Inauguration of the fully automated trading, clearing and settlement system, SegaInterSettle AG, (SIS). It becomes the hub of Swiss securities trading, the central depository for all Swiss stocks and debt securities, and the central clearing organisation for all transactions in Swiss securities. In addition, SIS settles international transactions in Swiss securities through its SECOM system.
1998	Merger of the Swiss and German derivatives markets (SOFFEX and DTB) to form Eurex as the first trans-national derivatives exchange.
1999	Inauguration of SWX Repo, the world's first fully integrated, electronic repo trading platform. Admission of participants from France, Germany, and the United Kingdom. Start of the SWX New Market segment for growth companies.
2000	SWX Repo is integrated into Eurex. Launch of SNMI, the SWX New Market Index.

United Kingdom

Date	**Event**
1951	Bank rate restored to control the monetary system in Britain.
1956	Suez Canal crisis.
1967	Pound is devalued against the dollar, from $2.80 to $2.40.
1971	Competition and Credit Control Act ended interest rate cartel.
1973	Eleven British and Irish regional exchanges amalgamate with the London Stock Exchange.
1973-1974	Secondary banking crisis.
1979	Abolishing all foreign exchange controls.
1979	The beginning of large-scale privatizations starting with the privatization of British Petroleum.
1982	The London International Financial Futures and Options Exchange established.
1986	London Stock Exchange's "Big Bang" changes which allowed the ownership of member firms by an outside corporation, abolished the minimum scales of commission, stripped individual members from having voting rights, allowed all firms become broker/dealers able to operate in a dual capacity, moved trading from being conducted face-to-face on a market floor to being performed via computer and telephone from separate dealing rooms, made the Exchange a private limited company.
1990	Britain joins the European Exchange Rate Mechanism, a decision motivated, at least in part, by Britain's repeated failure to meet its money supply targets.
1992	Britain leaves the European Exchange Rate Mechanism after massive international speculation.
1995	Establishment of the Alternative Investment Market (AIM) on the London Stock Exchange.
1997	The Chancellor of the Exchequer announced the reform of financial services regulation in the United Kingdom and the creation of a new regulator, the Financial Services Authority (FSA).
1998	The first stage of reforms of financial services regulation included the transfer of responsibility for banking supervision from the FSA to the Bank of England.
2000	The FSA becomes an independent non-governmental body, and is given statutory powers by the Financial Services and Markets Act. FSA took over the role of UK Listing Authority from the London Stock Exchange.

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Table 1
Distribution of overseas listing across host markets and decades, 1950s-2000s

Panel A: Number of listings by host market

	1950s	1960s	1970s	1980s	1990s	2000s	Total
Argentina						1	1
Australia			1	13	34	12	60
Austria	3	3	10	3	9	5	33
Belgium	24	19	24	18	26	11	122
Brazil					2	1	3
Canada	1	1	5	10	23	58	98
Denmark					7	3	10
Finland						2	2
France	22	28	24	64	38	18	194
Germany			10	41	129	13	193
Hong Kong					2		2
Ireland				2	12	3	17
Israel						5	5
Italy					4	19	23
Japan			12	110	13	3	138
Luxembourg	3	5	18	8	133	118	285
Malaysia			3				3
Mexico						1	1
Netherlands	21	11	13	31	47	12	135
New Zealand				5	78	8	91
Norway					11	10	21
Peru					1		1
Poland						5	5
Portugal						2	2
Singapore			2	7	28	7	44
South Africa					8	11	19
Spain					3	2	5
Sweden				6	18	9	33
Switzerland	13	19	28	55	37	14	166
Taiwan						3	3
UAE						3	3
United Kingdom	22	26	63	105	184	71	471
United States	5	23	42	263	703	367	1403
Total	114	135	255	741	1550	797	3592

Table 1 (continued)

Panel B: Number of listings by home market

	1950s	1960s	1970s	1980s	1990s	2000s	Total
Argentina					20	7	27
Australia	1	3	2	33	102	31	172
Austria				3	6	3	12
Belgium	2	5	2	1	14	4	28
Bolivia				1			1
Brazil				1	25	14	40
Canada	16	19	16	177	258	144	630
Chile					23	3	26
China					16	21	37
Columbia					4	1	5
Croatia					1		1
Cyprus					1		1
Czech Republic					4	1	5
Denmark		1	1	4	5	2	13
Egypt					3	4	7
Estonia					1		1
Finland				6	8	5	19
France	1	2	4	26	47	27	107
Germany	10	11	26	24	52	24	147
Ghana					2		2
Greece					13	12	25
Guyana					1		1
Hong Kong				2	29	7	38
Hungary					13	1	14
Iceland						2	2
India			2	1	67	94	164
Indonesia					8	1	9
Ireland	1	1	12	10	45	6	75
Israel	1		1	20	90	37	149
Italy		1		8	21	7	37
Ivory Coast		1					1
Japan		7	55	83	71	18	234
Jordan					1		1
Kazakhstan					1	1	2
Kenya	1						1
Korea					35	21	56
Lebanon					2		2
Liechtenstein						1	1
Lithuania						1	1
Luxembourg	1		3	7	11	14	36
Malaysia	2		2	1	2		7
Malta					1		1
Mexico		1		1	33	5	40
Morocco					1	1	2
Netherlands	6	9	8	19	69	35	146
New Zealand				5	21	7	33
Nigeria						1	1
Norway			3	6	14	3	26
Oman						1	1
Panama					1	1	2
Peru				1	3		4
Philippines		3			6	2	11
Poland					10	2	12
Portugal					6	1	7
Qatar					1		1
Romania					1		1
Russia					6	10	16
Singapore				2	6	6	14
Slovakia					2	1	3
South Africa	18	8	9	10	29	7	81
Spain			1	14	14	11	40
Sri Lanka						1	1
Sweden	2	2	5	17	20	13	59
Switzerland			1	10	21	17	49
Taiwan				1	35	33	69
Thailand				1	3	2	6
Tunisia					1		1
Turkey					7	5	12
United Kingdom	2	11	22	65	130	53	283
United States	49	50	80	181	101	63	524
Venezuela					4	1	5
Zimbabwe	1				2		3
Total	114	135	255	741	1550	797	3592

Table 1 (continued)

Panel C: Number of listings by industry

	1950s	1960s	1970s	1980s	1990s	2000s	Total
Chemicals	16	17	14	27	52	18	144
Construction	0	0	5	13	52	20	90
Consumer Goods & Food	9	20	20	64	126	43	282
Electronics	6	12	40	74	178	117	427
Financials	3	9	38	95	190	89	424
Healthcare	4	6	16	35	97	80	238
Industrials	25	25	39	95	145	47	376
Leisure	0	0	5	17	23	14	59
Mining	23	13	16	101	124	89	366
Oil & Gas	10	12	21	65	100	50	258
Paper	3	2	6	12	35	4	62
Retail & Distributors	2	4	16	21	47	15	105
Support Services	1	3	8	27	138	82	259
Telecom & Media	5	8	7	56	157	82	315
Transport	3	2	2	20	44	26	97
Utilities	4	2	2	19	42	20	89
Total	114	135	255	741	1550	797	3592

This table shows the number of foreign listings by host market (Panel A), home market (Panel B), and industry (Panel C) for each decade between 1950 and 2006. The top eight host and home markets as well as industries are highlighted.

