

## U.S.-Bound IPOs: Issue Costs and Selective Entry

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## **U.S.-Bound IPOs: Issue Costs and Selective Entry**

We examine 245 international firms making initial public offerings (IPOs) in the U.S. between 1991 and 1999, and compare their underwriting fees and indirect costs of underpricing to the IPOs of domestic U.S. issuers. Our results indicate that foreign IPOs experience approximately the same costs on average as domestic IPOs. The risk of foreign IPOs arises from a lack of information and high country risk. The high risk on these dimensions is offset by characteristics of the issuer and issue that reduce risk relative to domestic U.S. IPOs. Foreign U.S. IPO issuers are typically larger firms with tangible assets, listing on the NYSE, that originate from countries sharing a common border and language with the U.S. These issues occur following periods of strong home market equity performance and under stable currency conditions which help to alleviate country risk. To a large extent the findings suggest that “only the best come to the U.S.,” a finding which speaks indirectly to large unobserved barriers to entry.

## **U.S.-Bound IPOs: Issue Costs and Selective Entry**

Over the past decade, large numbers of international firms have made first offers of equity in the U.S. The large volume of cross-border issues raises an important issue of how initial public offers (IPOs) by international firms in the U.S. compare to IPOs by U.S. firms from the firms' and investors' points of view.<sup>1</sup> While there is a growing literature on the impact and consequences of international firms' methods of entry into the U.S. market, surprisingly no study has examined the characteristics and costs of international firms raising capital for the first time in the U.S. Studies to date have examined the effect of a U.S. listing or a U.S. capital-raising event on an international firm's stock returns (e.g., Foerster and Karolyi 1999; Karolyi 1998; Miller 1999; and Errunza and Miller 2000). The focus of these studies has been to compare the costs and benefits of international firms raising capital in the U.S. relative to international firms raising capital in their home markets.<sup>2</sup> Our purpose is to examine an equally important but unexplored issue of how the cost of international firms' going public in the U.S. (foreign U.S. IPOs) compares to domestic U.S. firms going public.<sup>3</sup>

In equilibrium, firms will come to the U.S. only if the costs of issuing in the U.S. are equal to or less than the costs of issuing in their respective home markets. On average, we find that foreign firms undertaking U.S. IPOs are larger in terms of assets and issue size relative to IPO issuers in their home markets. These results are consistent with prior studies documenting that firms raising capital outside of their domestic market are typically a select group of higher quality firms (Kim and Stulz 1988; Marr, et al. 1991). While this evidence suggests that foreign U.S. IPO issuers are likely to be "low cost issuers" in their home markets, it does not also imply that they will be low cost issuers in the U.S. The issue costs of

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<sup>1</sup> See "Foreign IPOs are Seducing U.S. Investors with their Allure of Untapped Potential," Terzah Ewing, *Wall Street Journal*, March 20, 2000, p. C13.

<sup>2</sup> The studies examining listing typically find that the shares of international firms trading in their home market experience positive valuation effects as a result of a U.S. listing. The positive valuation effect is consistent with Lins, Strickland and Zenner's (1999) finding that after U.S. listing, firms improve their access to capital. Ljungqvist, Jenkinson and Wilhelm (2001) find that compared to making an IPO in their home market or in other countries, international firms benefit from issuance in the U.S. and the involvement of U.S. investment banks.

foreign entrants to a domestic market can be higher than the issue costs incurred by domestic firms to the same market for several reasons. Merton (1987) argues that markets can be segmented by information if investors purchase only the securities of firms they know. If international firms are less well known to U.S. investors, all else equal, theory would suggest they face increased capital raising costs. Almost half of the foreign U.S. IPOs originate from emerging markets which are associated with high country risk. High country risk is symptomatic of differences in language, culture, and institutions that contribute to a lack of familiarity on the part of U.S. investors (see Coval and Moskowitz 2001; Grinblatt and Keloharju 2001; and Sarkissian and Schill in press). Further, the same factors could also hinder the efforts of foreign U.S. IPO issuers to generate institutional following and comparable analyst coverage relative to U.S. domestic IPOs. The extent to which foreign U.S. IPO issuers are less well known and possibly face higher issue costs relative to domestic U.S. IPO issuers is the central focus of our investigation.

Existing studies of U.S. investors' reaction to issuances by international firms are primarily based on studies of American Depositary Receipts (ADR) issues (for a review see Miller 1999; Foerster and Karolyi 1999; and Karolyi 1998). Our sample of issuers differs from existing studies in several ways. First, many international firms making first ADR issues are already listed in their home market. In contrast, our international issuers are not listed on any exchange prior to their U.S. IPO. For them, the U.S. IPO is their first public issue in any market. Second, issues involving capital raising in the U.S. are frequently seasoned issues following an earlier home market IPO. Third, not all of the issues in our sample are ADRs. Approximately half of first U.S. issues by international firms are conducted by ADRs and the remaining are conducted by ordinary share issues. Because our firms are not listed on any exchange prior to their U.S. IPO, they do not have an established investor following in their home market nor a prior trading history to facilitate pricing of the U.S. offer. Relative to previous studies, our sample represents purer-plays with respect to U.S. investors' lack of familiarity with an issuer. Hence, first time

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<sup>3</sup> Ritter (1984, 1987) examines the cost of going public for firms in the U.S.

IPOs by international firms should be particularly revealing of the entry costs into new markets and the possibility of market segmentation.

A total of 245 international firms from 43 countries make initial public offers in the U.S over the period 1991-1999. Foreign U.S. IPOs grow from nine offers in 1991 to a high of 73 offers in 1997. In total, international firms have raised some \$46 billion through IPOs since 1991, suggesting that the U.S. equity markets have become an important source of capital for these firms.

Prior studies find that underpricing (i.e., the percentage difference between the first day closing price and the offer price) and underwriting fees are positively related to risk and information asymmetry. On a univariate basis, foreign U.S. IPOs are significantly less underpriced relative to domestic U.S. IPOs, while gross spreads are approximately the same on average. When we compare the characteristics of foreign U.S. IPOs to domestic U.S. IPOs, we find that foreign U.S. IPOs have characteristics that compensate for information asymmetry and risk in a number of ways. First, fifty-seven percent of the issues in our sample are from developed countries, the majority of which have cultural or historical links to the U.S. Second, foreign IPOs are more likely to be listed on the NYSE compared to domestic IPOs. Baker, et. al (1999) argue that the choice to list on the NYSE signals higher quality due to the stricter listing requirements. Third, in 63 percent of the cases, foreign U.S. IPOs involve simultaneous offerings and issuance in more than one market outside of the U.S. generates additional information useful in evaluating the offer. Finally, the fact that foreign U.S. IPOs occur more frequently in “brick and mortar” industries explains to a certain extent why their offers are met with less underpricing when strong demand is encountered on the road show. Specifically, upwardly revised foreign U.S. IPOs exhibit two times less underpricing than upwardly revised domestic U.S IPOs, which is consistent with international issuers being larger and more established businesses.

Using regression analysis, when the above factors are held constant, we find that foreign U.S. IPOs experience the same underpricing on average as domestic U.S. IPOs. The regression results suggests that while foreign IPOs start out being less familiar to U.S. investors in terms of analyst coverage and riskier in terms of country risk, they also have certain characteristics such as greater size, asset tangibility,

and geographic proximity that offset some of these risks. Taken together, these attributes result in issue costs no higher on average than comparable domestic U.S. IPOs.

From a wider perspective, entry by foreign firms into the U.S. equity markets foreshadows growing global capital market integration. In a frictionless world, easy entry would result in a wide diversity of issuers on many dimensions such as size and risk. But in a world of capital market frictions, induced for instance by information asymmetries on the investor's side and the reluctance of issuers to meet stringent disclosure requirements, only those firms able to overcome these restrictions issue in the U.S. To a large extent our findings are consistent with a hypothesis of selective entry wherein "only the best come here." Foreign U.S. IPOs exhibit limited diversity on a number of dimensions noted above. The selectivity that drives this lack of diversity speaks indirectly to potentially large unobserved barriers to entry.

The remainder of this paper is organized as follows: Section I describes the sample data and presents basic characteristics of the foreign U.S. IPOs. Section II compares the characteristics, market conditions, and analyst coverage of foreign and domestic U.S. IPOs that have the potential to influence issue costs. Section III provides evidence on direct and indirect issue costs. Section IV gives our conclusions.

