

The Overseas Listing Decision: New Evidence of Proximity Preference

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Using a cross section of effectively the entire universe of overseas listings across world markets, we examine the market preferences of firms listing their stock abroad. We find that geographic, economic, cultural, and industrial proximity play the dominant role in the choice of overseas listing venue. Contrary to the notion that firms maximize international portfolio diversification gains in listing abroad, cross-listing activity is more common across markets for which diversification gains are relatively low. Our findings imply that the same proximity constraints that are believed to lead to “home bias” in investment portfolio decisions also exert a profound influence on financing decisions.

In a frictionless world economy, the demand and supply of capital is indifferent to trading venue. Investors maximize international portfolio diversification without regard for the origin of securities held or the location of trade execution. There is substantial empirical evidence that rejects this model of fully integrated world capital markets. French and Poterba (1991) and Tesar and Werner (1995) find that investor holdings are systematically biased toward domestic assets. One explanation for the investor “home bias” is that it is due to the costs of crossing international borders [Stulz (1981), Adler and Dumas (1983), Zhou and Schill (2000)]. An alternative explanation is that market proximity captures the influence of asymmetric information and psychological factors on investor portfolio choice [Gehrig (1993), Brennan and Cao (1997), Kang and Stulz (1997)]. Coval and Moskowitz (1999, 2001), Huberman (2001), Portes and Rey (2000), and Grinblatt and Keloharju (2001) all find that the cultural proximity of the market and assets as well as the geographic proximity

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has an important influence on investor stockholdings and trading.¹ Kang and Stulz (1997) and Dahlquist and Robertsson (2001) observe that proximity preference is less acute among larger, better-known manufacturing firms, consistent with investors being reluctant to hold securities of firms with which they are not familiar. The prevailing conclusion from this literature is that familiarity concerns result in investors neglecting fundamental principles of portfolio diversification by favoring proximate assets and markets.²

This article examines the importance of agent proximity preference in financing decisions rather than investing decisions. If proximity is important to investing agents, we postulate that it also affects financing agents. Our approach parallels that of the investor home bias literature: we ask whether firms choosing to list abroad sacrifice traditional cost of capital gains in order to secure listings in more proximate or familiar markets.³ In an integrated, frictionless world capital market, a firm should have no preference for the markets on which it lists its shares since this choice has no effect on its pool of investors. However, if markets are not fully integrated, a firm may be able to overcome familiarity concerns and portfolio bias of foreign investors by listing in the foreign market [Merton (1987), Ahearne, Grier, and Warnock (2004), Baker, Nofsinger, and Weaver (2002), Lang, Lins, and Miller (2003)]. In this case, one should expect firms to prefer listing in markets that provide the greatest diversification or familiarity gains. Alternatively, a firm's overseas listing may have little effect on investor familiarity if it is constrained by the existing pool of familiar investors [Kang and Stulz (1997)]. In that case, the choice of overseas listing venues will reflect the same bias as that of investor holdings, in particular, a bias toward more proximate or familiar markets. In a sense, since firm managers are aware that foreign investors are less willing to invest in equities of lesser-known companies, firms will find it inefficient to list their stocks in the markets where their presence is not supported by sufficient information.⁴ Hence we empirically examine the

¹ Some economics articles also support the importance of proximity effects on trade. Rauch (1999) shows that geographic and cultural proximity is important in matching international buyers and sellers for not only products that are not traded on organized exchanges, but also, to a lesser extent, for those that are traded. Brainard (1997) finds that firms are more likely to undertake a multinational activity in those foreign markets that are similar to the home market.

² The term "familiarity" is not precisely defined in the literature. Rather, it is used to motivate a number of unique hypotheses, including (i) superior information about future performance [Coval and Moskowitz (2001)], (ii) superior information about risk characteristics [Merton (1987), and (iii) a reduction in investor risk aversion [Heath and Tversky (1991)]. In this article we do not distinguish across these hypotheses, but use the notion of "familiarity" in a broad sense. With our taxonomy, for example, Coval and Moskowitz (1999) document general familiarity bias while Coval and Moskowitz (2001) provide evidence specifically in support of asymmetric information.

³ See Karolyi (1998) and Stulz (1999) for a review of the overseas listings literature.

⁴ Evidence on the importance of listing a firm's stock in those foreign markets that are familiar with the firm can be found in the popular press. For example, a journalist in *Euromoney* writes, "Over the past few years, we have seen a lot of hype about American depositary receipts (ADRs), but a lot of programs were

firm's trading venue decision, focusing on their ability to enter nonproximate markets.⁵

Our contribution is in the analysis of the cross-listing market destination rather than the decision to cross list or not. We study the distribution of overseas listings using an extensive, hand-collected dataset of nearly the universe of foreign listings in 1998. We find strong evidence that cross-listing activity clusters regionally. The frequency distribution of overseas listings is 38% closer than predicted by a value-weighted distribution. Consistent with Kang and Stulz (1997) and Coval and Moskowitz (1999), the overseas listing bias is particularly acute for small firms producing nontradable output. Controlling for other received explanations of listing behavior, we find that geographic proximity and other variables that reflect the closeness between countries, such as economic, cultural, and industrial proximity, play the dominant role in the choice of overseas host markets for firms from non-G5 countries. There is no evidence of proximity preference among firms from G5 countries.

Although proximity appears to be the dominant concern for trading venue selection, other considerations are also important. We find that firms tend to target overseas listings in equity markets, which are larger, more highly capitalized, and have more a liberal tax environment. We find little support for the hypothesis that overseas listing firms are primarily motivated by diversification gains. Rather than maximizing the diversification gain by listing in markets with little economic correlation with one's home market, cross-listing activity is more common across markets for which return correlation and beta risk are relatively high.

Our results suggest that overseas listings do not overcome, but rather reflect investor home bias, in contrast to the prevailing wisdom that they mitigate the frictions to cross-border investing by bringing foreign equity to the investor's home market [Ahearne, Grier, and Warnock (2004)]. We show that the home bias phenomenon is not just a cross-border transaction cost problem, but is also related to familiarity. We cannot discriminate between the underlying causes of our results. Although our geographic, economic, cultural, and industrial proximity variables may be related to foreign investor information disadvantage, they may alternatively stand in for the psychological tolerance for these stocks by foreign investors. We find that firms producing "tradable" output experience less bias, but again this can be attributed to either the superior information or

set up by companies that don't have either a U.S. presence or a real U.S. penetration strategy... As a result of that, U.S. investors don't know them and these programs remain very illiquid" (*Euromoney* 1999; 366: 80–82). Foerster and Karolyi (1998) provide more formal evidence of the liquidity effect for Canada–U.S. cross-border listings.

⁵ There is some existing evidence that financing proximity is important to managers. Peterson and Rajan (2002) find that geographic proximity has historically been important in small-business lending arrangements. Arnold et al. (1999) observe that U.S. firms in the early 20th century tended to locate on exchanges near company headquarters.

to the greater psychological tolerance generated by exposure to traded products.

The article is organized as follows. Section 1 reviews the home bias literature in international portfolio holdings and formulates two competing hypotheses about the role of overseas listings with respect to investors' preference for familiar assets. It also reviews standard motives for the overseas listing choice. Section 2 describes the overseas listing data and presents univariate tests for proximity bias in cross-listing decisions. Section 3 provides the aggregate market data and the main empirical tests of the distribution of overseas share listings both at the country and firm levels. Section 4 studies the relation between the proximity preferences of firms from emerging markets and liberalization. Section 5 concludes.

1. Home Bias and the Role of Overseas Listings

A growing literature suggests that investor proximity to foreign equity plays an important role in the home bias phenomenon. If managers recognize that familiarity barriers undermine their firm's access to foreign capital, we conjecture that the same barriers also play a role in the firm's financing decisions. One option available to the manager in response to investor home bias is the overseas listing.⁶

We begin with a review of the impact of various measures of proximity on investor holding decisions. We then formulate two competing hypotheses for overseas listing market selection, postulating that foreign listings may *either* mitigate proximity biases *or* simply reflect them. We close this section with a review of standard market choice considerations from the literature for overseas listing decisions. Our consequent tests investigate the impact of proximity on foreign market selection while controlling for the standard explanations for issuing foreign equity.

1.1 Proximity and portfolio holding decisions

The home bias literature has documented a number of relations between portfolio holding decisions and different measures of proximity or familiarity, including geographic, economic, cultural, and industrial proximity. We review these relations in turn.

1.1.1 Geographic proximity. Coval and Moskowitz (1999) and Grinblatt and Keloharju (2001) find that geographic proximity is positively correlated with investor holdings of firm equity. Although these tests focus primarily on domestic holdings of U.S. and Finnish firms, Coval and Moskowitz also provide some evidence that U.S. investor equity holdings

⁶ In this article we use terms "overseas listing" or "foreign listing" to refer to both direct placement and depository receipt listings.

for five large foreign markets decrease with geographic distance from New York. We informally reexamine their small sample evidence by testing the correlation between U.S. investor home bias and geographic proximity for a larger cross section of countries.