Table 2
The largest home and host markets for overseas listings over time

1950s

Home \ Host	1-Belgium	2-France	3-UK	4-Nether.	5-Switz.	6-USA	Other
1-USA	14.9	3.5	0.0	15.8	7.9	-	0.9
2-South Africa	0.9	5.3	9.6	0.9	0.0	0.0	0.0
3-Canada	2.6	3.5	2.6	2.6	0.9	1.8	0.0
4-Germany	0.0	4.4	0.0	0.0	1.8	0.0	2.6
5-Netherlands	0.0	1.8	0.0	-	0.9	0.0	1.8
6-UK	0.9	0.0	-	0.0	0.0	0.9	0.0
Other	1.8	0.8	7.1	0.0	0.0	0.8	1.0

1960s

Home \ Host	1-France	2-UK	3-USA	4-Belgium	5-Switz.	6-Nether.	Other
1-USA	9.6	8.1	-	5.2	7.4	5.9	0.8
2-Canada	0.7	1.5	11.9	0.0	0.0	0.0	0.0
3-Germany	0.7	2.2	0.0	1.5	3.0	0.0	0.7
4-UK	2.2	-	0.7	3.0	1.5	0.7	0.0
5-Netherlands	0.0	0.0	0.7	3.7	0.0	-	2.3
6-South Africa	2.2	3.0	0.0	0.0	0.7	0.0	0.0
Other	6.3	4.5	3.7	0.7	1.5	1.5	1.8

1970s

Home \ Host	1-UK	2-USA	3-Switz.	4- Belgium	5-France	6-Luxem.	Other
1-USA	11.8	-	7.8	*2.0*	2.7	0.0	7.1
2-Japan	0.4	6.7	0.0	1.6	2.0	4.7	6.2
3-Germany	0.8	0.0	1.2	*2.0*	1.2	2.0	3.0
4-UK	-	2.4	0.4	1.2	1.6	0.0	3.0
5-Canada	0.8	4.7	0.8	0.0	0.0	0.0	0.0
6-Ireland	4.7	0.0	0.0	0.0	0.0	0.0	0.0
Other	6.2	2.7	0.8	2.6	1.9	0.4	2.7

1980s

Home \ Host	1-USA	2-Japan	3-UK	4-France	5-Switz.	6-Germany	Other
1-USA	-	8.9	6.2	1.9	2.7	0.5	4.2
2-Canada	20.8	0.8	0.5	0.5	0.5	0.0	0.6
3-Japan	0.9	-	2.0	3.1	1.2	2.4	1.6
4-UK	3.6	2.2	-	1.2	0.0	0.1	1.7
5-Australia	1.6	0.8	0.7	0.1	0.3	0.1	0.9
6-France	0.3	0.3	0.4	-	0.3	0.7	1.5
Other	8.2	1.8	4.4	1.8	2.4	1.7	3.5

1990s

Home \ Host	1-USA	2-UK	3-Luxem.	4-Germany	5-N. Zealand	6-Nether.	Other
1.Canada	15.8	0.1	0.0	0.2	0.1	0.0	0.4
2-UK	4.9	-	*0.1*	0.5	0.1	0.5	2.3
3-Australia	1.1	0.2	*0.1*	0.1	4.8	0.0	0.3
4-USA	-	0.7	*0.1*	2.4	0.1	0.3	2.9
5-Israel	4.8	0.5	0.0	0.1	0.0	0.0	0.4
6-Japan	0.5	0.8	0.0	1.8	0.0	0.7	0.8
Other	18.3	9.6	8.3	3.2	0.0	1.5	10.7

2000s

Home \ Host	1-USA	2-Luxem.	3-UK	4-Canada	5-Italy	6-France	Other
1-Canada	16.0	0.0	0.2	-	0.0	0.0	2.0
2-India	0.7	4.7	0.5	0.0	0.0	0.0	5.6
3-USA	-	0.1	0.3	2.4	0.0	0.1	5.0
4-UK	2.0	2.0	-	0.2	0.0	0.2	2.1
5-Israel	1.7	0.1	0.3	0.0	0.0	0.0	2.5
6-Netherlands	0.6	0.1	0.3	0.0	0.1	0.4	2.9
Other	22.1	7.8	7.3	4.7	2.3	1.6	1.2

The table shows the proportion of listings (in percent) between pairs of the largest six home and host markets for overseas listings over calendar decades. The top market (either home or host) is ranked as one.

Table 3
Tests of overseas listing clustering for the top eight host and home markets and industries for listings

Panel A: Clustering intensity and correlation tests for the top eight host markets

Group \ Host	France	Germany	Japan	Luxem.	Netherlands	Switzerland	UK	USA
1 (Lowest)	31	55	48	34	38	4	4	18
2	16	2	4	17	13	37	12	8
3	4		4	6	2	16	20	5
4	4		1		1		20	9
5	2				1		1	12
6					2			4
7 (Highest)								1

Host Country	France	Germany	Japan	Luxem.	Netherlands	Switzerland	UK	Random
France	1							-0.043
Germany	-0.048	1						0.040
Japan	-0.014	0.211	1					0.089
Luxembourg	-0.321	-0.002	-0.258	1				0.155
Netherlands	-0.302	0.119	0.202	0.176	1			-0.205
Switzerland	0.168	-0.072	0.088	0.088	0.320	1		0.307
UK	-0.333	0.192	0.040	0.243	0.406*	0.052	1	0.309
USA	-0.500***	0.043	-0.121	0.262	0.340	-0.035	0.331	0.278

Panel B: Clustering intensity and correlation tests for the top eight home markets

Group \ Home	Australia	Canada	Germany	India	Israel	Japan	UK	USA
1 (Lowest)	55	15	41	50	57	39	46	5
2	1	33	11	4		13	11	4
3	1	4	5	3		2		11
4		2				3		5
5		2						14
6		1						16
7								1
8 (Highest)								1

Home Country	Australia	Canada	Germany	India	Israel	Japan	UK	Random
Australia	1							-0.017
Canada	-0.009	1						0.103
Germany	-0.066	-0.093						0.046
India	-0.063	0.050	1					0.074
Israel	-	-	-	1				-
Japan	-0.103	-0.178	0.251	-	1			0.130
UK	0.216	-0.283	-0.131	-	0.110	0.172	1	0.086
USA	-0.000	0.999	-0.026	-	-0.047	-0.139	-0.198	0.288

Table 3 (continued)

Panel C: Clustering intensity and correlation tests for the top eight industries

Group \ Industry	Cons. goods	Electronics	Financials	Industrials	Mining	Oil & Gas	Support	Telecom
1 (Lowest)	13	13	13	24	4	47	53	34
2	40	36	37	2	31	6	4	21
3	2	6	7	24	16	4		2
4	1	2		3	5			
5 (Highest)	1			4	1			

Industry	Cons. goods	Electronics	Financials	Industrials	Mining	Oil & Gas	Support	Random
Cons. goods	1							0.175
Electronics	0.135	1						0.274
Financials	0.016	0.117	1					0.289
Industrials	-0.042	-0.224	-0.169	1				0.065
Mining	0.112	0.041	0.023	0.035	1			0.310
Oil & Gas	-0.200	0.122	-0.186	0.282	-0.080	1		0.028
Support	-0.156	0.021	-0.068	-0.068	0.104	-0.118	1	-0.008
Telecom	0.028	-0.031	-0.019	-0.269	-0.189	-0.280	0.030	0.152

This table shows tests for the existence of clusters of foreign listings in the eight largest host and home markets for overseas listings, as well as for the eight most represented industries between 1950 and 2006. Panel A reports the clustering intensity in each of the eight host markets, Panel B – for home markets, and Panel C – for industries. The intensity is the proportion of foreign listings per year in a given host market relative to the total number of foreign listings in that year. The clusters are defined based on the average Euclidean distance using the cut-off value of 0.075. Panel B reports the cross-correlations and their statistical significance (with the Dunn-Sidak adjustment) between the clusters of cross-listing intensity and the uniformly distributed random variable. The correlation coefficients with the random variable are based on the average from 5,000 Monte Carlo Simulations. Notations *, **, and *** denote statistical significance at the 10%, 5%, and 1% level, respectively.