## **I. The Sample of Foreign IPOs**

Using the *Security Data Corporation (SDC) New Issues* database, we identify all international firms that made firm commitment initial public offerings in the U.S. between January 1, 1990 and December 31, 1999. Of these, we eliminate financials and utilities, and firms with equity trading in a non-U.S. market prior to the U.S. IPO, which reduces the sample to 371 foreign IPOs. Our sample of IPOs differs in several important ways from earlier studies of American Depositary Receipts issues. First, the depositary receipts issuances in the U.S. used in previous studies (Foerster and Karolyi 1999; Miller 1999) involve the cross listing of shares from other global exchanges. These firms often have equity trading on other exchanges, typically their home market, and thus are seasoned issuers with some degree

of investor following. By comparison, our offers are first time issues in *any* market. Second, not all of the foreign U.S. IPOs in our sample are ADRs. Specifically, 53 percent of the issues are ADRs and the remainder are direct placements of ordinary shares.<sup>4</sup> Third, all of the offers in our sample involve capital raising and therefore entail a high level of disclosure. Our sample includes only Level III ADRs which require the issuer to meet all of the requirements of the U.S. Security Exchange Commission (SEC) and the listing exchange. These are the equivalent requirements of a direct placement of ordinary shares. Relative to previous studies, our sample therefore excludes Level-I depositary receipts that do not require listing and compliance with exchange requirements, and Rule 144A offerings that allow the firm to raise capital from institutional investors without having to meet SEC disclosure requirements. These exclusions afford insights into the foreign U.S. IPOs under more uniform conditions.

Panel A of Table I reports the number of foreign U.S. IPOs occurring over the sample years. Foreign IPOs grow over the sample period from a low of nine offers in 1991 to a peak of 73 offers in 1997. The number and volume of issuance grew steadily through 1994 and then declined in 1995, following the Mexican Peso crisis in December 1994. From the high in 1997, a pronounced drop-off in offers is observed in 1998 and 1999, following the Asian currency crisis that began in the summer of 1997 and spread to other markets. In total, international firms have raised some \$46 billion in the U.S. equity markets since 1990. Consequently, the data suggest that cross-border IPOs are an important source of capital for non-U.S. firms. Panel B of Table I gives the number of IPOs by country of origin, the country risk rating for the year of the first foreign U.S. IPO, and the month and year of the first IPO

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<sup>4</sup> The non-ADRs come from predominantly two countries: Canada and Israel. The non-ADRs are issues of ordinary shares by foreign firms. These shares are generally offered on the local domestic market and in the U.S. The issuing firm files SEC form F-1 which is equivalent to the S-1 filed by U.S. firms that raise capital. In the case of Level III ADRs, the issuing firm also files SEC form F-1. In both cases the firms register on Form 20-F. Given that we consider only capital raising issues and all our ADRs are Level III ADRs, there is essentially no difference in the reporting and listing requirements of the ADRs and non-ADRs in our sample.

originating from that country. Issuers come from 43 different countries, which break down into 23 emerging market countries and 20 developed countries.<sup>5</sup>

Figure I displays the range and heterogeneity of country risks associated with the international issuers. For this chart, we total the volume of issues across countries into country risk categories. As can be seen from the figure, a bi-modal effect is observed in which the largest dollar-volume of issues comes from very high-rated developed countries and the lowest-rated emerging countries. The issue volume weighted country risk rating is 82.7 for foreign U.S. IPOs compared to 97.9 for domestic U.S. IPOs. Given the substantially higher levels of country risk associated with large numbers of foreign U.S. IPOs, all else equal, one would expect investors to demand some premium above the U.S. risk premium to hold these assets.

## **II. Characteristics of Foreign U.S. IPOs versus Domestic U.S. IPOs**

In this section, we investigate the characteristics of the issuers, issue, and markets that prior studies have shown to influence issue costs. Foreign U.S. IPOs can experience different issue costs relative to U.S. IPOs for many reasons including asymmetric information (Myers and Majluf, 1984), differences in the underlying quality and risk of the issuers, market conditions, and the demand for new issues. To examine these differences, we compare foreign U.S. IPOs to a sample of domestic U.S. IPOs. To be included in the final sample, we require that U.S. stock prices be available from the *Center in Research in Security Prices (CRSP)* and that financial statement data be available from *Standard and Poors' Research Insight, Inc.* for each IPO. Of the original 371 foreign IPOs, we are unable to find price

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<sup>5</sup> We use the country risk ratings published in the annual survey by *Euromoney* to determine emerging and developed market status. *Euromoney* provides an ordinal measure of country risk that incorporates political, economic and financial risk. While political risk is assessed using qualitative factors based on surveys of experts, economic and financial risk are primarily assessed using quantitative information such as *Moody's* and *S&P Credit Ratings*, access to bond markets and other debt indicators. Rating levels below 86 are used as the cut-off for emerging markets. For comparative purposes, the *Euromoney* country risk rating for the U.S. ranges from 97.2 to 99.5 over the sample period. In Table I, the ratings correspond to the year of the first issue from that country. In the subsequent regression analysis, the country risk rating is updated to correspond to the date of each foreign IPO. Our definition permits countries that are classified as emerging at one point to be reclassified as developed at another,

data for 88 offers and firm specific information for 38 offers, leaving a final sample of 245 foreign U.S. IPOs. Using the same criteria, a sample of 3,125 domestic U.S. IPOs by industrial firms is collected.<sup>6</sup>

## A. Firm and Issue Characteristics

### Characteristics of Quality

Prior studies of IPOs use firm size and issue size to gauge the quality and risk of an issuer (Ritter (1984; Dunbar 2000). We find that the firms making IPOs in the U.S. are larger on average than the firms making IPOs in their respective home markets. This finding is based on firm and issue size data obtained from *SDC* on home market IPOs for issuers in 21 out of our 43 countries.<sup>7</sup> Home market IPOs have \$77 million in assets and \$41 million in issue size on average (not reported) compared to \$817 million in assets and \$100 million in issue size for foreign U.S. IPOs. Additionally, in each individual country the average assets and issue size of the foreign U.S. IPOs are larger, and in all but a few cases significantly so, than the typical home market IPO. These results are consistent with the findings of Doidge, Karolyi and Stulz (in press) that international firms operating in the U.S. are higher-quality firms and with earlier studies examining issues cost in new markets (Kim and Stulz 1988; Marr, Trimble, and Varma 1991). The higher quality of entrants into a new market could reflect a selection bias that may portend lower issue costs. However, the possibility that foreign U.S. IPO issuers are larger firms with lower issue costs in their home markets does not necessarily imply that they will also realize lower capital raising costs in the U.S. market. Whether or not this implication follows is the main focus of our investigation.

As shown in Table II, foreign firms issuing in the U.S. have average pre-issue assets of \$1,165 million (median \$64 million) and raise on average \$100 million (median \$49 million). By comparison,

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when appropriate. Our results are robust to other classifications used in prior versions of the paper, such as *International Country Risk Guide* (ICRG) ratings and sovereign debt ratings.

<sup>6</sup> Given the error rate in *SDC* data we do not rely on their underpricing data. Our underpricing data are based on *CRSP* data. We also exclude firms that are erroneously reported as IPOs in *SDC* but are in fact seasoned offers. In addition we eliminate firms for which an issue price is reported in the home currency. Our final sample of 245 foreign and 3,125 domestic IPOs results after checking the *SDC* data and verifying the existence of the firm on *CRSP* and *Research Insight*.

the average domestic U.S. IPO has pre-issue assets of \$125 million (median \$21 million) and raises \$51 million (median \$31 million) in equity capital.<sup>8</sup> Six percent of the foreign IPOs involve privatizations and these tend to be large transactions compared to non-privatizations (Megginson and Netter 2000; Megginson, Nash, and van Randenborgh 1994). Eliminating privatizations from the sample reduces the average firm size of foreign U.S. IPOs to \$817 million (median \$55 million) and the average issue size to \$181 million (median \$61 million), but otherwise the results are unchanged. Both firm size and issue size are significantly greater for foreign U.S. IPOs than for domestic U.S. IPOs.