We use the U.S. investor holdings bias estimates computed by Ahearne, Grier, and Warnock (2004) from the December 1997 *U.S. Holdings of Foreign Long-term Securities* survey of the U.S. Department of Treasury for 43 countries.⁷ The estimates assume that the unbiased U.S. investors' portfolio weights mirror the market value weights of the world equity portfolio. The actual U.S. investors' weightings for each foreign market is compared to the benchmark market value weighting in the world market portfolio to compute the bias. We then regress the holdings bias on *DISTANCE*, the great circle distance in megameters (1,000 kilometers) between the respective capital cities.⁸ Over the 43 countries, the ordinary least squares (OLS) estimates for this regression are

$$BIAS_j = 0.6738 + 0.0113DISTANCE_j + e_j, \quad (1)$$

(15.78) (2.47)

where the *t*-statistics are in parentheses. The positive and statistically significant slope coefficient of 0.0113 suggests that the bias in U.S. investors' holdings increases by more than 1% for every 1,000 kilometers of increased distance. The above evidence is consistent with the domestic market findings of Coval and Moskowitz (1999), Grinblatt and Keloharju (2001), and Huberman (2001).

1.1.2 Economic proximity. Kang and Stulz (1997) and Dahlquist and Robertsson (2001) observe that foreign investors tend to hold larger positions in firms that produce tradable output. They suggest that trade also provides opportunities for increased information flow. For example, U.S. investors are likely to invest in Japanese firms with large tradable output, such as Sony, than those with little tradable output, such as Japan Telecom, because they are familiar with consuming their products.

1.1.3 Cultural proximity. Grinblatt and Keloharju (2001) argue that investors are more likely to trade stocks of firms that share the investor's

⁷ The investor holdings data used is available at <http://www.treas.gov/fpisl/>. The 43 sample countries are the same as those listed in Table 1, not including the United States.

⁸ The great circle is a well-known distance measure. It is the shortest path on the surface of a sphere between two points on that sphere. The shortest path between the two points is given by the length of an arc of a circle concentric with the sphere and with the same radius as the sphere. Therefore the arc length is the product of the radius and the angle subtended at the center of the circle. This angle can be found based on the latitudes and longitudes of the two points under the assumption that the Earth is a sphere with radius of 6,371.2 km. Coval and Moskowitz (1999) also use the great circle distance arithmetic in their calculation of the distance between each investor and firm location. Since their study was restricted to the continental United States, adjustments for the great circle distance were less critical in their article.

same language and cultural background. Information flow is expected to be greater between countries with the same language or historical (e.g., colonial) ties.

1.1.4 Industrial proximity. The similarity in industrial base of the home and target host countries may improve investor-firm familiarity concerns across particular markets. For example, investors from resource-based economies may be relatively more willing to invest in foreign resource-oriented firms. Brainard (1997) finds that a large share of multinational investment occurs between industrialized countries as both the source and destination markets.

1.2 The two hypotheses

We propose two possible managerial responses to investor familiarity barriers that contribute to the home bias problem. The first response is the use of the overseas listing as a vehicle for taking securities to nonproximate markets in order to overcome existing familiarity barriers. Merton (1987) proposes that the scale of a firm's investor base affects its cost of capital, since greater firm-specific risk must necessarily be priced in equilibrium. Baker, Nofsinger, and Weaver (2002), Lang, Lins, and Miller (2003), and Ahearne, Grier, and Warnock (2004) find that foreign firm listings in the United States are associated with greater foreign market media and analyst exposure. If overseas listings overcome familiarity barriers, firms can use this vehicle to expand their shareholder base and reduce their cost of capital. This line of reasoning motivates the following hypothesis:

Hypothesis 1—the home bias solution hypothesis. Overseas listings overcome investor proximity preference. Firms list in markets with large diversification gains and high familiarity barriers.

This hypothesis implies that a larger share of cross-listing activity should be observed between distant countries, countries with no economic relations, countries with no cultural links, countries with dissimilar industrial bases, and countries that provide greater diversification gains.

The second response is to recognize that listing success is bounded by existing familiarity barriers. Kang and Stulz (1997) find that Japanese firms that list in the United States experience no change in foreign ownership. They conclude that the overseas listing event has no effect on the investor base, but merely provides a vehicle for reducing trading costs for the firm's existing foreign investor base. In this case, the overseas listing market choice reflects the same bias that we observe in investor holdings—a bias toward more proximate or familiar markets. In a sense, since firm managers are aware that foreign investors are less willing to invest in

equities of lesser-known companies, firms will find it inefficient to list their stocks in the markets where their presence is not supported by sufficient information. In other words, for a firm's foreign listing to be a worthwhile undertaking, overseas investors need to have a substantial level of familiarity with the firm, regardless of whether they are already directly invested in the firm or not. We can now formulate our competing hypothesis:

Hypothesis 2—the home bias reflection hypothesis. *Overseas listings are constrained by investor proximity preference. Firms list in markets with small diversification gains and low familiarity barriers.*

This hypothesis implies that a larger share of cross-listing activity should be observed between nearby countries, countries with extensive economic relations, countries with cultural links, countries with similar industrial bases, and countries that provide limited diversification gains.

Thus, in this article, we test whether firms use the overseas listing to overcome familiarity barriers by listing in those markets where the familiarity gains are highest or whether they follow the existing pool of familiar foreign investors and cross list in those markets where the familiarity barriers are already lowest. Our tests therefore explore the relation between market choice and familiarity characteristics.⁹

1.3 Conventional considerations for overseas listings

There are a number of motives that are considered important for overseas listings. Such motives include providing diversification gains for foreign investors, increasing security liquidity, improving information disclosure, accessing tax advantages, and improving investor protection.

1.3.1 Diversification. Based on the international asset pricing models of Black (1974), Solnik (1974), Stulz (1981), and Errunza and Losq (1985), a large number of articles argue that since capital markets are not perfectly integrated, firms can benefit from lower capital costs by listing shares abroad. In a sense, firms gain from the premium that investors are willing to pay for restricted foreign securities. Most of the empirical research in this area focuses on the changes in firms' betas and expected returns following listing on a foreign stock exchange.¹⁰ With cross-border trading friction, overseas investors are most interested in capital from markets

⁹ The strength of a firm's preference for familiar markets may depend on various firm-level characteristics; in particular, firm size and tradability [see Kang and Stulz (1997)]. We explore these relations as well.

¹⁰ Related studies include Jorion and Schwartz (1986), Alexander, Eun, and Janakiraman (1988), Howe and Madura (1990), Foerster and Karolyi (1993, 1999), Jayaraman, Shastri, and Tandon (1993), Miller (1999), Errunza and Miller (2000), and Sarkissian and Schill (2004). Errunza, Hogan, and Hung (1999) show that U.S. investors can effectively reduce the risk of their portfolios by investing in ADRs rather than directly in foreign countries.

that will minimize their portfolio risk. Consequently firms may capture the premium that foreign investors are willing to pay for equity from markets with little correlation to their home market.¹¹ Since familiar markets tend to be associated with limited diversification gains, in effect this motive supports the home bias solution hypothesis. If familiarity barriers have little effect on market choice for overseas listings, firms should prefer foreign markets that can produce the most significant decrease in their market risk exposure. Other things being equal, firms realize the greatest cost of capital gain by selecting those markets whose returns are least correlated with the domestic market.

1.3.2 Liquidity. Overseas listings may seek liquidity gains through listing abroad. Chowdhry and Nanda (1991) show that liquidity plays an important role in the ability of markets to attract trading volume. Other work finds that foreign firms that list in the United States achieve significantly lower bid-ask spreads [e.g., Tinic and West (1974), Werner and Kleidon (1996), Domowitz, Glen, and Madhavan (1998), Foerster and Karolyi (1998)] or increases in domestic quotes [Noronha, Sarin, and Saudagaran (1996)] and volatility [Barclay, Litzenberger, and Warner (1990), Chan et al. (1996)]. This literature suggests that those foreign markets that provide the greatest improvements in liquidity will be the most attractive to managers.

1.3.3 Disclosure costs. Firms consider disclosure costs when listing abroad. Commonly a cross listing is accompanied by a need to conform to different financial disclosure standards. Biddle and Suadagaran (1992) argue that the more difficult the listing requirements are in a given country, the more costly is the access of foreign firms to that market. However, Fuerst (1998) and Huddart, Hughes, and Brunnermeier (1999) argue that managers prefer to list in countries where the accounting standards are more stringent than those in their home country to better reduce information asymmetry costs. The opposing views motivate tests of the importance of disclosure standards for companies in the overseas listing decision.