Table 4
Regression coefficients for correlation of foreign listings across markets

Panel A: Full sample

	(1)	(2)	(3)
N(Home, t)		0.153***	0.101***
N(Host, t)		0.206***	0.155***
N(Inds, t)		0.044***	0.074***
N(Home, Host)	0.269***		0.238***
N(Home, Inds)	0.107***		0.086***
N(Host, Inds)	0.082***		0.011

Panel B: The top eight host markets

	France	Germany	Japan	Luxem.	Nether.	Switz.	UK	US
N(Home, t)	0.0015**	-0.0005	0.0062***	0.0101***	0.0007	0.0011*	0.0051***	0.0730***
N(Host, t)	0.0141***	0.0154***	0.0168***	0.0142***	0.0142***	0.0141***	0.0117***	-0.0056***
N(Inds, t)	0.0029***	0.0059***	-0.0009	-0.0022	0.0023***	0.0023***	0.0048***	0.0654***
N(Home, Host)	0.0021***	0.0023***	0.0021***	0.0026***	0.0023***	0.0022***	0.0021***	-0.0003***
N(Home, Inds)	0.0006***	0.0007***	-0.0001	-0.0002	0.0003**	0.0004***	0.0005***	0.0123***
N(Host, Inds)	0.0021***	0.0022***	0.0027***	0.0025***	0.0021***	0.0020***	0.0026***	0.0010***

Panel C: The top eight home markets

	Australia	Canada	Germany	India	Israel	Japan	UK	US
N(Home, t)	0.0125***	-0.0028*	0.0126***	0.0140***	0.0042***	0.0146***	0.0028***	0.0076***
N(Host, t)	0.0020***	0.0560***	0.0026***	0.0060***	0.0150***	0.0029***	0.0119***	0.0393***
N(Inds, t)	0.0011*	0.0235***	0.0028***	0.0011	0.0066***	0.0084***	0.0069***	0.0054***
N(Home, Host)	0.0012***	-0.0012***	0.0019***	0.0024***	-0.0011***	0.0020***	0.0003	0.0018***
N(Home, Inds)	0.0024***	0.0021***	0.0027***	0.0024***	0.0019***	0.0026***	0.0034***	0.0022***
N(Host, Industry)	0.0001	0.0117***	-0.0001	-0.0004**	0.0024***	-0.0001	0.0002	0.0018*

Panel D: The top eight industries

	Consumers	Electronics	Financials	Industrials	Mining	Oil & Gas	Support	Telecom
N(Home, t)	0.0067***	-0.0071***	0.0076***	0.0082***	0.0144***	0.0108***	0.0042***	0.0041***
N(Host, t)	0.0074***	0.0237***	0.0072***	0.0082***	0.0173***	0.0114***	0.0232***	0.0135***
N(Industry, t)	0.0063***	0.0037**	0.0099***	0.0073***	0.0067***	0.0023	0.0053***	0.0056***
N(Home, Host)	0.0007***	0.0020***	0.0006***	0.0006***	0.0060***	0.0033***	0.0023***	0.0011***
N(Home, Inds)	0.0018***	0.0015***	0.0019***	0.0021***	0.0004	-0.0005*	0.0005	0.0008*
N(Host, Inds)	-0.0018**	-0.0012***	0.0006	-0.0008	-0.0017***	-0.0022	-0.0011***	-0.0016***

This table reports the regression estimates where the dependent variable is the annual number of listings from home market *i* and industry *j* into host market *k* across the top eight home markets, industries, and host markets. The independent variables are the aggregate number of listings across the specified dimensions. N(Home, t), N(Host, t), and N(Inds, t) represents the total number of listings from the respective home market, host market or industry, respectively, in the respective year. N(Home, Host), N(Home, Inds), and N(Host, Inds) represent the aggregate number of listings across the sample period for the respective bilateral pair of specified characteristics. Notations *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 5
Average annual economic and financial market characteristics per decade across the top eight host markets

	1950s	1960s	1970s	1980s	1990s	2000s
GDP growth (in US dollars)						
France	4.31	5.55	3.44	2.33	1.77	1.69
Germany	7.70	4.17	2.94	1.85	1.99	0.96
Japan	8.38	10.44	4.68	3.88	1.09	1.45
Luxembourg	1.88	3.80	2.66	5.93	5.38	4.86
Netherlands	4.23	5.02	3.12	1.99	3.09	1.52
Switzerland	4.40	4.55	0.94	1.88	0.79	1.60
United Kingdom	2.35	2.90	2.40	2.90	2.29	2.38
United States	3.62	4.64	3.60	3.40	3.27	2.42
Stock market return (in US dollars)						
France	61.5	3.1	20.3	46.2	28.6	9.8
Germany	256.2	5.0	25.0	43.5	19.5	11.9
Japan	148.9	16.3	47.1	76.3	4.2	2.7
Luxembourg	-	-	42.6	26.7	46.0	29.3
Netherlands	45.1	9.1	22.6	48.3	47.6	7.3
Switzerland	21.3	9.9	28.1	19.8	35.0	7.5
United Kingdom	44.6	13.7	17.8	31.5	27.8	8.3
United States	31.2	11.9	9.0	24.9	43.9	3.6
Inflation						
France	6.0	4.3	12.1	7.1	1.6	1.4
Germany	1.6	2.7	5.8	2.5	2.3	1.3
Japan	4.1	6.4	11.8	1.7	0.7	-0.1
Luxembourg	2.0	3.2	9.3	4.8	1.9	1.6
Netherlands	2.8	4.5	9.0	2.2	2.4	1.6
Switzerland	1.3	3.5	5.4	3.3	1.7	0.7
United Kingdom	4.6	4.1	21.7	7.0	2.9	2.2
United States	1.7	2.6	9.3	4.6	2.6	2.1
Short-term bill return (in US dollars)						
France	-1.2	-1.0	2.9	0.4	0.7	6.0
Germany	5.0	1.9	7.0	3.6	0.0	6.0
Japan	6.3	3.4	2.3	4.9	2.9	-1.5
Luxembourg	4.2	3.1	9.0	4.6	0.1	6.0
Netherlands	1.2	1.3	5.4	4.0	-0.1	6.0
Switzerland	1.0	0.7	7.8	1.6	-1.1	2.9
United Kingdom	2.6	1.2	0.9	2.3	2.4	5.1
United States	0.1	1.3	-1.0	4.4	1.9	0.1
Bond maturity premium						
France	5.9	2.2	6.6	5.9	5.5	4.6
Germany	2.1	2.3	1.6	0.5	4.0	3.6
Japan	-0.2	8.4	1.2	3.2	7.1	2.8
Luxembourg	-1.8	-1.4	-1.8	2.1	4.4	3.5
Netherlands	-0.5	-2.5	0.3	1.6	4.4	3.7
Switzerland	1.4	-0.3	3.7	-0.8	4.0	3.5
United Kingdom	-2.1	-2.5	1.1	1.9	6.6	0.5
United States	-0.6	-2.7	-2.4	5.5	5.9	4.1

This table shows the average economic and financial characteristics over various decades for the top eight host markets for foreign listings. All numbers are in percent per year.