Baker, et. al (1999) suggest that greater visibility and quality are signaled by listing on the New York Stock Exchange (NYSE) relative to other U.S. exchanges. Thirty-three percent of the foreign IPOs list on the NYSE compared to only 11 percent of domestic IPOs, a statistically significant difference. The greater incidence of NYSE listings among foreign IPOs does not appear to be due to greater size owing to the age of the firm, as the average age of the firm does not differ significantly between the groups. One caveat is that data on firm age are available from *SDC* for only 51 foreign firms and 783 domestic firms.

Consistent with greater issue size, sixty-three percent of foreign IPOs are simultaneous offers in the U.S. compared to 12 percent of domestic IPOs, a significant difference. To be classified as a simultaneous offer, an IPO must be offered for sale in the U.S. and one other market (typically Europe.) As such, these offers frequently involve marketing efforts outside of the U.S. Foreign issuers have substantially higher amounts (76 percent) targeted for sale in the U.S. which constitutes their foreign market compared to the 20 percent typically offered by U.S. firms issuing seasoned equity abroad (see Chaplinsky and Ramchand, 2000). In both instances, the largest portion of the simultaneous offer is sold in the U.S., the market of greatest liquidity.

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<sup>7</sup> We searched *SDC* for information on other variables but data were not widely available for items other than firm and issue size.

<sup>8</sup> To ensure that outliers do not drive our results, we repeat the analysis eliminating the top and bottom two percent of offers based on assets and issue size but the results are substantially the same.

## **Factors Associated with Investor Familiarity**

While no formal definition exists for familiarity, prior studies suggest it can arise from circumstances where investors possess superior information about firm risk (Merton, 1987) or profits (Coval and Moskowitz, 2001). These studies posit a particular form to the asymmetry of information, but the term has also been more broadly defined to include other attributes of “investor sophistication” such as geographic proximity, language, and culture (Grinblatt and Keloharju, 2001), and industry structure (Kang and Stulz, 1997).

Table III provides evidence on attributes related to investors’ familiarity with an international issuer. These include whether the transaction is from a developed or emerging market country, whether the issuer has a common border or language with the U.S., or a connection with a U.S. firm or investor prior to the IPO, the degree of analyst following, and similarities in the industries giving rise to foreign and domestic U.S. IPOs. Based on the number of issues, 57 percent of the foreign U.S. IPOs come from developed countries and 43 percent come from emerging markets countries. Developed countries are more likely to share similar institutions to the U.S., which can create more familiarity among U.S. investors.

The countries with the largest number of IPOs are Israel (65), Canada (50), United Kingdom (37), Mexico (22), Hong Kong (22), the Netherlands (21), and France (20). Thereafter, the number of IPOs per country declines considerably. Among the countries with the largest number of IPOs, two share a common border with the U.S. (Canada, Mexico), three a common language (Canada, Hong Kong, United Kingdom), and three have close cultural ties (Canada, United Kingdom, Israel) with the U.S. These results parallel findings in Sarkissian and Schill (in press) that geographic proximity, common language, and cultural ties are important factors influencing the choice of overseas listing markets.

International issuers with connections to U.S. firms or investors likely have some previously established standing in the U.S. financial community. We search *Dow-Jones News Retrieval Service* to determine if an international firm has a product, licensing or franchising relationship, or an equity interest with a U.S. company prior to the IPO. We find that in total 16 percent of the foreign IPOs have a formal

connection to a U.S. firm or investor. For example, Coca-Cola FEMSA is the franchise distributor for a U.S.-based firm, Coca Cola. In other cases, such as Colt Telecom Group, a well-known U.S. money manager, Fidelity Management Company, is a major stockholder. The relatively low frequency of U.S. connections suggests that few foreign issuers have formal links to the U.S. prior to their IPO.<sup>9</sup> However, of the issuers with U.S. connections, the large majority come from Canada (10), U.K. (7), Israel (6) and Mexico (5). As geographic proximity, shared language and culture facilitate greater information flow between countries, these traits can reduce the risk that U.S. investors perceive to be associated with foreign IPOs.

Previous studies use analyst coverage to measure the extent of information available to the market and investors.<sup>10</sup> In panel B of Table III we present data on analyst coverage for foreign and domestic IPOs from the *Institutional Broker Estimates System (IBES)* database. Since IPOs do not have analyst coverage preceding the IPO, we assume that the post-issue analyst coverage is positively correlated to investor interest and information at the time of the IPO. The number of analysts, which is reported at the time coverage is initiated, is slightly higher for domestic U.S. IPOs on average, although the difference is not significant. However, the timing with respect to the initiation of coverage following the IPO differs significantly between the two groups. Within two months following the issue, coverage is initiated for 16 percent of foreign U.S. IPOs compared to 30 percent of domestic U.S. IPOs and within six months, for 25 percent of foreign IPOs compared to 38 percent of domestic IPOs.<sup>11</sup> Both differences are statistically significant.

Kang and Stulz (1997) find that investors' foreign portfolio holdings reflect preferences for larger manufacturing firms and further suggest that similarities in industry structure can increase familiarity. To

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<sup>9</sup> There are no significant differences in assets or issue size on average for issuers with and without U.S. Connections.

<sup>10</sup> Brennan and Subrahmanyan (1995) and Brennan, Jegadeesh and Swaminathan (1993) find that greater analyst coverage is associated with reductions in adverse selection costs thereby increasing the depth of the market. Baker, Nofsinger and Weaver (1999) report increases in analyst and media coverage when foreign firms cross-list on the NYSE.

examine this, we compare the industry distributions and asset composition of the two groups (not reported). A chi-square test of homogeneity rejects at the one percent level that the industry distributions are the same. Relative to domestic U.S. IPOs, foreign U.S. IPOs occur more frequently in telecommunications, oil and gas, and less frequently in services, and retailing. Closer inspection of the broader industry classifications reveals that foreign U.S IPOs are more frequently associated with investments in established industries (manufacturing, machinery, processing) and known technology (long distance telephones). In addition, based on *SDC* high-tech codes, 37 percent of foreign U.S. IPOs are high-tech companies compared to 44 percent of domestic U.S. IPOs (p-value=0.05).<sup>12</sup> Consequently, the results are supportive of Kang and Stulz (1997)'s finding that investors are more accepting of foreign issuers from manufacturing and other industries characterized by greater "assets in place" (Myers, 1977).

## **B. Market Conditions**

Market conditions at the time of issue can also affect the costs of issue by altering the demand for foreign shares by U.S. investors. Prior studies document that seasoned equity issues typically follow strong performance by the issuer's stock and the broader equity markets (see, among others, Asquith and Mullins 1986; Masulis and Korwar 1986; Mikkelsen and Partch 1986; Korajczyk, Lucas and MacDonald 1990). Cross border issues, however, may not follow this pattern. For instance, international portfolio diversification arguments can support a scenario in which foreign firms are more likely to issue under relatively weak U.S. market conditions and relatively strong home market performance. Also, a weakening of the home currency vis-à-vis the dollar can, by reducing the dollar cost of investment, increase U.S. demand for foreign shares.

To judge the effects of home country economic conditions, we compare the recent performance of the U.S., home equity, and currency markets prior to the IPO announcement in Table IV. The market

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<sup>11</sup>According to *IBES*, as a general rule, the analysts providing earnings estimates in U.S. dollars that are reported by *IBES* tend to be U.S. based analysts. Canadian firms are the one exception to this. Hence, our analysis primarily captures the increase in analyst following by U.S. based analysts, which is our intention.

variables are the cumulative returns (sum) of the CRSP value-weighted returns, USMKT(-60, -2), and the issuer's home market country index, HMKMT(-60, -2), over the period day -60 to day -2 relative to the announcement date of the IPO in the U.S. (trading day 0).<sup>13</sup> CURR (-60,-2) is the percentage change in the exchange rate defined in units of foreign currency per U.S. dollar. Positive values of CURR (-60,-2) imply a strengthening of the U.S. dollar vis-à-vis the home country's exchange rate. Home equity market and currency returns are collected from *Datastream, Inc.*

The results in Table IV reveal that both foreign and U.S. IPOs occur after relatively strong U.S. equity market performance (4 percent on average). Likewise, foreign U.S. IPOs occur after a 6.5 percent average increase in their home equity markets. While this is good performance, it is not significantly better than the increase in the U.S. market. Similarly, pre-IPO exchange rate movements reflect a relatively high degree of stability. In general, the U.S. dollar has weakened, but only slightly, relative to the issuer's currency prior to issue. Moreover, the average annualized standard deviation of currency returns for the same period is 20 percent, in line with other major currencies.<sup>14</sup> Consequently, the results suggest that foreign U.S. IPOs occur under circumstances of relatively benign currency conditions and similarly favorable U.S. and foreign home market conditions. Since positive home market equity performance and stable currencies are associated with underlying economic strength, the issuance of foreign U.S. IPOs under these conditions reduces some of the concern about country risk.