1.3.4 Tax advantages. Some countries seek to attract foreign firms to their market by offering attractive low-tax trading environments for both companies and investors. In addition to tax concessions for foreign companies, tax haven countries generally maintain very limited restrictions on asset ownership, capital investment, profit repatriation, and listing requirements. Hines and Rice (1994) report that American firms usually have extraordinarily high profit rates on their tax-haven operations and

¹¹ We provide a more formal theoretical development of this prediction in the appendix.

investments. This implies that firms from markets with heavy corporate and personal tax burdens should be particularly attracted to issuing their equity in tax-haven countries.

1.3.5 Investor protection. Firms may seek to list abroad in order to reduce investor expropriation risk. La Porta et al. (1997, 1998) find that financing activity is significantly reduced in countries with poor investor protection systems. Lins, Strickland, and Zenner (2004) and Reese and Weisbach (2002) show that weaker shareholder protection in the domestic market may be one reason why some non-U.S. firms cross list in the United States. Doidge (2004), Doidge, Karolyi, and Stulz (2004), and Kumar and Ramchand (2003) further argue that cross listings can indicate lower agency costs for the controlling shareholder. These studies indicate that firms from countries with less-developed financial and legal systems will find it more beneficial to be listed in countries with higher investor protection.

2. Data and Preliminary Results

2.1 Data

To study the distribution of overseas listings, we construct a comprehensive database of foreign listings as of 1998 by surveying 44 major world stock exchanges.¹² In constructing our sample, we omit countries with unreliable or limited financial data. We also exclude markets that provide no role other than that of corporate tax havens, such as the Cayman Islands, Bermuda, Jersey, or the Netherlands Antilles. For each set of foreign listings, we eliminate all inactive listings and those of investment funds or trusts. The resulting dataset provides a comprehensive pairing of 2,251 listings from 44 home countries on 25 host markets.¹³

Table 1 provides the aggregate foreign listing frequency data. The United Kingdom and United States are clearly the most active host markets, with 406 and 659, respectively. For comparison purposes, we report the aggregate frequency figures provided by the International Federation of Stock Exchanges (FIBV). Since the FIBV provides only aggregate foreign-listed stock totals rather than individual firm-level listing identification, we are able to use their data only as a check on the comprehensiveness of our sample. We find that in total the FIBV lists 27% more listings than are included in our sample. Cross analysis suggests that

¹² For about 70% of our firms, the world stock exchanges also provided us with the information on listing dates. If the listing dates were missing, we obtained them through searches on Lexis/Nexis and the Dow Jones News Retrieval databases, Datastream, and, in some cases, queries to the individual firms.

¹³ To our knowledge, our study provides the most comprehensive snapshot of overseas listings. Pagano et al. (2002) examine trends in European foreign listings from 1986 to 1997.

Table 1
Aggregate overseas listing frequency

Panel A: Frequency distribution of overseas listings by country

Country	Foreign firms hosted		Total domestic listings		
	Sample	FIBV	At home	Abroad	F/D
Argentina-Buenos Aires	0	0	131	19	0.00
Australia	40	60	1,162	96	0.03
Austria-Vienna	25	32	96	12	0.26
Belgium-Brussels	106	122	146	27	0.73
Brazil-Sao Paulo	1	1	534	27	0.00
Canada-Toronto	37	49	1,384	266	0.03
Chile-Santiago	0	0	287	22	0.00
Columbia-Bogota	0	0	118	4	0.00
Czech Republic-Prague	0	0	92	5	0.00
Denmark-Copenhagen	8	12	242	9	0.03
Finland-Helsinki	0	2	129	12	0.00
France-Paris	148	183	914	69	0.16
Germany-Frankfurt	179	208	741	118	0.24
Greece-Athens	0	0	229	9	0.00
Hong Kong	1	15	665	19	0.00
Hungary-Budapest	0	1	53	11	0.00
India (NSE)	0	0	1,282	65	0.00
Indonesia-Jakarta	0	0	287	7	0.00
Ireland	13	21	79	72	0.16
Israel-Tel-Aviv	0	1	661	65	0.00
Italy	4	4	239	27	0.02
Japan-Tokyo	60	52	1,838	206	0.03
Korea	0	0	748	29	0.00
Luxembourg	150	223	53	22	2.83
Malaysia-Kuala Lumpur	3	3	728	7	0.00
Mexico	0	4	191	30	0.00
Netherlands-Amsterdam	140	144	212	105	0.66
New Zealand	45	61	122	22	0.37
Norway-Oslo	10	22	213	19	0.05
Peru-Lima	2	3	246	3	0.01
Philippines	0	0	221	7	0.00
Poland-Warsaw	0	0	198	8	0.00
Portugal-Lisbon	0	0	135	7	0.00
Singapore	34	37	312	5	0.11
South Africa-Johannesburg	2	26	642	88	0.00
Spain-Madrid/Barcelona/Bilbao	4	5	479	24	0.01
Sweden-Stockholm	17	18	258	47	0.07
Switzerland	157	193	232	28	0.68
Taiwan	0	0	437	27	0.00
Thailand	0	0	418	3	0.00
Turkey-Istanbul	0	1	277	7	0.00
UK-London	406	466	1,957	176	0.21
USA-NYSE/Nasdaq	659	893	7,555	436	0.09
Venezuela-Caracas	0	1	162	4	0.00

Panel B: Frequency distribution of overseas listing date by calendar decade

	Home market				Host market		
	Total	Americas	Australasia	EAME	Americas	Australasia	EAME
No date	162	57	19	86	34	6	122
1900s	12	4	0	8	0	0	12
1910s	6	4	0	2	0	0	6
1920s	16	8	0	8	2	0	14
1930s	25	15	0	10	0	0	24

Table 1
(continued)

	Total	Home market			Host market		
		Americas	Australasia	EAME	Americas	Australasia	EAME
1940s	18	6	0	12	1	0	18
1950s	103	59	3	41	6	0	97
1960s	94	46	10	38	5	0	89
1970s	205	74	54	77	26	8	171
1980s	464	162	111	191	101	69	294
1990s	1,146	356	296	494	524	98	524

This table provides the frequency distribution of overseas listing as of 1998 obtained from individual stock exchanges and the International Federation of Stock Exchanges (FIBV). The data are collected for the main exchange listed next to the country name. The listing information is from the world stock exchanges, Lexis/Nexis, the Dow Jones News Retrieval databases, Datastream, as well as the queries to individual companies. Panel A provides the frequency distribution of overseas listings by country. Panel B provides the frequency distribution of overseas listings by listing decade. The parameter F/D is the ratio of our estimate of the number of firms hosted from abroad to the number of domestic firms listed at home. EAME = Europe-Africa-Middle East.

the bulk of the missing listings match with the number of excluded investment funds or trusts or nontraded listings.¹⁴ The analysis confirms that our sample closely approximates the global overseas listing universe. For each country, the table also reports the total number of domestic listings traded at home and abroad. Those countries that have the largest numbers of companies listed at home also have the largest numbers of companies that are cross listed on foreign exchanges. To better measure the relative attractiveness of some of the smaller markets, we divide the number of hosted foreign companies by the total number of domestic companies in the market. Luxembourg, having a ratio of 2.8, is by far the most relatively attractive market in our sample. For every domestic firm listed in Luxembourg, there are more than three foreign firms listed. Other relatively attractive markets include Belgium, the Netherlands, and Switzerland, with a ratio of foreign to domestic listings between 0.6 and 0.8.

Panel B of Table 1 shows the distribution of overseas listings by calendar decade. We observe that more than half of all listings (1,146, or 51%) were placed on foreign exchanges during the 1990s. Seventy-seven listings have been traded in overseas markets since the first half of the

¹⁴ The FIBV claims that their counting of the total number of foreign companies traded at each stock exchange does not include investment funds. However, we have checked this claim with the representatives of many stock exchanges and arrived at the opposite conclusion. For example, of the 15 foreign listings for Hong Kong reported by the FIBV, 14 are investment funds. FIBV listings for New Zealand are similar. The FIBV overseas listings for Mexico are all nontraded Argentine companies, and so are excluded from our sample. There is a consistent pattern of discrepancies between our numbers and those of the FIBV: in general, our numbers are smaller than those provided by the FIBV due to the aforementioned reasons.

20th century.¹⁵ Panel B provides the time-series listing frequency by region: the Americas, Australasia, and the Europe-Africa-Middle East (EAME) region. We observe that Europe (as part of the EAME region) was by far the most important host market for overseas listings up until the 1990s. In the 1990s the Americas and EAME have hosted an equal number of foreign listings. In contrast, cross-listing activity is a relatively new phenomenon for Australasia. The first current overseas listing originating from this region appeared only in the 1950s. The region did not host a foreign listing until even later, only in the 1970s.