Table 6
Regression tests with expanded set of control variables for the top eight host markets

Panel A: Sample period 1950-2006

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Observations	388	388	388	380	380	380	380	380
Intercept	1.402***	1.322***	1.332***	1.430***	1.331***	1.293***	1.292***	1.304***
	(5.83)	(6.50)	(5.07)	(6.32)	(6.29)	(5.40)	(4.79)	(5.02)
GDP (-1)	-0.882		-0.674				-1.540	-1.540
	(-0.36)		(-0.30)				(-0.87)	(-1.03)
MCAP (-1)		0.493**	0.413*				0.359*	0.359**
		(2.50)	(1.65)				(1.77)	(2.04)
GDP (-2)				-1.218		-0.851	-0.166	-0.166
				(-0.51)		(-0.33)	(-0.06)	(-0.27)
MCAP (-2)					0.569*	0.637**	0.663**	0.422
					(1.83)	(1.99)	(2.29)	(1.32)
Inflation (-1)			-0.172			0.415	0.523	
			(-0.09)			(0.19)	(0.23)	
Bill return (-1)			0.150			0.152	-0.047	
			(0.26)			(0.27)	(-0.09)	
Maturity premium (-1)			0.739			1.312	1.009	
			(0.66)			(1.29)	(0.90)	
Inflation (-2)								-0.300
								(-0.16)
Bill return (-2)								0.338
								(1.16)
Maturity premium (-2)								1.729
								(1.64)
Country clustering	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year clustering	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
RMSE	1.137	1.130	1.134	1.139	1.130	1.131	1.131	1.125

Table 6 (continued)

Panel B: Sample period 1975-2006

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Observations	256	256	256	256	256	256	256	256
Intercept	1.395***	1.493***	1.419***	1.443***	1.542***	1.400***	1.277***	1.309***
	(4.87)	(4.94)	(3.86)	(5.05)	(4.88)	(3.79)	(3.40)	(3.40)
GDP (-1)	8.641		8.096				3.917	3.147
	(1.53)		(1.31)				(0.87)	(0.71)
MCAP (-1)		0.660**	0.657**				0.716***	0.643**
		(2.20)	(2.16)				(2.56)	(1.97)
GDP (-2)				6.392*		7.273*	6.612**	6.089**
				(1.74)		(1.86)	(2.22)	(1.96)
MCAP (-2)					0.813**	0.830**	0.719**	0.659**
					(2.23)	(2.15)	(2.31)	(2.07)
Inflation (-1)			-1.106			-1.511	-0.858	
			(-0.49)			(-0.60)	(-0.36)	
Bill return (-1)			-0.535			-0.480	-0.875*	
			(-0.97)			(-0.71)	(-1.78)	
Maturity premium (-1)			0.138			0.981	0.527	
			(0.17)			(1.38)	(0.68)	
Inflation (-2)								-1.135
								(-0.57)
Bill return (-2)								-0.459
								(-1.18)
Maturity premium (-2)								0.568
								(0.79)
Country clustering	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year clustering	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
RMSE	1.231	1.236	1.228	1.238	1.230	1.224	1.214	1.217

This table shows the regression results of the logarithm of the number of foreign listings in the top eight host markets on various financial and economic characteristics. All independent variables are defined in Table 5. Notations (-1) and (-2) denote first and second lags of variables, respectively. Data for Germany, Japan, and Luxembourg start in 1970. The table also shows the t-statistics in parentheses. Standard errors are clustered by country and year. Notations *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 7
Summary statistics of firm valuation data

Panel A: All firms

	Whole sample period		1985-1995		1996-2006	
	Mean	St. Dev.	Mean	St. Dev.	Mean	St. Dev.
			Firms with foreign listings			
Obs:	15,957		5,871		10,086	
Firm Q	1.673	1.347	1.512	0.981	1.767	1.513
Sales ($mln)	10,919	21,214	10,693	18,357	11,050	22,711
Sales Growth	0.235	0.334	0.256	0.333	0.222	0.344
			Firms with no foreign listings			
Obs:	212,103		69,220		142,883	
Firm Q	1.709	1.587	1.622	1.287	1.751	1.751
Sales ($mln)	1,488	7,153	1,803	7,297	1,336	7,077
Sales Growth	0.274	0.422	0.266	0.392	0.278	0.436

Panel B: Firms with foreign listings

	Pre-listing years		Listing year		Post-listing years	
	Mean	St. Dev.	Mean	St. Dev.	Mean	St. Dev.
Obs:	4,400		910		10,647	
Firm Q	1.689	1.468	1.891	1.689	1.648	1.258
Sales ($mln)	9,680	18,254	9,247	18,815	11,573	22,478
Sales Growth	0.311	0.385	0.331	0.469	0.195	0.287

This table reports the summary statistics of three firm characteristics for a panel firms with and without foreign listings. Firm's Tobin's Q is defined as the ratio, where the numerator is Total Asset Value minus Book Value of Equity plus Market Value of Equity, while the denominator is the Total Asset Value. Sales is a firm's net sales in millions of U.S. dollars. Sales Growth is defined as the inflation-adjusted two-year geometric average net sales growth. For each country, inflation is computed from local CPI changes using the International Monetary Fund data. Sales Growth is winsorized at the 1% level on both tails. Panel A shows results for both listed and non-listed firms in foreign markets. Panel B shows the results across various years around the listing year for firms with foreign listings.

Table 8
Valuation changes around overseas listing with home market, host market, and industry listing intensity

Panel A: Foreign listings on U.S. exchanges

	Without firm Q control				With firm Q control			
	None	Host	Home	Industry	None	Host	Home	Industry
Observations	141,178	141,178	141,178	141,178	138,466	138,466	138,466	138,466
Intercept	0.174**	0.175**	0.170**	0.172**	-0.239***	-0.233***	-0.241***	-0.241***
	(2.17)	(2.18)	(2.13)	(2.15)	(-4.56)	(-4.58)	(-4.66)	(-4.69)
FL(< 0)	0.259***	0.259***	0.259***	0.259***	0.006	0.006	0.006	0.005
	(3.85)	(3.85)	(3.85)	(3.88)	(0.16)	(0.18)	(0.16)	(0.16)
FL(0)	0.447***	0.092	0.447**	0.096	0.015	-0.290**	0.001	-0.216*
	(3.80)	(0.47)	(2.48)	(0.50)	(1.12)	(-2.40)	(0.01)	(-1.72)
FL(+1)	0.218***	0.116	0.218*	0.300*	-0.209**	0.088	-0.102	0.145
	(2.88)	(0.70)	(1.67)	(1.91)	(-1.96)	(0.50)	(-0.81)	(0.78)
FL(+2)	0.288***	0.261**	0.288**	0.264**	-0.237**	0.407*	-0.222	0.334
	(2.76)	(2.01)	(2.35)	(2.11)	(-2.00)	(1.70)	(-1.01)	(1.02)
FL(+3)	0.349***	0.363**	0.349***	0.404***	-0.312***	-0.013	-0.279	-0.014
	(3.15)	(2.40)	(2.84)	(2.94)	(-2.59)	(-0.05)	(-1.61)	(-0.06)
FL(≥ +4)	0.172	0.253**	0.172**	0.176**	-0.123***	0.289*	-0.108	-0.216
	(1.48)	(2.43)	(2.20)	(2.09)	(-3.12)	(1.88)	(-0.96)	(-1.63)
FL(0) × FLI(X, 0)		1.207**	0.043	4.484*		1.047***	1.072	3.221**
		(2.06)	(0.03)	(1.92)		(2.72)	(1.03)	(1.96)
FL(+1) × FLI(X, 0)		0.473	0.539	-0.665		-0.693	-0.936	-3.320
		(1.15)	(0.40)	(-0.49)		(-1.44)	(-0.58)	(-1.61)
FL(+2) × FLI(X, 0)		-0.052	-0.771	-0.281		-1.886***	-1.094	-6.898
		(-0.15)	(-0.75)	(-0.17)		(-2.37)	(-0.60)	(-1.57)
FL(+3) × FLI(X, 0)		-0.374	-1.399	-2.128*		-0.784	-0.422	-3.067
		(-0.96)	(-1.55)	(-1.76)		(-1.05)	(-0.29)	(-1.30)
FL(≥ +4) × FLI(X, 0)		-0.569***	-1.426**	-1.300*		-1.591***	-1.786	-0.428
		(-2.57)	(-2.25)	(-1.74)		(-3.76)	(-1.49)	(-0.33)
Sales Growth	0.417***	0.417***	0.418***	0.417***	0.131***	0.129***	0.130***	0.130***
	(22.50)	(22.50)	(22.50)	(22.49)	(9.57)	(9.56)	(9.56)	(9.59)
Log (Sales)	-0.042***	-0.042***	-0.041***	-0.041***	-0.023***	-0.025***	-0.025***	-0.025***
	(-11.61)	(-11.62)	(-11.57)	(-11.60)	(-10.86)	(-11.30)	(-10.89)	(-10.85)
Home Q	1.195***	1.195***	1.196***	1.194***	0.583***	0.583***	0.585***	0.584***
	(29.90)	(29.89)	(29.92)	(29.93)	(23.98)	(23.97)	(23.94)	(23.98)
Firm Q (pre-listing)					0.936***	0.936***	0.935***	0.936***
					(50.55)	(51.13)	(50.63)	(51.04)
Industry effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