In sum, the evidence suggests that foreign U.S. IPOs have characteristics consistent with higher quality or lower risk, such as larger size and greater frequency of NYSE listings. In addition, the issuers tend more frequently to be from developed countries, which share a common language and border with

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<sup>12</sup> Within the high-tech category, 57 percent of foreign IPOs relate to telecommunications and computer equipment versus 35 percent of domestic IPOs (p-value=0.05). By comparison, biotechnology and Internet services account for 38 percent of the domestic high-tech IPOs, compared to 24 percent of foreign U.S. IPOs (p-value=0.01).

<sup>13</sup> Loughran, Ritter, and Rydquist (1994) find that IPO volume is correlated with the overall level of stock market valuation. We also examine, S&P500/CPI, the inflation-adjusted level of the Standard and Poors' 500 Stock Index. The results indicate that foreign issuers make IPOs at significantly higher inflation-adjusted levels of the S&P500 than domestic IPOs. This finding results primarily from the occurrence of a larger portion of foreign IPOs later in the sample period when market levels are higher.

the U.S., and to have more tangible assets. Issues coincide with periods of favorable home market equity performance and relatively benign currency conditions. All else equal, these characteristics tend to reduce the uncertainty about an issue and hence lessen the informational asymmetry associated with foreign U.S. IPOs. On the other hand, foreign IPOs have high average levels of country risk, few formal connections to the U.S. prior to the IPO, and take nearly twice the time to achieve comparable analyst coverage than domestic IPOs. These factors are consistent with greater information asymmetry, and accordingly, should lead to higher underpricing. In the next section, we examine the effect of these factors on the costs of issue.

### **III. Direct and Indirect Issue Costs**

Among others, Rock (1986) and Beatty and Ritter (1986) use underpricing as an indicator of the *ex ante* uncertainty associated with an issue and similar arguments apply to gross spread. If foreign issues present greater uncertainties to U.S. investors, *ceteris paribus*, they should have higher underpricing and gross spreads compared to domestic U.S. IPOs.

#### **A. Univariate Analysis**

In Table V we examine the direct and indirect costs of equity issuance. Direct issue costs are measured by the gross spread, which is the sum of the management fee, underwriting fee, and selling concession as a percentage of the amount offered. Indirect costs are measured by initial returns or underpricing. Day  $n$  initial return (IR) is the day  $n$  close price divided by the offer price minus one. Given the large difference in size between the groups, we create control samples of the domestic U.S.

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<sup>14</sup> Many studies suggest diversification as a factor motivating the demand for foreign shares. Correlations are estimated using monthly returns from *Datastream* market indices for the U.S. and the home markets of foreign firms for a three-year period prior to the issue. The correlations range from -0.03 for China to 0.70 for Canada.

IPOs closer in size (and therefore risk) to the foreign U.S. IPOs.<sup>15</sup> For the control samples, we match an equal number of foreign and domestic IPOs based on three different criteria: asset size, issue size, and industry.<sup>16</sup> Similar to prior studies, asset size produces the “best match” and results in samples of foreign and domestic U.S. IPOs with a median asset size is \$64 million (Chaplinsky and Ramchand, 2000).<sup>17</sup> Although we include for completeness the results for the full sample of domestic U.S. IPOs in the ensuing analyses, henceforth our discussions focus primarily on the asset size matched domestic IPOs.

### **Analysis of Indirect Costs of Underpricing**

In Table V, underpricing is significantly less on average for foreign U.S. IPOs relative to the asset size matched domestic U.S. IPOs. For the asset size matched domestic U.S. IPOs, first day initial returns are 21.1 percent compared to 11.0 percent for the foreign U.S. IPOs ( $t=3.76$ ). Further, the median first day underpricing is nearly three times less for the foreign IPOs, 3.5 percent versus 9.1 percent, respectively. The same result holds through thirty days following the offering. The average gross spread for the foreign U.S. IPOs of 6.4 percent is significantly lower than 6.6 percent at the ten percent level. However, the median gross spreads in all samples are equal to the seven-percent reported in Chen and Ritter (2000).

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<sup>15</sup>Alternatively, one could use a Heckman (1979) two-stage procedure. This requires data for all IPOs by foreign firms—those made in the home and U.S. market—for the 43 countries in our sample. Given that we find data for only IPOs from 21 countries and for a limited number of variables, we opt to use control samples instead.

<sup>16</sup>The asset size matched control sample is constructed as follows. For each of the foreign IPOs we identify a domestic IPO offered within one month (or closest month to) the foreign IPO offer date. We then choose the domestic issuer that is closest in pre-issue asset size to the foreign issuer. The issue size matched sample is constructed analogously. For the industry control group, we repeat step 1 to find the offers occurring closest in time. From these, we choose a domestic issuer that matches the three digit SIC code of the foreign issuer (two digit if there is not a match for three digit codes). If more than one match is available, we choose the U.S. firm that is closest in pre-issue asset size to the foreign firm.

<sup>17</sup>Although the median asset sizes are the same, other characteristics vary widely between the groups. For example, the average asset size is \$299 million for the domestic IPOs in the asset sized matched sample versus \$817 million for the foreign IPOs, a statistically significant difference ( $p$ -value = 0.02). Likewise, the average issue size is \$109 million for domestic IPOs versus \$180 million for foreign IPOs ( $p$ -value = 0.03). Hence even after controlling for asset size, sizeable differences remain between the groups although less so than in the absence of controls. This is one reason we use the control sample later in the regressions.

## Fluctuations in Demand for IPOs

Earlier studies of IPOs establish that underpricing can depend on the demand for IPOs. Ritter (1984) associates the demand for IPOs and underpricing with an absence of issue volume. High underpricing signals strong investor demand and stimulates other firms to subsequently enter the market. As volume increases, lower new issue discounts follow. Lowry and Schwert (2002) and Helwege and Liang (2003) also explore the relation between underpricing and the issue volume.

In panel A of Table VI, we examine the extent to which foreign U.S. IPOs occur in periods of high IPO issue volume and how volume relates to underpricing. For each month in the sample, we compute a ratio of the volume of IPOs issued in month  $t$  divided by the total volume of IPOs over 1991-1999. The median value of this ratio is determined across the sample months. High (low) volume periods are defined as the months with above (below) median ratios of monthly to total issue volume.<sup>18</sup> Seventy-five percent of foreign IPOs occur in high volume months, a somewhat smaller percentage than the 81 percent reported for the asset size matched domestic U.S. IPOs. For foreign IPOs, underpricing is not significantly different on average between high and low volume months versus the asset size matched control group ( $t=1.35$ ). Note the approximate uniformity of the average first day initial returns in high and low volume periods for foreign IPOs — 11 percent — contrasts with the larger variation from 13.6 to 21.5 percent for domestic IPOs. However, the differences in underpricing between the foreign and domestic U.S. IPOs in high and low volume periods are not significant. Nonetheless, the underpricing of foreign IPOs appears to be less sensitive to variations in issue volume than domestic IPOs.