Table 2 provides the country-to-country frequency distribution of overseas listings. Since 19 of the surveyed markets hosted no foreign listings, the number of host markets is 25 rather than 44. Host market listing frequencies are reported only for those markets with nonzero sample foreign listings. From casual observation of the table there is some evidence that companies going abroad tend to prefer to list in neighboring markets. Firms from the Benelux countries (Belgium, the Netherlands, and Luxembourg) tend to list within Benelux countries. New Zealand firms list heavily in Australia and vice versa. Out of the 266 Canadian listings abroad, 211 cross listings are on either the neighboring U.S. NYSE or NASDAQ. The proximity pattern is less apparent in the largest markets. Companies from the G5 countries (France, Germany, Japan, the U.K., and the U.S.) tend to exhibit little bias for listing in neighboring markets.¹⁶

Relatively few firms choose to list their stock on multiple exchanges. Our data show that about 80% of firms listed overseas in 1998 were only listed in one foreign market. Most of the firms with multiple listings originate from G5 markets. The firms with the most overseas listings are Bayer, with 11, and Volkswagen and Phillip Morris, with 10. The non-G5 firm with the most overseas listings is the Dutch chemical and pharmaceutical company Akzo-Nobel, with eight listings.

2.2 Geographic proximity preference tests

2.2.1 Geographic proximity bias tests based on regional and country characteristics. As an initial test of proximity bias, we use our three regional groupings to test whether firms from countries within a region tend to restrict overseas listings within their respective region.

¹⁵ We were not able to obtain listing dates for 160 companies, or 0.7% of the sample. When the exchange could not provide listing dates, we used Lexis/Nexis, Dow Jones News Retrieval, Datastream, and in some cases queries to the individual firms to identify the listing date. In some cases, in the early part of the sample period we were only able to approximate the listing date to the closest year or decade.

¹⁶ We find that many European Union (EU) countries host shares from other EU countries. According to the recommendations of the International Organization of Securities Commissions (IOSCO), in the EU, offerings or listings registered in an EU member state that only take place within EU member states should not be considered to be "cross border." Notice that the acceptance of this recommendation by the IOSCO member states was not envisioned before 1999. We treat cross-EU listings in our sample as cross border.

Table 2
Country-to-country frequency distribution of foreign listings

Home country	Host country																								
	Australia	Austria	Belgium	Brazil	Canada	Denmark	France	Germany	H. Kong	Ireland	Italy	Japan	Luxem.	Malaysia	Nether.	N Zealand	Norway	Peru	Singapore	S. Africa	Spain	Sweden	Switz.	UK	USA
Argentina				1										3									2	1	12
Australia					4			2				4	1			45		3					2	10	26
Austria			1				2	8							1										
Belgium							7	3					4		7		1						4		1
Brazil													5											1	21
Canada	4		8				6	2				1			4				1	1		8	20	211	
Chile																								22	
Colombia													3												1
Czech R.																								5	
Denmark																	1					1	1	3	3
Finland							1	2														3		2	4
France			11		1			7			1	2	2		7						1	3	5	6	23
Germany		17	7				13				2	9	6		12				1		2	1	3	1	11
Greece													1		1									4	2
H. Kong	3											1					1		9					1	4
Hungary		1											5										4	1	
India													48										17		
Indonesia													1										2		4
Ireland																							58	14	
Israel			2																				4		59
Italy			2				4	5							1						1				14
Japan		1	5		1		30	52					21		19				6				14	29	28
Korea													12												
Luxem.			5				3	1							2							1	1	6	3
Malaysia												1							1					5	
Mexico																									30
Nether.		4	11				9	20			1	1	6						1			1	12	13	26
N. Zealand	17																								5
Norway						1	1	2							1							2	1	5	6
Peru																									3
Philippines													5						1						1
Poland													1											7	
Portugal								1															1		5
Singapore	2												2												1
S. Africa				9			15	5					4										4	40	11
Spain							4	4				4			1								2	4	5
Sweden		1	1			5	3	3				2					2		2				4	12	12
Switz.		1	1			1	5	10				4			1									1	5
Taiwan													14						1					10	2
Thailand													2						1						
Turkey													1											6	
UK	6		8		4	1	13	10	1	13		8	1	3	12		2		7	1			4		77
USA	8		31		27		32	42				23	1		71		3	2				5	67	104	
Venezuela													1												3
Total	40	25	106	1	37	8	148	179	1	13	4	60	150	3	140	45	10	2	34	2	4	17	157	406	659

This table provides the country-to-country frequency distribution of the sample of overseas listings as of 1998. The total sample is comprised of 2,251 overseas listings. Host countries are countries with nonzero sample cross listings.

Table 3
Regional home host market overseas listing contingency table

Frequency (Percentage of total sample) [Percentage of host region]	Host region			Total
	Americas	Australasia	EAME	
Home region				
Americas	333 (15.8) [47.6]	37 (1.6) [20.2]	421 (18.7) [30.8]	791 (35.1)
Australasia	79 (3.5) [11.3]	94 (4.2) [51.4]	320 (14.2) [23.4]	493 (21.9)
EAME	287 (12.8) [41.1]	52 (2.3) [28.4]	628 (27.9) [45.9]	967 (43.0)
Total	699 (31.1)	183 (8.1)	1369 (60.8)	2251 (100.0)

Test of association Degrees of freedom = 4; chi-square = 172.2; $P < 0.001$.

This table provides the frequency distribution of regional home host market combinations for the sample of overseas listings as of 1998. Tests of association follow Fienberg (1977). EAME = Europe-Africa-Middle East.

Table 3 shows the test results. Of the 2,251 foreign listings, the homes of foreign-listed firms are relatively evenly distributed across regions with 35%, 22%, and 43% originating from the Americas, Australasia, and EAME, respectively. In contrast, the distribution of regional destinations strongly favors the EAME region with nearly 61% of all cross listings hosted in EAME. Only 8% of sample cross listings are hosted in Australasia. There is some evidence of intraregional clustering. Of the 699 foreign listings in the Americas, 48% come from the Americas. Of the 183 foreign listings in Australasia, 51% come from Australasia. Of the 1,369 foreign listings in EAME, 46% come from EAME. To test for association between home region and host region, we calculate a chi-square statistic by summing the squared differences between the observed and the expected random proportions, as described in Fienberg (1977). The statistic is highly significant with a p -value of less than .001.

To quantify the proximity bias in distance terms, we perform another test by adapting the methodology of Coval and Moskowitz (1999) to our cross-listing dataset. This test presumes as the null hypothesis that if distance does not matter, overseas listings will be distributed proportional to market values of foreign equity markets. Under this null hypothesis, the mean distance to all markets hosting a particular country's overseas listings should be equal to the distance to all foreign markets weighted by their respective equity market values. We calculate the theoretical benchmark distance and compare it to the actual mean distance to all host markets for each country. Our test statistic follows the setup of

Coval and Moskowitz and measures the deviation between the actual and benchmark distribution of listings. More formally, the local bias (LB_i) statistic for country i firms is

$$LB_i \equiv \sum_{j=1}^N (m_{ij} - h_{ij}) \frac{d_{ij}}{d_i^B}. \quad (2)$$

Here N is the number of countries, h_{ij} is the ratio of the actual number of listings from country i in country j divided by the total number of overseas listings from country i ; m_{ij} is the projected ratio of the number of listings from country i in country j divided by the total number of listings from country i when the number of listings in country j is proportional to the relative market capitalization of the host market in the world market portfolio. Since firms place listings in $N - 1$ countries, the market capitalization weight of the home country is equally divided among the remaining markets. The coefficients d_{ij} and d_i^B are the distance measures: d_{ij} is the distance between countries i and j , while d_i^B is the weighted-average distance from country i to all other markets, where the weights are m_{ij} , namely,

$$d_i^B \equiv \sum_{j=1}^N m_{ij} d_{ij}. \quad (3)$$

A positive LB_i statistic indicates that firms from country i place their listings in proximate countries, so a negative LB_i is a sign of preference for distant markets among country i firms.

Table 4 presents the test results for each country in our sample. It has six columns. The first two columns report the average actual and benchmark distance in kilometers between country i and all other markets, d_i and d_i^B , respectively, for each country. The third column shows the difference between these two distances, $d_i^B - d_i$. The fourth and fifth columns report the LB measure in percent and the corresponding t -statistic, respectively. The actual distance is almost always smaller than the benchmark, resulting in a positive LB statistic for all but three countries (Israel, Indonesia, and Colombia). On average, firms cross list their shares 5,213 kilometers away from home. However, the expected benchmark distance is more than 2,600 kilometers further. This difference is highly statistically significant. We observe the largest proximity bias among some European countries — the highest proximity preference being for Belgium, followed by Austria and the Czech Republic. Our results suggest that the average firm from the vast majority of countries maintain substantial proximity bias in foreign listings.¹⁷

¹⁷ We note that, since firms systematically list in more proximate markets, the results also imply that firms are not systematically attracted to one particular market such as the United States. Doidge, Karolyi, and Stulz (2003) analyze some reasons for a relatively small number of foreign firms listed in the United States.