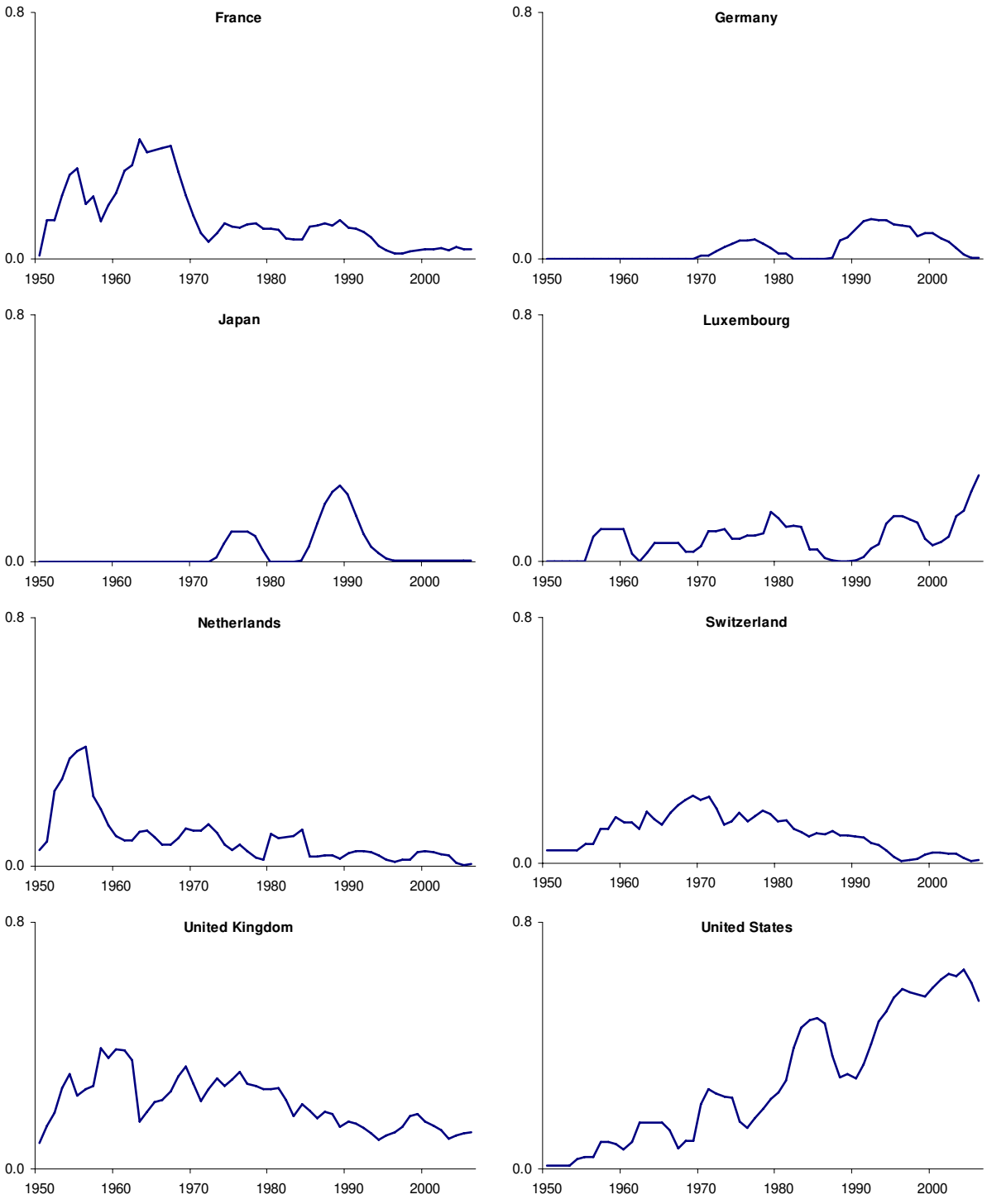
Table 8 (continued)