An alternative approach to evaluating the demand for IPOs is the partial adjustment phenomenon documented in Hanley (1993). She suggests that underwriters fail to adjust the offer price of an IPO high enough when they encounter unexpectedly strong demand for an issue on the road show.<sup>19</sup> As a result, in her study “above the file range” offers experience two times the underpricing of a typical (within the file

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<sup>18</sup>The results are unchanged if we classify the high and low volume periods based on more extreme criteria, such as the top and bottom 25 percent of months.

range) IPO. Following Hanley (1993), panel B of Table VI reports the underpricing associated with offers that occur above or below the preliminary file range. An upward revision occurs when the offer price of the IPO exceeds the mid-point of the preliminary file range (expected price). A downward revision occurs when the offer price of the IPO is equal to or less than the expected price. Forty-four percent of foreign U.S. IPOs experience upward price revisions, roughly the same percentage as domestic U.S. IPOs.<sup>20</sup> Notably, upwardly revised foreign IPOs experience average underpricing of 18.4 percent compared to 38.2 percent for the asset size matched domestic IPOs. Regardless of the control sample examined, underpricing is significantly lower for upwardly revised foreign IPOs. In terms of downward revisions, both foreign and domestic IPOs experience similar, albeit lower, underpricing. The results are again suggestive that the underpricing of foreign IPOs is less sensitive to variations in demand than domestic IPOs

## **B. Regression Analysis**

In Table VII we report pooled cross-sectional regressions of the foreign and U.S. IPOs where the dependent variable is the first day initial return. We estimate regressions for the asset size matched sample because of the earlier noted differences (footnote 17) between the foreign and domestic U.S. IPOs even after matching and, for completeness, the full sample of IPOs.<sup>21</sup> Additionally, we eliminate privatizations which reduces the sample to 231 foreign U.S. IPOs. Arguably there is no analogy to privatizations among the U.S. IPOs since typically privatizations are among the most prominent firms in their home countries and also are state-sponsored transactions. Note that the elimination of privatizations

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<sup>19</sup>On average there are 64 days between the filing date and offer date for a foreign IPO versus 102 days for a domestic IPO, an insignificant difference.

<sup>20</sup> Similar results occur if revisions are measured relative to the high and low price in the preliminary file range rather than to the mid-point.

<sup>21</sup>The results using the entire sample of domestic U.S. IPOs are similar to those reported and are available upon request. We are also cognizant of the fact that a matched sample regression can result in biased t statistics due to over-sampling of the same observation. To control for this, we run the regressions using a Newey-West correction where the estimator is corrected for autocorrelated disturbances. In addition we also run regressions for the full sample and the results are similar to those of the matched samples, thereby reducing this concern.

should make it more difficult to establish differences between the groups. Each of the previous restrictions is motivated to provide the cleanest comparisons between the groups.

The independent variables control for firm specific factors, market conditions, and other factors associated with familiarity. A dummy variable “Foreign” is equal to one if the issue is a foreign U.S. IPO and is zero for a domestic U.S. IPO. With other control variables in the regression, the coefficient of the foreign dummy captures the relative difference in underpricing between U.S. and foreign IPOs. The IPO demand variables are dichotomous 0-1 variables: “Offer Price > Expected Price” is equal to one if the IPO offer price exceeds the expected offer price; and “High Volume” is equal to one for issues that are offered in high volume (above median) months, and is zero otherwise. Each of the IPO demand variables is interacted with the foreign dummy. In addition, a “High-tech” dummy and interaction term, “High-tech dummy x Foreign dummy” are also included based on earlier findings that foreign and domestic U.S. IPOs differ with respect to the level of tangible assets.

The regression also includes several variables to account for the factors related to familiarity. Dichotomous 0-1 variables equal to one are included if a foreign U.S. IPO shares a common language, common border, or a common language and border with the U.S., respectively. Of these, only the common border dummy is significant and therefore this is the specification we report in Table VII.

With exception of issue size, the regression results are similar between the asset sized matched and full sample specifications. The coefficient of issue size is significantly positive for the full sample, in contrast to the asset size matched specification where it is insignificant. This is to be expected given the greater heterogeneity of the full sample and further evidence that matching on size helps to control for sample differences. The coefficient of the foreign dummy is not significant in either specification suggesting that foreign U.S. IPOs experience equivalent underpricing on average relative to domestic U.S. IPOs. The most significant variables are the High-tech Dummy and the Offer Price > Expected Price Dummy and their respective interaction terms. The coefficient of High-tech Dummy is positive and significant (13.10 in the first specification) implying that underpricing is greater for high-tech issuers compared to non high-tech issuers. However, for foreign high-tech issuers, the negative and significant

coefficient on the interaction term (-13.70) suggests that the difference in underpricing between high-tech and non-high tech issuers is not as large for foreign IPOs as it is for domestic IPOs. The t-statistic (4.19) testing the null hypothesis that the sum of the coefficients on the two terms (i.e., High-tech Dummy and High-tech Dummy x Foreign Dummy) equals 0 is significant. Hence, while underpricing is 13.10 percent greater for domestic high-tech issuers compared to non high-tech issuers, foreign high-tech issuers are 0.60 percent less underpriced on average than non high-tech issuers (13.10-13.70). In economic terms, it is arguably the same. Similarly the coefficient of the “Offer Price > Expected Price” dummy is positive (13.98) and highly significant. This is consistent with Hanley’s (1993) finding that a higher degree of underpricing is associated with upwardly revised offers. Again, the coefficient of the interaction term for this variable is negative and significant (-16.98) and the t-test for the sum of the coefficients is significant. Consequently, in the face of strong market demand domestic U.S. IPOs experience high underpricing that is not shared by foreign U.S. IPOs. In fact, upwardly revised foreign U.S. IPOs have 3 percent less underpricing on average than those that are not upwardly revised.

Putting the previous results together with the former univariate results, the lower underpricing of foreign IPOs appears to be more a function of the high underpricing associated with domestic high-tech IPOs and domestic IPOs with Offer Price > Expected Price. The regression results show that the univariate results do not hold across the entire sample but rather emanate principally from two subsets – domestic IPOs in high-tech industries and domestic IPOs that encounter strong demand on the road show. One explanation for these results is that, relative to the foreign U.S. IPOs, domestic U.S. IPOs are a significantly more heterogeneous group on a number of dimensions. By comparison, foreign U.S. IPOs exhibit less variation in their characteristics, which is consistent with our earlier contention that they are more established firms and a more homogeneous group.

Also of note, the common border dummy is negative and significant which suggests that of the factors we consider, geographic proximity appears to exert the greatest influence in increasing familiarity and reducing issue costs. Given that several non-ADR issues are Canadian and therefore share a common border with the U.S., we also replace the common border dummy with a non-ADR dummy, but this

dummy is not significant. Overall, the coefficient of the foreign dummy is not affected by the inclusion of additional variables for familiarity.<sup>22</sup>

In sum, the regression results suggest that the significant differences in underpricing reported in the univariate comparisons disappear when other factors are controlled. Overall our results suggest that while foreign IPOs are *ex-ante* less familiar to U.S. investors in terms of analyst coverage and riskier in terms of country risk, they also possess certain characteristics such as greater size and asset tangibility, geographic proximity, and more visible listing exchanges that offset their initial risks. Taken together, these attributes result in issue costs no higher on average than comparable domestic U.S. IPOs.

### **C. Robustness Tests**

#### **Consistency of Results Over Time**

To examine the consistency of the results over time, we break the sample in half and examine the characteristics of the foreign and domestic U.S. IPOs in the early (1991-1995, N=116) and latter (1996-1999, N=129) sample periods.<sup>23</sup> Relative to the early period, we observe a rise in the average underpricing of foreign IPOs from 8.5 percent to 13.3 percent in the latter period. An increase in underpricing is consistent with the results of Loughran and Ritter (2002) and Kadiyala and Subramanyam (2000). We estimate the regression specification in column (2) of Table VII separately for each period (not reported). The coefficient of the foreign dummy is not significant in either period suggesting that our results are not sensitive to the time period in which the IPOs occurred.

#### **Separate Regressions**

One drawback of the pooled cross sectional regressions in Table VII is that it forces the coefficients of the control variables to be the same for the foreign and U.S. IPOs. There are two

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<sup>22</sup> Although not reported, we find similar results when privatizations are included in the sample. Specifically, the foreign dummy is not significant, and the interaction term of upward revisions and the foreign dummy, and the common border dummy continue to be negative and significant.