Table 4**Coval-Moskowitz test for bias in geographic placement of overseas listings**

Home country	Distance (km)				
	Actual	Benchmark	Difference	<i>LB</i> (%)	<i>t</i> -statistic
Argentina	8,982	10,624	1,642	15.45	3.57
Australia	9,222	14,955	5,733	38.34	9.63
Austria	811	5,699	4,888	85.76	8.80
Belgium	503	5,171	4,668	90.27	10.36
Brazil	7,277	9,056	1,779	19.64	3.71
Canada	1,982	4,222	2,240	53.07	14.72
Chile	8,079	10,542	2,463	23.36	3.53
Colombia	7,562	7,118	-444	-6.24	-0.42
Czech Rep.	1,037	5,534	4,497	81.26	8.12
Denmark	2,719	5,339	2,620	49.08	12.56
Finland	3,131	5,691	2,560	44.98	12.14
France	2,713	5,351	2,638	49.30	14.40
Germany	1,786	5,447	3,661	67.20	9.28
Greece	3,610	6,622	3,012	45.49	7.55
Honk Kong	5,781	9,750	3,969	40.70	6.21
Hungary	1,731	5,845	4,114	70.39	8.57
India	6,493	9,394	2,901	30.88	2.45
Indonesia	14,336	13,088	-1,248	-9.54	-2.56
Ireland	1,432	4,901	3,469	70.77	12.08
Israel	8,898	7,507	-1,391	-18.54	-2.30
Italy	4,292	5,993	1,701	28.39	11.14
Japan	9,568	10,061	493	4.90	0.68
Korea	9,043	9,203	160	1.74	0.16
Luxembourg	1,115	5,126	4,011	78.25	11.05
Malaysia	8,345	12,170	3,825	31.43	2.48
Mexico	3,039	6,517	3,478	53.37	10.80
Netherlands	2,008	5,233	3,225	61.62	12.26
New Zealand	5,000	14,668	9,668	65.91	13.62
Norway	2,650	5,242	2,592	49.45	12.18
Peru	5,671	8,703	3,032	34.84	5.83
Philippines	9,829	11,206	1,377	12.29	0.99
Poland	1,413	5,730	4,317	75.35	7.42
Portugal	4,592	5,473	881	16.10	3.47
Singapore	9,830	12,377	2,547	20.58	2.43
South Africa	10,003	11,755	1,752	14.90	1.82
Spain	3,847	5,561	1,714	30.82	5.70
Sweden	3,253	5,510	2,257	40.96	8.51
Switzerland	2,884	5,536	2,652	47.90	8.00
Taiwan	9,656	10,331	675	6.53	0.56
Thailand	6,653	11,161	4,508	40.39	3.13
Turkey	2,791	6,890	4,099	59.49	5.45
U.K.	4,668	5,371	703	13.09	5.61
U.S.	6,732	8,207	1,475	17.97	5.32
Venezuela	4,437	6,515	2,078	31.90	5.11
All countries	5,213	7,872	2,659	38.18	4.99

The table shows the proximity bias test results adapting the methodology of Coval and Moskowitz (1999) for the cross-listing dataset. The details of the procedure are in the text. The first column (Actual) is the average distance for firms from a given country to all markets where they place their foreign listings. The second (Benchmark) is the average distance for firms from a given country to all other 43 sample markets where the number of listings in each foreign market is proportional to the relative market capitalization of the host market in the world market portfolio. The third (Difference) is the difference between the benchmark and actual distances. The fourth and fifth columns report the Coval-Moskowitz (1999) *LB* test statistic (in percent), which measures how close firms from a given country place their foreign listings relative to the benchmark distance, and the *t*-statistic for *LB*, respectively.

2.2.2 Geographic proximity bias tests based on firm characteristics. We have shown that there is a substantial cross-listing proximity bias for an average firm from almost any country in our sample. In this section we examine the correlation between proximity bias and firm characteristics. Our tests are motivated by Kang and Stulz (1997), who find that foreign home bias is smaller for large firms with tradable output.¹⁸ Baker, Nofsinger, and Weaver (2002), Lang, Lins, and Miller (2003), and Ahearne, Grier, and Warnock (2004) argue that firms can increase investor recognition and foreign ownership through overseas listings. If investor home bias is more severe among small firms producing non-tradable goods, these firms have the strongest incentives to list more aggressively abroad in order to overcome the more severe foreign under-investment in their stock. In contrast, Kang and Stulz (1997) observe that overseas listing has no effect on foreign investor ownership. Rather they suggest that it is the firms that already enjoy wide international recognition that choose to list abroad in order to reduce the costs of share ownership for their existing foreign shareholders.¹⁹ Thus, if listing abroad is a tool for increasing investor recognition and foreign ownership, we expect to see firms with poor recognition choosing to list in less proximate markets than those with greater existing recognition, consistent with the home bias solution hypothesis. If, on the other hand, firms are unable to affect their underlying ownership structure but use overseas listings to merely provide lower costs to existing shareholders (as suggested by Kang and Stulz), we predict that distance will restrict the ability of firms with low recognition to choose distant markets, consistent with the home bias reflection hypothesis.

We examine whether proximity bias is more profound among small firms that do not produce internationally traded goods, since investors are likely to be less familiar with those foreign firms. Table 5 presents the results of univariate proximity preference tests for the two firm characteristics, type of goods produced (traded/nontraded), and size. We classify all firms based on their respective industry types. There are eight tradable industries: chemicals, consumer goods (including food), electronics (including electrical equipment and computers), manufacturing, health care (i.e., pharmaceuticals, drugs, biotechnology), mining, oil and gas, and paper (including forestry and printing). There are also eight nontradable industries: construction, financials (including banks and insurance), leisure (i.e., hotels and leisure equipment), retail (including distributors),

¹⁸ Coval and Moskowitz (1999) find a similar result for domestic U.S. investor holdings — ownership of large firms with tradable output tends to be more geographically dispersed.

¹⁹ In related articles, Saudagaran (1988) finds that companies with greater overseas sales are more likely to list abroad. Mittoo (1992) finds that managers cite access to foreign markets and marketability of their firms as major benefits to cross listing. It is, however, somewhat unclear whether foreign listings improve brand recognition or whether brand recognition helps sell foreign shares.

Table 5
Geographic distance bias in overseas listing classified by firm characteristics

Panel A. Geographic distance bias by tradability of firm output

Home country	Tradable		Nontradable		Difference (km)	t-statistic
	Obs.	Distance (km)	Obs.	Distance (km)		
Argentina	7	8,729	12	9,130	-401	-0.26
Australia	61	9,124	35	9,392	-268	-0.13
Austria	6	778	6	845	-67	-0.62
Belgium	12	2,023	15	317	1,706	0.75
Brazil	7	7,735	20	7,117	618	1.00
Canada	168	2,199	98	1,609	590	1.32
Chile	9	8,079	13	8,079	0	0.00
Colombia	1	8,807	3	7,147	1,660	NA
Czech Rep.	0	NA	5	1,037	NA	NA
Denmark	5	1,904	4	3,737	-1,833	-0.66
Finland	10	3,535	2	1,112	2,423	1.47
France	47	2,600	22	2,954	-354	-0.32
Germany	73	1,602	45	2,085	-483	-0.60
Greece	0	NA	9	3,610	NA	NA
Hong Kong	3	7,704	16	5,421	2,283	0.55
Hungary	6	1,293	5	2,256	-963	-0.70
India	47	6,473	18	6,547	-74	-1.42
Indonesia	1	16,371	6	13,997	2,374	NA
Ireland	34	1,343	38	1,513	-170	-0.26
Israel	42	8,736	23	9,196	-460	-0.82
Italy	19	4,024	8	4,927	-903	-0.49
Japan	134	9,574	72	9,557	17	0.09
Korea	17	8,923	12	9,213	-290	-0.71
Luxembourg	8	234	14	1,619	-1,385	-2.00
Malaysia	5	10,554	2	2,824	7,730	3.08
Mexico	15	3,039	15	3,039	0	0.00
Netherlands	56	1,560	49	2,520	-960	-1.27
New Zealand	14	4,006	8	6,739	-2,733	-0.83
Norway	13	2,609	6	2,738	-129	-0.07
Peru	1	5,671	2	5,671	0	0.00
Philippines	3	10,523	4	9,309	1,214	0.50
Poland	2	1,448	6	1,401	47	1.00
Portugal	1	5,742	6	4,400	1,342	NA
Singapore	3	10,785	2	8,398	2,387	0.49
South Africa	83	9,961	5	9,650	311	2.08
Spain	1	6,096	23	3,750	2,346	NA
Sweden	36	3,286	11	3,146	140	0.10
Switzerland	17	2,113	11	4,076	-1,963	-0.96
Taiwan	22	9,635	5	9,749	-114	-0.29
Thailand	0	NA	3	6,653	NA	NA
Turkey	3	2,730	4	2,836	-106	-1.00
UK	91	4,245	85	5,120	-875	-0.99
USA	287	6,209	129	6,389	-180	-0.57
Venezuela	3	4,811	1	3,317	1,494	NA
G5 countries	632	5,839	353	5,967	-128	-0.53
Non-G5 countries	741	5,062	525	4,407	655	2.61
All countries	1,373	5,420	878	5,034	386	2.17