Panel B: Foreign listings in global markets

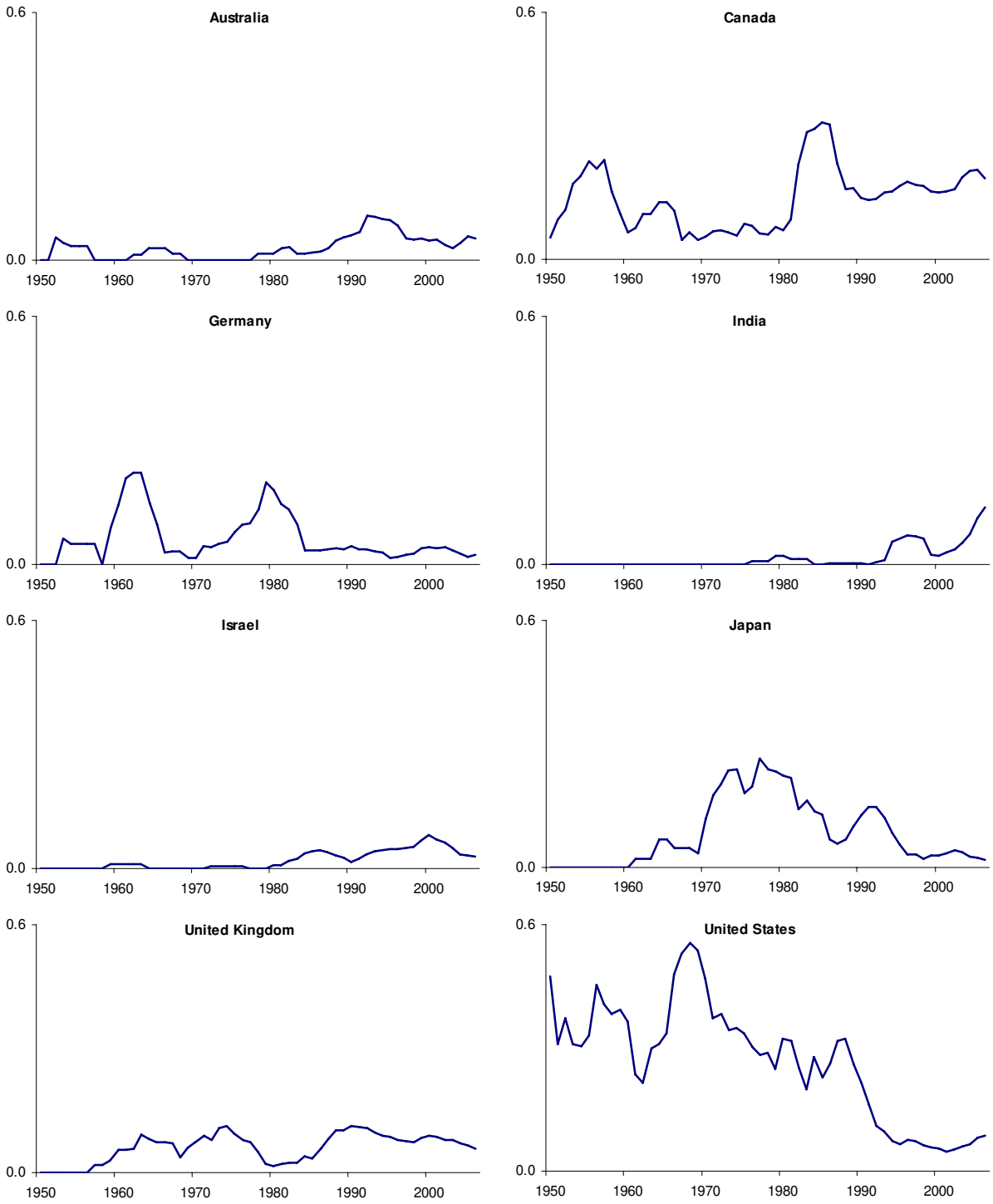
	All firms				No US firms			
	None	Host	Home	Industry	None	Host	Home	Industry
Observations	225,130	225,130	225,130	225,130	138,466	138,466	138,466	138,466
Intercept	-0.539***	-0.538***	-0.539***	-0.538***	-0.270***	-0.266***	-0.270***	-0.271***
	(-14.74)	(-14.75)	(-14.79)	(-14.75)	(-5.62)	(-5.56)	(-5.61)	(-5.67)
FL(< 0)	-0.007	-0.007	-0.007	-0.007	-0.011	-0.010	-0.011	-0.011
	(-0.37)	(-0.37)	(-0.37)	(-0.38)	(-0.53)	(-0.50)	(-0.54)	(-0.54)
FL(0)	-0.059*	-0.163***	-0.061	-0.055	-0.015	-0.126**	-0.044	-0.040
	(-1.66)	(-3.09)	(-1.20)	(-1.13)	(-0.39)	(-2.02)	(-0.80)	(-0.87)
FL(+1)	-0.236***	-0.241***	-0.284***	-0.094	-0.209***	-0.180***	-0.241***	-0.086
	(-5.84)	(-3.74)	(-5.31)	(-1.41)	(-4.73)	(-2.73)	(-4.05)	(-1.06)
FL(+2)	-0.246***	-0.142*	-0.298***	-0.144*	-0.237***	-0.050	-0.213**	-0.063
	(-4.53)	(-1.81)	(-4.05)	(-1.76)	(-3.89)	(-0.60)	(-2.52)	(-0.58)
FL(+3)	-0.362***	-0.354***	-0.418***	-0.132	-0.312***	-0.256***	-0.331***	-0.125
	(-6.48)	(-3.81)	(-5.64)	(-1.19)	(-5.27)	(-2.78)	(-4.33)	(-1.08)
FL(≥ +4)	-0.135***	-0.038	-0.153**	-0.168***	-0.123***	0.037	-0.102	-0.174***
	(-3.16)	(-0.58)	(-2.46)	(-3.08)	(-2.71)	(0.59)	(-1.30)	(-2.81)
FL(0) × FLI(X, 0)		0.497**	0.011	-0.038		0.490*	0.316	0.233
		(2.42)	(0.05)	(-0.10)		(1.93)	(0.97)	(0.56)
FL(+1) × FLI(X, 0)		0.024	0.469	-1.388**		-0.124	0.391	-1.219
		(0.10)	(1.59)	(-2.33)		(-0.48)	(0.68)	(-1.56)
FL(+2) × FLI(X, 0)		-0.478	0.462	-0.946		-0.830*	-0.282	-1.674
		(-1.05)	(1.45)	(-1.19)		(-1.77)	(-0.41)	(-1.43)
FL(+3) × FLI(X, 0)		-0.038	0.523*	-2.193**		-0.235	0.223	-1.794
		(-0.08)	(1.74)	(-2.00)		(-0.52)	(0.44)	(-1.55)
FL(≥ +4) × FLI(X, 0)		-0.504**	0.131	0.295		-0.801***	-0.232	0.464
		(-2.24)	(0.49)	(0.79)		(-3.32)	(-0.48)	(0.89)
Sales Growth	0.184***	0.184***	0.184***	0.184***	0.131***	0.131***	0.131***	0.131***
	(15.83)	(15.82)	(15.86)	(15.84)	(9.65)	(9.65)	(9.64)	(9.66)
Log (Sales)	-0.007***	-0.007***	-0.007***	-0.007***	-0.023***	-0.023***	-0.023***	-0.023***
	(-7.79)	(-7.79)	(-7.91)	(-7.81)	(-11.29)	(-11.60)	(-11.21)	(-11.35)
Home Q	0.558***	0.558***	0.558***	0.558***	0.583***	0.583***	0.583***	0.583***
	(24.26)	(24.28)	(24.23)	(24.26)	(24.08)	(24.08)	(24.06)	(24.09)
Firm Q (pre-listing)	0.963***	0.963***	0.963***	0.963***	0.936***	0.936***	0.936***	0.936***
	(84.20)	(84.55)	(84.15)	(84.25)	(51.54)	(51.76)	(51.53)	(51.54)
Industry effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 8 (continued)