<sup>23</sup> This is equivalent to testing for the differences in underpricing over time with a time trend.

approaches to deal with this issue – one is to estimate separate regressions of the domestic and foreign U.S. IPOs and the other is to include interaction terms in the regression for the variables that have both a domestic and foreign counterpart. If we estimate separate regressions of the domestic and foreign U.S. IPOs (not reported), we find that asset size is not significant for domestic IPOs, while for foreign IPOs larger asset size implies significantly less underpricing. In addition, we find that the high-tech dummy is positive and significant for domestic U.S. IPOs, but is not significant for the foreign U.S. IPOs. This is consistent with our earlier results that even within the high-tech group, foreign firms tend to have more tangible assets. We also find similar results if we estimate the regressions in Table VII using the pooled sample of all offers and include additional interaction terms to capture the differences between the groups. Specifically, we interact the foreign dummy with issue size, asset size, U.S. market performance, and the simultaneous offer dummy. The results are qualitatively similar to the results using separate regressions. Overall, these results reinforce some earlier findings—that is, greater size and greater asset tangibility work to offset uncertainty and reduce the level of underpricing of foreign IPOs.

### **Diversification**

Since the late 1980s, there has been a gradual relaxation of restrictions on U.S. investors' holdings of foreign assets. Consequently, it seems reasonable that diversification might have more influence on investors' demand for earlier issues from emerging market countries than later issues. This is consistent with Longin and Solnik (1995) which documents that cross-country correlations have increased over time. This suggests that the first issue from a foreign country would tend to confer greater diversification benefits and thereby affecting the price U.S. investors are willing to pay for the issue. When we include a dummy in the regressions for a first time issue from an emerging market country, it is not significant. Possibly this is due to the fact there are only 15 first time issues from emerging countries. We also examined diversification by including the correlations between the U.S. and a foreign market in the regression and find no qualitative change in our results.

## **Reputation**

Prior studies find that underpricing is also linked to underwriter reputation, although the direction of the effect is mixed. Hanley (1993) and Dunbar (2000) find that underpricing is negatively related to the underwriter's relative market share of IPOs, whereas Beatty and Welch (1996) find that for IPOs in the 1990s, underpricing is positively related to underwriter reputation. We measure underwriter reputation using market share estimated as the total volume of IPOs brought to market by a particular underwriter relative to the total volume of IPOs for the period 1991-1999 (see Megginson and Weiss, 1991). The average underwriter market share for domestic U.S. IPOs is 5.2 percent and 6.3 percent for foreign U.S. IPOs, an insignificant difference. Inclusion of the reputation variable in the regressions does not alter the findings for the foreign dummy.

## **Taxes**

Firms from the Caribbean (Bermuda, Bahamas, Cayman, British Virgin Islands, Netherlands Antilles) represent about six percent of our sample and could be considered domestic U.S. firms that are domiciled abroad for tax reasons. We repeat our analysis without these firms and find qualitatively similar results.

## **D. Analysis of Direct Issue Costs**

We also conduct regression analysis of the cross-sectional determinants of direct issue costs or gross spread (not reported). The regressions indicate that the univariate differences in average gross spreads between domestic U.S. IPOs and foreign U.S. IPOs disappear when other factors are controlled. Part of the explanation lies in the larger sizes of foreign U.S. IPOs and the economies of scale associated with direct issue costs. Like prior studies by Booth and Smith (1986) and Lee, et. al (1996) asset and issue size are significantly negatively correlated to gross spread which suggests that larger size is associated with lower underwriting risk. Altinkilic and Hansen (2000) suggest that beyond a certain size issue costs increase and offset economies of scale, but we do not find evidence of this in our sample. Simultaneous offers are also associated with lower direct costs, likely due to the spreading of risk across

multiple markets. Interestingly, emerging market firms which might be expected to be of higher risk, turn out to have significantly lower issue costs. One might reasonably believe this finding could arise from the overlap between emerging markets issuers and privatizations. Given government objectives to maximize proceeds, the average gross spread of privatizations is 4.4 percent well below the 6.4 percent for all foreign U.S. IPOs (Megginson, et. al, 1994). However, the coefficient on the foreign dummy is insignificant in regressions of gross spread estimated with and without privatizations. Consequently there is little evidence that direct costs vary significantly between foreign and U.S. IPO issues.

#### **IV. Conclusions**

We find that international firms making a first offer of equity in the U.S. experience equivalent issue costs on average compared to U.S. firms. These costs include both underwriting fees and the indirect costs of underpricing the issue. The equivalency of issue costs is robust to variations in firm and issue size, developed or emerging market status, the time period in which the IPO occurred, whether the issue came from a country sharing cultural affiliations with the U.S., and other issuer attributes. The findings indicate little risk premium accrues to cross-border investors of foreign U.S. IPOs, even though most of the issuers in our sample are domiciled in countries with higher country risk than the U.S.

International firms that raise capital in the U.S. through IPOs do so based on the relative costs of issuing in the home market versus the U.S. In equilibrium only those firms for which the cost is lower or at least comparable to their home market issue abroad. Potentially these firms are among the “best” firms in their respective countries and likely realize lower issue costs compared to the average IPO in their home country. This does not imply that foreign issuers likewise achieve lower capital raising costs in the U.S. market relative to domestic U.S. firms. On the one hand, the superior quality of foreign issuers could lead to lower capital costs – no matter the issue market. On the other hand, there could be substantial costs associated with being less well known and less familiar to investors in a new market compared to more familiar firms. The direction of this cost differential is an empirical issue that has been the focus of the paper.

We find that although foreign IPOs start out being *ex-ante* less familiar in terms of analyst coverage and riskier in terms of country risk, their higher quality on certain dimensions such as greater size and asset tangibility, geographic proximity, more visible listing exchanges, and issuance in multiple markets, results in issue costs no higher than comparable domestic U.S. IPOs.

Earlier we noted that in a frictionless world easy entry would result in a wide diversity of issuers on many dimensions such as size and risk. But in a world of capital market friction, only those firms able to overcome these frictions find their way to new markets. Our findings are consistent not with a hypothesis of frictionless entry, but one of selective entry. To a large extent the finding that “only the best come here” reveals an exclusivity underlying the opportunity to raise capital in the U.S. The narrowing of the pool results in a group of foreign U.S. IPO issuers that exhibit less diversity and more select attributes which effectively compensate for their risks. Viewed from another perspective, this very selectivity speaks indirectly to the high costs of capital raising and the barriers to entry.

**Table I**

**Sample of Foreign U.S. IPOs**

The sample of 371 firm commitment IPOs by foreign firms issuing in the U.S. (Foreign U.S. IPOs) is obtained from the *Securities Data Corporation New Issues* database. In panel B, country risk ratings are obtained from *Euromoney's* annual surveys. The rating shown is for the year of the first IPO from the country. The *Euromoney* country risk ratings for the U.S. range from 97.2 to 99.5 over the sample period.

*Panel A. Number of Initial Public Offers, Average Issue Size, and Total Issue Volume*

<b>Year</b>	<b>N</b>	<b>Average Issue Size (\$ M)</b>	<b>Total Volume (\$ M)</b>
1991	9	\$95.4	\$ 858.7
1992	26	89.1	2,317.8
1993	37	109.6	4,054.4
1994	40	119.2	4,766.3
1995	36	103.3	3,719.6
1996	72	106.2	7,646.6
1997	73	98.5	7,187.8
1998	36	201.2	7,243.2
1999	42	185.8	7,802.4
Total, 1991-1999	371	123.1	45,596.6

*Panel B. Distribution and Country Risk of IPOs by Country of Origin*

<b>Country of Origin (Country Risk Rating)</b>	<b>N</b>	<b>Month/Year of First Issue</b>	<b>Country of Origin (Country Risk Rating)</b>	<b>N</b>	<b>Month/Year of First Issue</b>
Argentina (50.5)	5	5/93	Israel (72.6)	65	8/91
Australia (91.4)	5	5/96	Italy (96.87)	6	5/93
Bahamas (57.5)	2	7/95	Japan (90.8)	1	7/99
Belgium (92.2)	3	11/95	Jordan (58.4)	1	1/97
Bermuda (57.1)	11	8/93	Luxembourg (96.9)	3	3/93
British Virgin Islands (54.0)	5	12/94	Mexico (59.4)	22	4/92
Brazil (37.2)	4	5/92	Netherlands (95.2)	21	12/91
Canada (97.1)	50	7/91	Netherlands Antilles (99.1)	3	4/92
Cayman Islands (99.1)	1	11/97	New Zealand (90.8)	4	7/91
Chile (69.6)	7	9/92	Panama (29.1)	1	8/92
China (71.5)	9	7/93	Papua New Guinea (47.4)	1	10/95
Cyprus (81.9)	2	6/98	Peru (47.6)	1	5/96
Denmark (94.7)	2	10/92	Portugal (79.9)	1	6/95
Finland (88.9)	1	6/95	Russia (42.6)	1	11/96
France (98.2)	20	6/91	Singapore (92.8)	7	8/92
Germany (95.7)	8	7/96	Spain (86.58)	1	11/99
Greece (79.61)	3	2/98	South Korea (84.3)	2	10/94
Hong Kong (85.6)	22	8/91	Sweden (88.8)	7	6/94
Hungary (54.5)	2	12/92	Switzerland (98.8)	4	9/96
India (51.8)	3	3/99	United Kingdom (96.9)	37	4/92
Indonesia (68.0)	5	7/94	Venezuela (45.3)	1	11/96
Ireland (96.9)	11	10/92			