Panel B. Geographic distance bias by firm size

Home country	Large			Small			t-statistic
	Obs.	Mean cap (1998 \$B)	Distance (km)	Obs.	Mean cap (1998 \$B)	Distance (km)	
Australia	30	11.55	11,274	21	0.26	7,099	1.60
Austria	3	2.55	727	1	0.69	727	NA

Table 5
(continued)

Home country	Large			Small			Difference (km)	<i>t</i> -statistic
	Obs.	Mean cap (1998 \$B)	Distance (km)	Obs.	Mean cap (1998 \$B)	Distance (km)		
Belgium	7	8.55	176	0	NA	NA	NA	NA
Brazil	2	4.00	7,891	2	0.65	6,799	1,092	1.00
Canada	34	8.54	3,136	76	0.40	1,319	1,817	2.08
Chile	3	9.10	8,079	3	1.07	8,079	0	0.00
Columbia	0	NA	NA	1	0.34	8,807	NA	NA
Czech Rep.	2	3.12	1,037	2	0.82	1,037	0	0.00
Denmark	2	2.93	3,777	1	0.93	957	2,820	NA
Finland	0	NA	NA	4	0.46	2,695	NA	NA
France	12	25.68	3,571	14	7.81	1,341	2,230	1.45
Germany	37	30.73	2,536	23	9.02	1,127	1,409	1.33
Hong Kong	7	13.31	2,313	2	0.24	5,595	-3,282	-0.98
India	21	4.53	6,500	34	0.85	6,477	23	0.47
Ireland	1	2.46	463	12	0.72	1,709	-1,246	NA
Italy	7	18.18	4,584	3	0.61	3,217	1,367	0.42
Japan	65	45.26	9,576	61	7.14	9,491	85	0.46
Mexico	2	8.95	3,039	2	1.47	3,039	0	0.00
Netherlands	36	19.55	2,115	8	1.27	1,053	1,062	0.88
New Zealand	2	4.22	2,324	4	0.08	2,324	0	0.00
Norway	5	5.95	1,828	4	0.91	3,529	-1,701	-0.63
Peru	0	NA	NA	1	0.03	5,671	NA	NA
Philippines	2	6.83	12,158	1	0.15	10,523	1,635	NA
Singapore	1	2.10	10,573	1	1.11	10,573	0	NA
South Africa	12	7.36	10,055	7	0.72	10,915	-860	-0.86
Sweden	11	10.96	4,460	5	1.57	3,489	971	0.41
Switzerland	9	28.76	3,237	4	0.50	1,970	1,267	0.43
Taiwan	11	5.42	9,662	10	1.10	9,283	379	0.50
Turkey	1	7.31	2,517	1	0.15	2,836	-319	NA
UK	25	37.48	4,968	45	4.97	5,018	-50	-0.03
USA	173	66.45	6,787	168	7.06	6,087	700	2.29
G5 countries	312	53.91	6,594	311	6.95	6,020	574	2.19
Non-G5 countries	211	11.28	5,316	210	0.62	3,972	1,344	3.03
All countries	523	36.71	6,079	521	4.40	5,194	885	2.57

The table shows the mean distance between capital cities for firms listing overseas. In panel A, sample firms are classified by the tradability of goods in their respective industry. In panel B, sample firms are classified by dollar-denominated firm size in the month prior to the listing and normalized to end of year 1998 by the U.S. market. Separate size breakpoints are used for G5 and non-G5 countries. Countries without firm capitalization values are omitted from panel B. The *t*-statistic column reports the test statistic for the difference in the two mean distance estimates.

support services, telecommunications (including media), transportation, and utilities. We identify 1,373 firms producing tradable goods and 878 firms producing nontradable goods. Panel A shows the test results based on the tradability of firm output. On average, firms from tradable industries list 5,420 kilometers away from their respective home countries and firms from nontradable industries list 5,034 kilometers away, or 7.5% closer to their home markets. The difference between these listing distances is statistically significant at the 5% level. The evidence supports the home bias reflection view. At the country level, however, on average, many markets place their firms producing nontradable goods at greater

distances from home than firms producing tradable goods, although few are statistically significant. To examine the patterns among countries, we divide the sample between G5 and non-G5 countries. We find that the difference between industries is unique to the non-G5 sample. The distance difference is a statistically significant 655 kilometers for the non-G5 firms and insignificant for the G5 firms. Although the *t*-statistic is not reported in the tables, we also test whether the distance for G5 listings is different from that of non-G5 listings. Controlling for firm output tradability, the 777 kilometer and 1,560 kilometer difference in listing distances for G5 and non-G5 countries for the tradable and nontradable firms, respectively, is highly significant.

To examine size effects, we obtain firm capitalization and monthly return data from the Center for Research in Security Prices (CRSP) dataset for U.S. firms and Datastream for non-U.S. firms. Capitalization is measured in U.S. dollars at the end of the calendar month preceding the listing date. We adjust each size value to the end of 1998 with the return of the U.S. market. To categorize large and small firms we use the median value for G5 and non-G5 firms separately. Since market size and firm size are correlated, we use separate breakpoints so that the size groupings include an equal number of G5 and non-G5 firms. Firms with market capitalization ratios above the median (within each of the two groups) are classified as large, while those below the median are classified as small.

The test results based on firm size are shown in Panel B of Table 5. We obtain valid size estimates for 1,044 firms (46% of the sample): there are 521 small firms with a mean market capitalization of \$4.4 billion and 523 large firms with a mean market capitalization of \$36.7 billion. We omit countries in the table where we were not able to find any firm capitalization values. We observe that small firms list in more proximate markets. Small firms list on average 5,194 kilometers away from the home markets, while large firms list more than 17% further, at 6,079 kilometers away from the home market. A statistically significant *t*-statistic of 2.57 supports the preference for proximate markets among small firms. Again, this preference is particularly acute in both economic and statistical terms for firms from non-G5 countries. While small firms from G5 countries list only 574 kilometers closer to their home market than the respective large firms, among firms from non-G5 countries, this difference increases more than twofold, to 1,344 kilometers. We also again find that, controlling for capitalization, G5 firms place listings in more distant markets than those from smaller economies.

Our overall findings are most consistent with the home bias reflection hypothesis. If foreign investors prefer firms they recognize, such as large firms producing traded goods, firms are constrained by this lack of recognition regardless of whether or not they crosslist. Those firms that could benefit most from a distant listing recognize that cross-listing will

not generate more foreign ownership. Based on comparisons of the costs of financing, Bruner, Chaplinsky, and Ramchand (2004) argue that generally only foreign firms familiar to U.S. investors raise capital in the United States. Since they and others [Pagano, Roell, and Zechner (2002)] show that overseas listing tends to be dominated by large firms, we recognize that our sample is not representative of the overall population of firms, but rather only captures the effects of the relatively largest set of firms. It is likely that even the smaller firms that choose not to list in any foreign country do so because they presumably face even larger familiarity barriers than larger firms.

3. Market Preferences in the Overseas Listing Decision

So far our tests have been univariate in nature. In this section we test proximity bias against other received overseas listing considerations. To begin, we provide some summary statistics of the cross-sectional variation in market and industry characteristics. We then examine how market and firm characteristics affect the choice of host market.

3.1 Market and industry characteristics

Table 6 provides aggregate economic, equity market, and exchange listing standards, and investor protection measures for the 44 countries in our sample. We report two measures of domestic market size: gross domestic product (GDP) and total equity market capitalization (CAP). The GDP data are from the 1999 *World Factbook* of the U.S. Central Intelligence Agency (CIA). CAP is calculated as the market value in billions of U.S. dollars of all domestic equity traded on the respective market at the end of 1998 provided by the FIBV. Although the two market-size measures are correlated, the equity markets of some countries are much larger relative to their respective GDP than others. The CAP of Switzerland is well over three times as large as its GDP. In the opposite extreme, the CAP for Indonesia is less than one-twentieth the size of domestic output. We account for these differences in later tests.

A comparison with Table 1 reveals that the most popular host countries tend to be major financial centers. The top three host countries—United States, United Kingdom, and Germany—are also among the world's largest economies. Although market capitalization is generally an important draw for foreign listings, other factors also appear to be important. Japan, with the world's second largest market capitalization and GDP, is only the ninth most popular cross-listing destination, with just 60 foreign listings. The fourth and fifth most popular cross-listing destinations, Switzerland and Luxembourg, have relatively small economies.