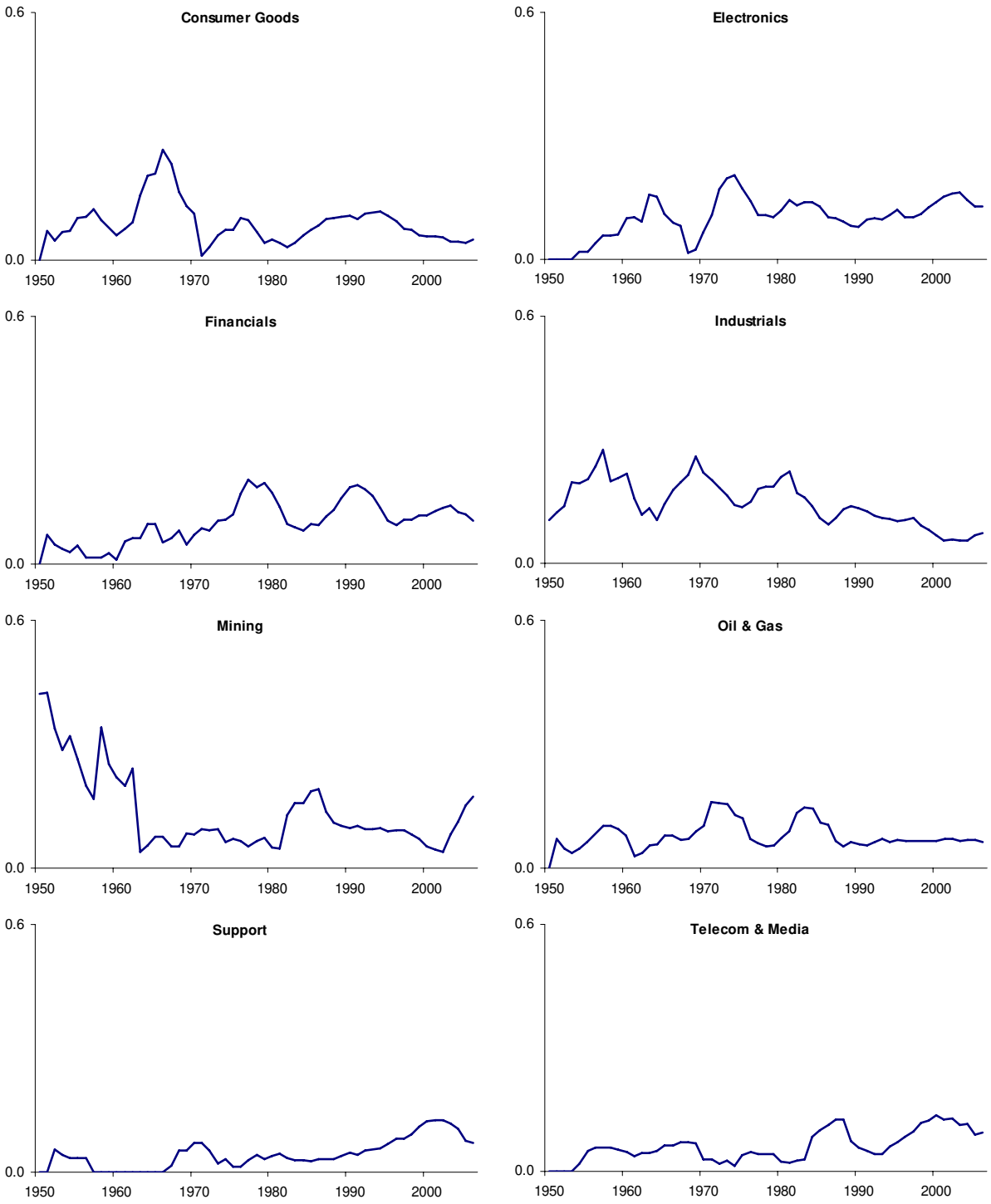
This table reports the regression test results of valuation changes around foreign listings for three data samples while controlling for the host market performance. The dependent variable is firm's Tobin's Q. It is the ratio, where the numerator is Total Asset Value minus Book Value of Equity plus Market Value of Equity, while the denominator is the Total Asset Value. The listing indicator, FL, is a dummy that takes the value of one in the listing year and all following years. Sales Growth is an inflation-adjusted two-year sales growth (winsorized at 1% and 99%), where inflation is computed using local CPI indices. Home Q is the median Tobin's Q in the home country in the given year. Firm Q (pre-listing) is the time-series median Tobin's Q for each firm prior to the listing. FLI(X, 0) is the foreign listing intensity of the home or host markets, as well as industry in a given listing year. It is defined as the ratio of the number of foreign listings either from a given home market, or to a given host market, or in a given industry in a given year over the total number of foreign listings in that year. The table also shows the t-statistics in parentheses. The industry and year fixed effects are included in each regression but the coefficients are not shown. Standard errors are clustered by the firm. Notations *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.



Plot A: Top eight host markets

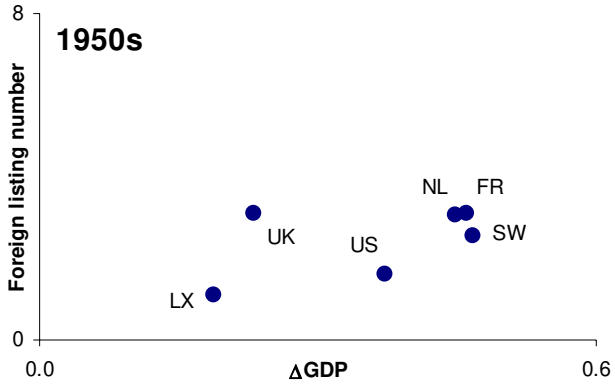


Plot B: Top eight home markets

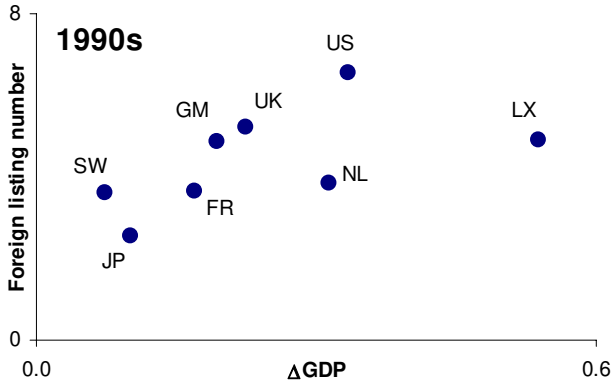


Plot C: Top eight industries

Figure 1. The dynamics of foreign listing placement. The figure shows the changes in the proportion of overseas listings (foreign listing intensity) in eight major host and home markets for foreign listings, as well as industries over the 1950-2006 period. Plot A shows the proportion of listings across host markets, Plot B – home markets, and Plot C – industries. The foreign listing intensity is averaged over the previous five years including the current year.

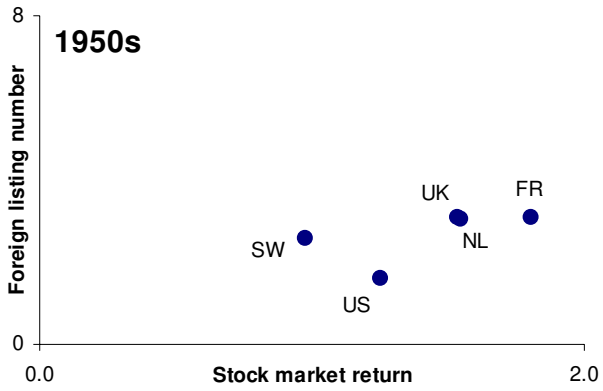


A

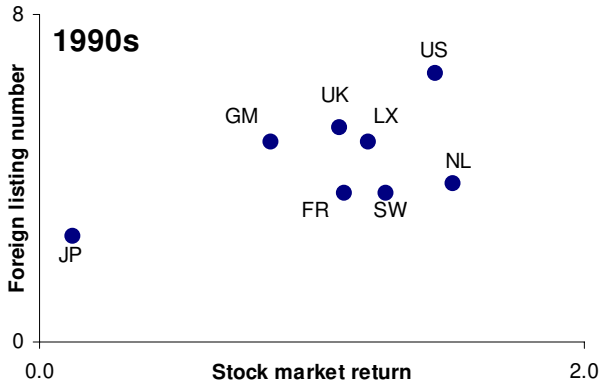


B

Figure 2. Relation between GDP growth and foreign listings in the top eight host markets. This figure shows the scatterplots of GDP growth and the logarithm of the number of foreign listings for the top eight host markets for foreign listings over two calendar decades: 1950s (Plot A) and 1990s (Plot B).



A



B

Figure 3. Relation between market performance and foreign listings in the top eight host markets. This figure shows the scatterplots of aggregate equity market returns and the logarithm of the number of foreign listings for the top eight host markets for foreign listings over two calendar decades: 1950s (Plot A) and 1990s (Plot B).