**Table II****Characteristics of Foreign U.S. IPOs and Domestic U.S. IPOs**

Averages and [medians] of the variables are shown below. Issue size in U.S. market is the dollar amount of the IPO offered in the U.S. Simultaneous Offer indicates that the IPO is sold in the U.S. and one or more foreign markets. U.S. Connection signifies firms with connections to U.S. firms via licensing agreements, subsidiaries and ownership agreements and the like prior to the U.S. IPO. High tech firms are determined by the *SDC* high technology industry code. The t-statistic tests if the mean values of the variables (or of the percentages of the sample where relevant) are significantly different between the foreign and domestic U.S. IPOs. There are 245 foreign and 3,125 domestic U.S. issues except for the age of the firm (51 foreign and 783 domestic issues) and 231 foreign issues after privatizations are excluded.

<i>Firm and Issue Characteristics</i>				
<b>Variable</b>	<b>Foreign U.S. IPOs</b>	<b>Domestic U.S. IPOs</b>	<b>t-statistic</b>	
Pre-issue Assets (\$M)	\$1,165 [64]	\$125 [21]	10.27 <sup>a</sup>	
Pre-issue Assets (\$M) – Ex privatizations	\$817 [55]	\$125 [21]	8.67 <sup>a</sup>	
Issue Size (\$M) – U.S. market	\$100 [49]	\$51 [31]	6.21 <sup>a</sup>	
Firm Age in Years since Incorporation	8.9 [6.9]	8.2 [6.4]	0.71	
Offers Listing on NYSE (%)	33	11	10.08 <sup>a</sup>	
Simultaneous Offers (%)	63	12	22.68 <sup>a</sup>	
Portion of Offer Sold in U.S. (%)	76	97	-34.07 <sup>a</sup>	
Hi-tech Offers (%)	37	44	-2.34 <sup>a</sup>	
<b>N</b>	<b>245</b>	<b>3,125</b>		

Superscript indicates significance of differences of means (foreign IPOs vs. U.S. control sample) at the:  
<sup>a</sup> 0.01 levels; <sup>b</sup> 0.05 level; <sup>c</sup> 0.10 level.

**Table III****Characteristics Related to Familiarity**

Common Border countries are Canada and Mexico, Common Language countries are Canada, U.K., Ireland, Australia, and New Zealand. Common Culture countries are Canada, U.K., Ireland, Israel, Australia, and New Zealand. In Panel B, the data on analysts are obtained from *IBES*.

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*Panel A. Attributes of Investor Sophistication for Foreign U.S. IPOs*

Offers from Emerging Markets	43.0%	Offers with Common Language to U.S.	33.7%
Offers with Common Border to U.S.	17.7%	Offers with Cultural Ties to U.S.	51.5%
Offers with a U.S. Connection	19.0%		

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*Panel B. Analyst Coverage*

Variable	Foreign U.S. IPOs	Domestic U.S. IPOs	t-statistic
Number of Analysts - Average	2.5	2.7	-1.57
Number of Analysts - Median	2.0	2.0	
IPOs with Coverage in <2 months (%)	28	51	-7.28 <sup>a</sup>
IPOs with Coverage after <6 months (%)	65	77	-6.25 <sup>a</sup>
N	245	3,125	

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Superscript indicates significance of differences of means (foreign IPOs vs. Domestic U.S. control sample) at the: <sup>a</sup> 0.01 level; <sup>b</sup> 0.05 level; <sup>c</sup> 0.10 level.

**Table IV****Market Conditions Surrounding Foreign and Domestic U.S. IPOs**

Averages and [medians] of the variables are given below. For a period -60 to -2 days prior to the announcement of the offer: “USMKT (-60,-2)” is the percentage price change in the *CRSP* value weighted index; “HMKT (-60,-2)” is the percentage price change in the home market equity index; and “CURR (-60,-2)” is the percentage change in the exchange rate (unit of foreign currency per U.S. Dollar). Positive values imply that the currency has depreciated vis-à-vis the dollar and vice versa. The t-statistic tests if the mean values of the variables (or of the percentages of the sample where relevant) are significantly different between the foreign and domestic IPOs.

<b>Variable</b>	<b>Foreign U.S. IPOs</b>	<b>U.S. Domestic IPOs</b>	<b>t-statistic</b>
<b>USMKT(-60,-2)</b>	4.51% [4.10%]	4.47% [4.36%]	0.10
<b>HMKT(-60,-2)</b>	6.52% [5.89%]	NMF	NMF
<b>CURR(-60,-2)</b>	-0.4% [-0.1%]	NMF	NMF
<b>N</b>	245	3,125	

Note: Superscript indicates significance of differences of means (foreign IPOs vs. U.S. control sample) at the:  
<sup>a</sup> 0.01 level.

NMF – not meaningful

**Table V****Indirect and Direct Costs of Foreign U.S. IPOs and Domestic U.S. IPOs**

Averages and [medians] of the variables are given below. Indirect issue costs are measured by the Initial Returns (IR) to investors. Direct costs are measured by gross spreads. “Day 1 IR” is the initial return to investors calculated as the closing price on the first day of trading divided by the offer price minus one. “Day 30 IR” is the close price 30 days after the offer divided by the offer price minus one. “Gross spread” is the sum of the management fee, the underwriting fee and the selling concession as a proportion of the offer proceeds. The t-statistic tests difference in means between the foreign and domestic groups. Non-parametric tests (Wilcoxon signed-ranks tests) yield similar results.

<b>Variable</b>	<b>Foreign U.S. IPOs</b>	<b>Asset Size Matched Domestic U.S. IPOs</b>	<b>All Domestic U.S. IPOs</b>
<b>Day 1 IR (%)</b>	11.03	19.98	21.13
	[3.47]	[9.05]	[9.09]
t-statistic		-3.40 <sup>a</sup>	-3.76 <sup>a</sup>
<b>Day 30 IR (%)</b>	13.40	25.92	27.22
	[2.94]	[17.50]	[12.96]
t-statistic		-3.24 <sup>a</sup>	-3.67 <sup>a</sup>
<b>Gross Spread (%)</b>	6.36	6.61	7.13
	[7.00]	[7.00]	[7.00]
t-statistic		-1.67 <sup>c</sup>	-1.68 <sup>c</sup>
<b>N</b>	245	245	3,125

Superscript indicates significance of differences of means (Foreign IPOs vs. U.S. control samples) at the: <sup>a</sup> 0.01 levels; <sup>b</sup> 0.05 level; <sup>c</sup> 0.10 level.

**Table VI****Effects of Issue Volume and Revisions in the File Price Range on First Day Initial Returns**

Number and percent of IPOs issued and the First Day Initial Returns of issues made in above and below median IPO issue volume months. Median issue volume month cut-off is determined from the ratio of monthly IPO volume divided by the total IPO volume over the sample period. T-statistic tests the difference in the means of Day 1 Initial Returns between above and below median volume offers. In Panel B, averages and [medians] of Day 1 Initial Returns are given. Upward (downward) revisions are those IPOs where the offer price is above (equal to or below) the midpoint of the preliminary file range.