As a liquidity measure, we follow Domowitz, Glen, and Madhavan (2001) and use the Elkins/McSherry estimates of average one-way trading

Table 6
Market characteristics

	Market size		Liquidity	Listing standards		
	GDP (\$B)	Market cap (\$B)	E/M estimate (basis points)	IAS GAAP	US GAAP	Investor protection
Argentina	374	45	76.9	No	No	5.35
Australia	393	329	54.7	Yes	No	10.00
Austria	185	36	43.8	Yes	Yes	10.00
Belgium	236	246	35.0	Yes	No	10.00
Brazil	1,035	161	58.0	No	No	6.32
Canada	688	543	52.4	No	No	10.00
Chile	185	52	84.3	No	No	7.02
Columbia	255	11	97.5	No	Yes	2.08
Czech Rep.	117	10	143.7	No	No	NA
Denmark	124	99	40.7	Yes	Yes	10.00
Finland	103	155	43.4	Yes	No	10.00
France	1,320	992	29.5	Yes	No	8.98
Germany	1,813	1,094	37.7	Yes	No	9.23
Greece	143	80	65.5	Yes	No	6.18
Hong Kong	168	344	59.8	No	No	8.22
Hungary	75	14	143.4	Yes	No	NA
India	1,689	93	71.6	Yes	No	4.17
Indonesia	602	22	100.9	Yes	No	3.98
Ireland	339	67	130.7	No	No	7.80
Israel	101	39	NA	No	Yes	4.82
Italy	1,181	570	34.8	Yes	No	8.33
Japan	2,903	2,440	41.3	Yes	No	8.98
Korea	584	115	197.5	No	No	5.35
Luxembourg	14	38	63.8	Yes	Yes	10.00
Malaysia	215	96	88.7	Yes	No	6.78
Mexico	815	92	61.7	Yes	No	5.35
Netherlands	348	603	42.2	Yes	Yes	10.00
New Zealand	61	25	47.2	Yes	Yes	10.00
Norway	109	46	44.6	Yes	Yes	10.00
Peru	112	10	95.8	Yes	No	2.50
Philippines	270	35	112.7	No	No	2.73
Poland	263	21	NA	No	No	NA
Portugal	145	63	62.7	Yes	No	8.68
Singapore	91	97	77.5	Yes	No	8.57
South Africa	290	151	81.6	Yes	No	4.42
Spain	645	402	41.9	No	No	7.80
Sweden	175	279	35.8	No	No	10.00
Switzerland	191	689	38.5	Yes	Yes	10.00
Taiwan	363	261	74.6	No	No	8.52
Thailand	369	34	89.1	Yes	Yes	6.25
Turkey	425	34	64.6	Yes	Yes	5.18
UK	1,252	2,373	54.5	Yes	No	8.57
USA	8,511	12,926	38.1	No	Yes	10.00
Venezuela	194	8	134.1	No	No	6.37

This table provides aggregate economic, equity market, and exchange listing standards data for the sample countries. GDP is from the 1999 CIA *World Factbook*. Market capitalization is from the International Federation of Stock Exchanges (FIBV). Liquidity is based on the Elkins/McSherry estimates. The listing standards for IAS GAAP are acceptable if the country allows foreign firms to list with IAS GAAP-based financial statements. The listing standards for U.S. GAAP are acceptable if the country allows foreign firms to list with U.S. GAAP-based financial statements. The investor protection measure is based on La Porta et al. (1997).

cost. Elkins/McSherry provides trading cost analysis for pension funds, investment managers, and brokerage houses. Their estimates are based on commissions, fees, and market impact costs for the period of September 1996 to December 1998. The estimates reported in Table 6 range from 30 basis points for France to 198 for Korea.²⁰

In the 1990s there was a strong movement to harmonize financial statement disclosure. Within the EU substantial effort was exerted to reduce the costs of reporting differences. The International Accounting Standards Committee (IASC) developed a set of reporting standards that received wide acceptance for foreign and domestic reporting. We examine each country's foreign listing requirements as reported by the IASC. In particular, we identify whether the country allows foreign firms to list using International Accounting Standards (IAS) developed by the IASC. We find that 28 of the 44 countries allow IASC-based reporting for foreign companies. Many countries also allow listing using U.S. generally accepted accounting practices (GAAP)-based standards.²¹

The last column of Table 6 provides a measure of investor protection measure for each market. The reported measure is the "rule of law" measure obtained from the *International Country Risk Guide* and used by La Porta et al. (1997). This measure accounts for the character of legal rules as well as the quality of law enforcement in the respective countries. Thirteen of the countries receive the highest investor protection ratings of 10. All 13 countries are developed markets (9 European countries, Australia, Canada, New Zealand, and the United States). Developing countries (Columbia, Peru, and the Philippines) received the lowest scores. Not all developed countries received favorable investor protection rules; France, Japan, and the United Kingdom all received scores less than nine.

We also consider the industry composition of overseas listings. Figure 1 provides interesting summary information about the industries by showing the correlations of industry distributions of cross listings. The figure shows the correlations between 16 pairs of industry distributions of the number of overseas listings across all the countries in our sample. The first distribution in the pair is the total number of domestic firms in a given industry from each country listed overseas, the second is the number of foreign firms in that industry listed in particular countries. If a particular firm has multiple overseas listings, then it receives multiple entries. For each industry, only those countries that place at least one listing abroad or host at least one foreign firm are counted. To reduce the influence of outliers we logarithmically transform all the listing numbers.

²⁰ Most of the cross-sectional variation is due to differences in implicit price impact costs. The price impact for France was less than seven, while that of Korea was greater than 134.

²¹ The summary data can be found at the IASC Web site: <http://www.iasc.org.uk/>.

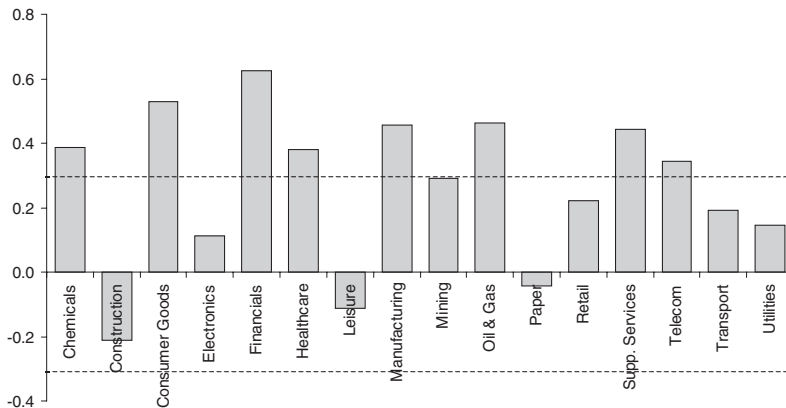


Figure 1
Correlations of industry distributions of cross listings

The figure shows correlations between 16 pairs of industry distributions of the number of overseas listings across 44 countries in our sample as well as the correlation values, significant at the 5% level (two dotted lines). The first distribution in the pair is the number of overseas listings originating from each country in a given industry; the second is the number of foreign firms listed in each country in that industry. For each industry, only those countries that place at least one listing abroad or host at least one foreign firm are counted. To reduce the influence of outliers, all listing numbers are logarithmically transformed.

We can observe that 13 of the 16 correlations are positive and often quite large for some industries. Eight correlations are significantly different from zero at the 5% level. This implies that the more domestic firms in a particular industry a country lists overseas, the more foreign firms in a particular industry that country hosts on its exchanges. Only construction, leisure, and paper industries show negative correlations. This suggests that countries that list many firms in these industries in overseas markets do not list a significant number of firms belonging to these industries on their own stock exchanges. For example, Hong Kong has several construction companies listed abroad, yet it hosts only one foreign stock, and even that is not in the construction industry. All three negative correlation observations are insignificantly different from zero. Thus Figure 1 provides evidence that firms from a particular industry prefer to be cross listed in a country that also places its firms in the same industry abroad. Since, on average, cross listed firms are large, this also implies that countries with similar industrial structures on average share a greater cross-listing activity. We present more support for this issue in the next subsection.

3.2 Multivariate tests

3.2.1 The setup. We test the proposed hypotheses at the country and firm levels. In particular, at the country level, we examine the existence of proximity preference among firms from the G5 countries, non-G5 countries, and the 16 emerging markets. At the firm level, we estimate the

preference for familiar markets among firms that do or do not produce traded goods and for firms with large and small market capitalization.