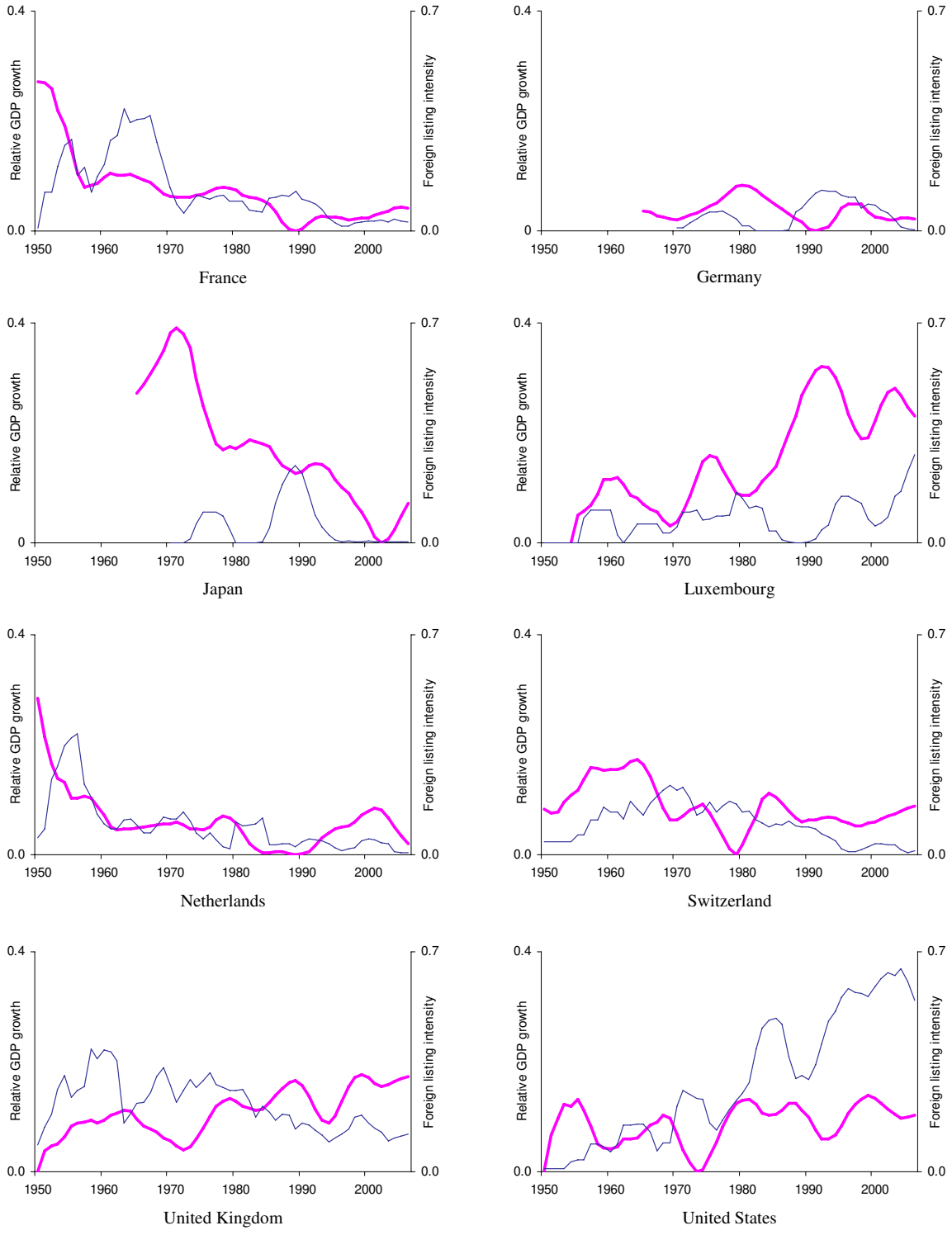


Figure 4. The dynamics of foreign listings and relative host country GDP growth. The figure shows changes in the foreign listing intensity (thin curve) and relative GDP growth (thick curve) in eight major host markets for foreign listings over the 1950-2006 period. The relative GDP growth is computed using equation (2). Both series are averaged over the preceding five years including the current year. The relative GDP growth for Germany and Japan starts in 1965-2006, for Luxembourg – in 1955.

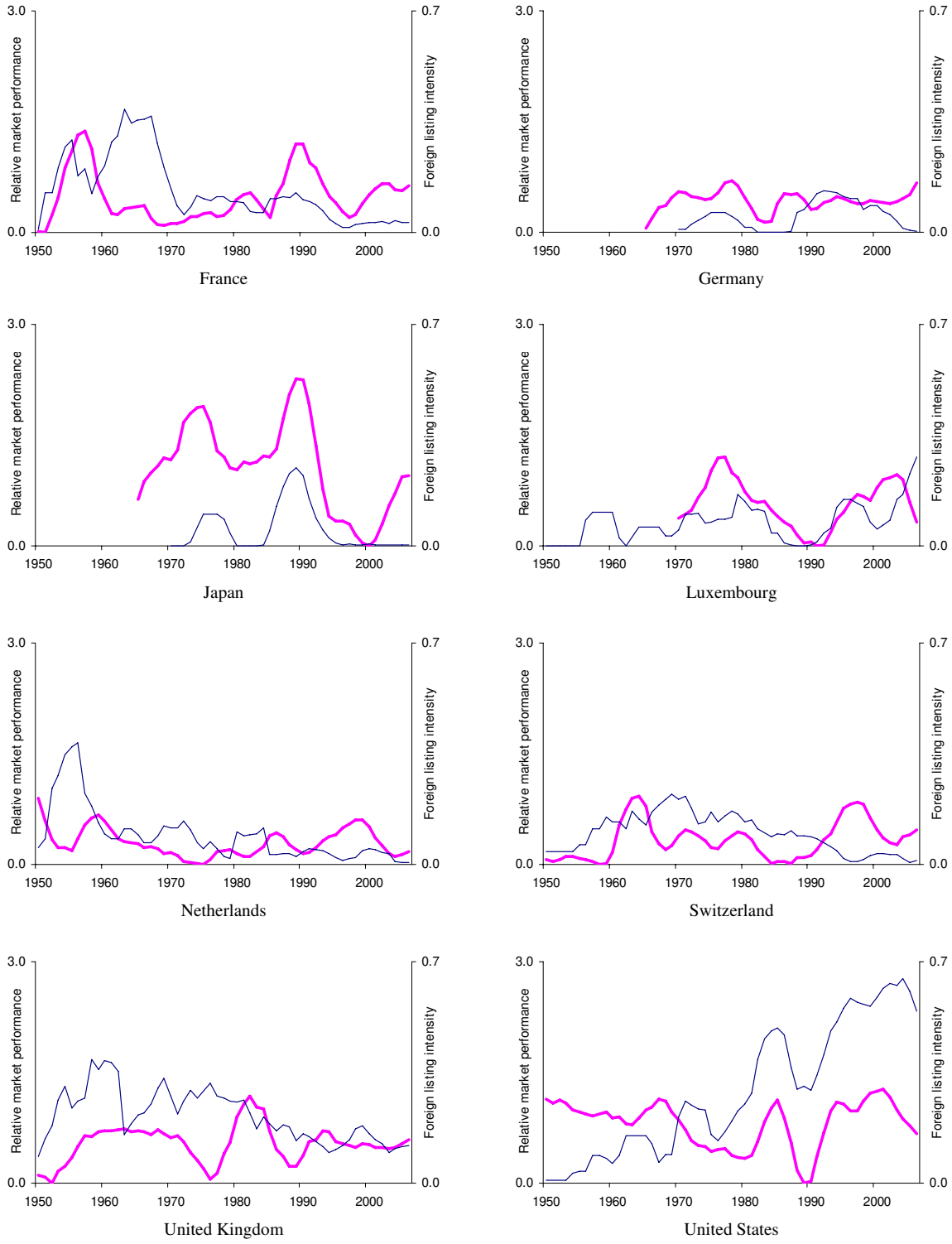


Figure 5. The dynamics of foreign listings and relative host country market performance. The figure shows changes in the foreign listing intensity (thin curve) and relative equity market performance (thick curve) in eight major host markets for foreign listings over the 1950-2006 period. The relative market performance is computed using equation (3). Both series are averaged over the preceding five years including the current year. The relative market performance for Germany and Japan starts in 1965, for Luxembourg – in 1970.