*Panel A. IPO Issue Volume*

<b>Variable</b>	<b>Foreign U.S. IPOs</b>	<b>Asset Size Matched Domestic U.S. IPOs</b>	<b>All Domestic U.S. IPOs</b>
<b>Above Median Volume</b>			
N	184	199	2,430
IPOs Issued (%)	75	81	78
<b>Below Median Volume</b>			
N	61	46	695
IPOs Issued (%)	25	19	22
<b>Day 1 Initial Returns</b>			
Above Median Months (%)	10.90	21.46	23.08
Below Median Months (%)	11.42	13.58	14.31
t-statistic: Above vs. Below	-0.17	1.35	4.91 <sup>a</sup>

*Panel B. Revisions of the File Price Range*

<b>Variable</b>	<b>Foreign U.S. IPOs</b>	<b>Asset Size Matched Domestic U.S. IPOs</b>	<b>All Domestic U.S. IPOs</b>
<b>Upward Revisions</b>			
Day 1 Initial Returns (%)	18.40 [13.48]	38.18 [24.62]	37.16 [21.91]
N upward revised offers	108	102	1,339
Percent of sample	44	42	43
t-statistic (foreign v. domestic)		-3.89 <sup>a</sup>	-3.63 <sup>a</sup>
<b>Downward Revisions</b>			
Day 1 Initial Returns (%)	5.21 [0.65]	7.00 [2.08]	9.12 [3.16]
N downward revised offers	137	143	1,786
Percent of sample	56	58	57
t-statistic (foreign v. domestic)		-0.97	-1.94 <sup>b</sup>
N	245	245	3,125

Superscript indicates significant differences in means (Foreign IPOs vs. Domestic U.S. control samples) at the:

<sup>a</sup> 0.01 level; <sup>b</sup> 0.05 level; <sup>c</sup> 0.10 level.

## Table VII

### Pooled Cross Sectional Regressions of First Day Initial Returns

The dependent variable is the first day initial return. “Foreign dummy” equals one for foreign IPOs and is zero for Domestic U.S. IPOs. “Asset size” is the logarithm of the firm's assets measured in \$U.S. millions. “Issue size” is the logarithm of gross proceeds in all markets in \$U.S. millions. “U.S. market run-up” is the cumulative return of the CRSP value-weighted index from day -60 to day -2 prior to the offer. Zero-one dichotomous variables are assigned as follows: “Simultaneous Offer”=1 if the offer is sold in the U.S. and one or more foreign markets; “Emerging Market”=1 if the firm is from a country with *Euromoney* country risk rating < 86; “U.S. Connections”=1 if the firm has formal connection with U.S. entity; “Hi-tech”=1 if *SDC* codes the issuer as high tech; “Offer Price > Expected Price”=1 if the offer price exceeds the mid-point of the file price range; “High Volume”=1 if the issue is offered in a month where the ratio of monthly to total volume exceeds the median monthly to total volume ratio; “Common Border”=1 if the issuer is from a country with a common border to the U.S.; “Common Language”=1 if the issuer is from a country where English is an official language of business communication, and is zero otherwise. Interactive terms are constructed respectively as the “Foreign Dummy” times “Offer Price > Expected Price;” “Hi-tech;” and “High Volume.” The second term in parentheses below the interaction terms is the heteroscedastic consistent t statistics associated with a test of the sum of the coefficients of the respective variable and its interaction term. Heteroscedasticity consistent T-statistics are in parentheses. The sample size is 231 due to the exclusion of privatizations.

**Table VII (continued)**

**Pooled Cross Sectional Regressions of First Day Initial Returns**

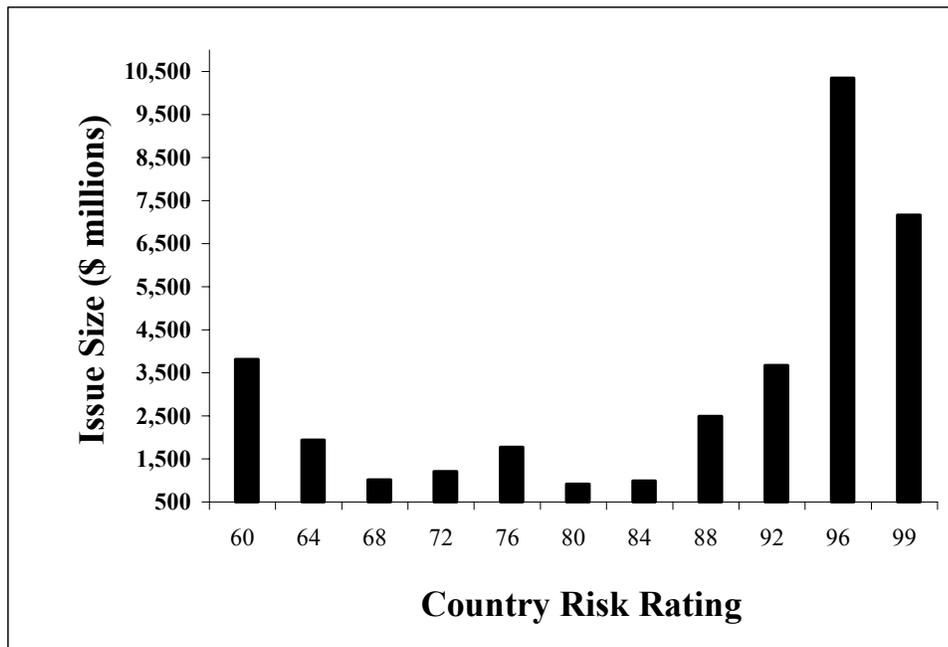
Variable	1	2
	Asset Matched Sample	Full Sample
Constant	19.94 (0.74)	-26.24 (-1.65) <sup>c</sup>
Foreign Dummy	-2.21 (-0.42)	-0.56 (-0.12)
Asset Size	-0.96 (-0.95)	-0.24 (-0.56)
Issue Size	-0.10 (-0.05)	2.33 (2.44) <sup>b</sup>
U.S. Market Run-up	-0.01 (-0.09)	-0.03 (-0.17)
Simultaneous Offer	-4.99 (-1.65)	-9.82 (-4.47) <sup>a</sup>
Hi-tech Dummy	13.10 (3.17) <sup>a</sup>	12.34 (8.36) <sup>a</sup>
Hi-tech Dummy x Foreign Dummy	-13.70 (-2.79) <sup>a</sup> (4.19) <sup>a</sup>	-10.34 (-3.16) <sup>a</sup> (4.0) <sup>a</sup>
Offer Price > Expected Price Dummy	13.98 (7.31) <sup>a</sup>	24.97 (18.06) <sup>a</sup>
Offer Price > Expected Price Dummy x Foreign Dummy	-16.98 (-3.44) <sup>a</sup> (11.67) <sup>a</sup>	-10.99 (-3.16) <sup>a</sup> (9.00) <sup>a</sup>
High Volume Dummy	-1.41 (-0.37)	4.89 (3.84) <sup>a</sup>
High Volume Dummy x Foreign Dummy	1.71 (0.38) (-0.49)	-4.75 (-1.52) (1.68) <sup>a</sup>
Emerging Market Dummy	-4.82 (-1.96) <sup>b</sup>	-2.98 (-1.18)
U.S. Connections Dummy	-3.30 (-1.10)	-4.33 (-1.41)
Common Border Dummy	-6.72 (-2.33) <sup>b</sup>	-6.34 (-2.20) <sup>b</sup>
N	462(231/231)	3,356 (231/3125)
Adjusted R <sup>2</sup>	0.22	0.14
F (testing the null that all coefficients are jointly zero)	20.31 <sup>a</sup>	104.02 <sup>a</sup>
F (testing the null that all coefficients are zero but the sum of the coefficients of the foreign dummy variable are all jointly zero)	17.97 <sup>a</sup>	103.24 <sup>a</sup>

Superscript indicates significance of differences of means (Foreign IPOs vs. Domestic U.S. control sample) at the:  
<sup>a</sup> 0.01 level; <sup>b</sup> 0.05 level; <sup>c</sup> 0.10 level.

**Figure 1**

**Total Issue Volume by *Euromoney* Country Risk Ratings over 1991-1999**

The *Euromoney* country risk measure corresponds to the year of the first issue arising from that country. The country risk ratings are shown in Table I. Developed (emerging) market countries have *Euromoney* country risk ratings greater than 86 (less than 86). Countries are combined into country risk categories, less than 60, 61-64, 65-68, etc.



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