We form proxies for the familiarity concerns discussed in Section 1. The distance variable, which we call *GEOGRAPHIC PROXIMITY_{ij}*, is again the great circle distance between the capitals of countries *i* and *j*, but we take it with a negative sign for the convenience of test results interpretation. For the trade-based explanation of cross listings, which is linked to the economic closeness between countries, we use the variable *ECONOMIC PROXIMITY_{ij}*, which is the percentage of country *i*'s exports going to country *j*. We obtain these data from the 1996 *International Trade Statistics Yearbook*. To measure the familiarity generated by common language, we construct a language dummy variable which is set to one if countries *i* and *j* share a common language. We generate a colony dummy which is set to one if country *i* was historically part of the same colonial empire as country *j*. We then generate a dummy variable, *D(CULTURAL PROXIMITY_{ij})*, which is equal to one if either the language or colony variable is equal to one. To capture the familiarity due to a common industrial base, we create an industrial structure similarity variable, *INDUSTRIAL PROXIMITY_{ij}*, which is estimated as the correlation of industry rankings between each pair of countries for all firms listed overseas. We use the correlation of the ranks rather than the listings to reduce the importance of magnitude, but we focus more on which industries are most important in each country.

We also obtain proxy measures of the relative characteristics of the sample markets for each pair of countries, *i* and *j*, where *i* is the home country and *j* is the foreign host country. That is, we use the factors that proxy for the differences in salient characteristics between the home and foreign markets. We proxy the diversification potential between countries *i* and *j* by their equity market correlation, (*CORRELATION_{ij}*). This variable is estimated as the correlation coefficient using returns in U.S. dollars from Datastream and the IFC from 1990 to 1998.²² To capture the effect of economies of scale, we use differences in the real economies of the two countries as measured by the ratio of their respective GDPs, (*GDP_j/GDP_i*). We also use the relative size of their equity markets measured as the total capitalization of the equity market (CAP) divided by GDP. Thus our variable for the difference in the relative size of the equity market of the home and foreign markets is (*CAP_j/GDP_j*)/(*CAP_i/GDP_i*). As a measure of liquidity, we use the ratio of foreign liquidity to domestic liquidity, (*LIQUIDITY_{ij}*), as measured by Elkins/McSherry. We represent the

²² Notice that the more firms from one market are listed in another, the more correlated these two markets will be. Therefore it would be better to measure the correlation between two countries before the appearance of the first cross-listed firm. However, for all practical purposes this is not a significant issue, since the number of foreign listings from a given country in almost any host country is much smaller than the number of domestic firms. In Section 3.2.3, we provide a test that controls for post listing correlation.

accounting disclosure differences by a dummy variable, $D(DISCLOSURE_{ij})$, which takes on the value one if country j requires a financial statement disclosure that is substantially different than that of country i . The disclosure dummy is obtained using the disclosure standards and requirements reported by the IASC. To measure the ease of cross listing provided by membership within the EU, we create a dummy variable, $D(EMU_{ij})$, which is set to one if the host and home countries belong to the EMU.

As previously mentioned, some markets in our sample may share a unique institutional reputation as quasi tax havens. In order to capture unique legal, tax, or disclosure features of these markets, we construct an additional indicator variable, $D(TAX_j)$. This variable is set to one if the host country is a recognized tax haven market and zero otherwise. To distinguish tax havens, we follow Hines and Rice (1994) and use the U.S. Internal Revenue Service classification. Among our 25 sample host countries, five markets are classified as tax havens: Hong Kong, Ireland, Luxembourg, Singapore, and Switzerland. To measure the degree of safety from investor expropriation, we use a dummy variable, $D(LAW_{ij})$, which is set to one if the host country j has better investor protection laws than the home country i ; otherwise, it is zero.

Since the number of foreign listings is censored at zero, standard OLS regression estimates are likely to be biased [see Tobin (1958)]. Based on the frequency distribution of listings matrix in Table 2, of the 1,075 home host market pairings, 77% have no foreign listings. To increase the cross-sectional variation, we omit the 10 host markets that host less than 15 foreign listings. The omitted markets capture only 2% of the total overseas listings. We also use a maximum-likelihood Tobit approach in our regression estimation with the standard assumption that the residuals are normally distributed. To further improve the regression estimates, we evaluate the firm's listing choice among the major foreign listing centers—those with at least 15 total foreign listings. The 15-listing restriction reduces the sample host markets from 25 to 15. With the revised dataset, we estimate the following regression equation,

$$\begin{aligned}
 y_{ij} = & b_0 + b_1 CORRELATION_{ij} + b_2 \ln(GDP_j / GDP_i) \\
 & + b_3 \ln[(CAP_j / GDP_j) / (CAP_i / GDP_i)] + b_4 LIQUIDITY_{ij} \\
 & + b_5 D(DISCLOSURE_{ij}) + b_6 D(EMU_{ij}) + b_7 D(TAX_j) \\
 & + b_8 D(LAW_j) + b_9 ECONOMIC_PROXIMITY_{ij} \\
 & + b_{10} D(CULTURAL_PROXIMITY_{ij}) \\
 & + b_{11} INDUSTRIAL_PROXIMITY_{ij} \\
 & + b_{12} GEOGRAPHIC_PROXIMITY_{ij} + e_j.
 \end{aligned} \tag{4}$$

For the country-level tests, the dependent variable $y_{ij} = N_{ij}^F / N_{ij}^D$, where N_{ij}^F is the number of foreign listings from country i in country j and N_i^D is

the total number of domestic firms in country i . This ratio captures the proportion of domestic firms choosing to cross list in foreign market j . For the firm-level tests, the dependent variable $y_{ij} = N_{ij}^{F,C} / N_{ij}^D$, where $N_{ij}^{F,C}$ is the number of foreign listings from country i in country j that have a particular firm-specific characteristic (e.g., tradable/nontradable, small/large). This ratio captures the proportion of domestic firms with a particular characteristic choosing to cross list in foreign market j .

3.2.2 Country-level test results. Regression results for country-level tests are reported in Table 7. The full sample has 645 observations (44 home markets times 15 host markets minus 15 matched markets). Equation (1) includes geographic proximity as the only familiarity variable and Equation (2) includes all the proximity measures. The coefficient on the diversification gains proxy, *CORRELATION*, is highly significant, but its sign is strongly positive rather than negative, as predicted by the diversification literature. The positive coefficient indicates that firms tend to list in overseas markets that are highly correlated with their own home market. If managers seek to gain cost of capital advantages by providing diversification opportunities for foreign investors, all else being equal, overseas listings should be greatest in markets with low correlation. The observed positive coefficient provides little support for the diversification gains motive for listing. Consistent with the pursuit of economies of scale, the slopes on the relative size of the real and equity markets are positive and significant across both specifications.²³ It appears that firms have a strong preference to list in countries that have a friendlier tax environment: the slope coefficient on the tax haven dummy is positive and significant at the 1% level in both regressions. The coefficients on the liquidity, stringency of accounting disclosure standards, and investor protection variables are all insignificant in Equation (2).

The coefficient on the distance variable, *GEOGRAPHIC PROXIMITY*, is positive and significant at the 1% level. This finding suggests that, when choosing among overseas listing destinations, firms prefer close-to-home markets. Every 1,000 kilometers of closeness to the home market increases listing frequency by 1.1% to 1.8% of domestic firms. This observation is similar to the home bias observed in investor portfolios. Just as proximity appears to matter with purchases of equity by investors, proximity affects the sale of equity by firms. Interestingly, all other proximity variables are also significant at the 1% level. The positive slope on the *CULTURAL PROXIMITY* dummy implies that there is more cross-listing activity across countries that share similar language or colonial ties. The positive sign on the trade variable, *ECONOMIC PROXIMITY*,

²³ The importance of the relative size of the host market has been documented elsewhere [Foerster and Karolyi (1999), Chaplinsky and Ramchand (2000)].

Table 7
Tobit regression results based on market characteristics

Sample	(1) All	(2) All	(3) G5	(4) Non-G5	(5) Emerging
Observations	645	645	70	575	240
Intercept	-0.3352 ^a (21.4)	-0.3862 (32.9) ^b	0.1081 ^c (2.9)	-0.5098 ^a (33.9)	-1.1084 ^b (4.6)
<i>CORRELATION_{ij}</i>	0.6692 ^a (30.2)	0.4159 ^a (14.7)	-0.1145 (1.9)	0.5162 ^a (13.4)	0.7949 ^c (3.5)
$\ln(\text{GDP}_i/\text{GDP}_j)$	0.0389 ^a (18.3)	0.0189 ^b (4.9)	0.0221 ^a (10.5)	0.0468 ^b (12.7)	0.1124 ^b (5.9)
$\ln[(\text{CAP}_j/\text{GDP}_j)/(\text{CAP}_i/\text{GDP}_i)]$	0.0431 ^a (8.6)	0.0318 ^b (5.8)	0.0413 ^a (9.1)	0.0528 ^a (9.2)	0.1770 ^a (8.5)
<i>LIQUIDITY_{ij}</i>	0.0444 (1.7)	0.0395 (1.7)	-0.0955 ^a (7.5)	0.0304 (0.6)	0.3956 ^b (5.5)
<i>D(DISCLOSURE_{ij})</i>	0.1105 ^a (8.6)	0.0491 (2.1)	0.0015 (0.0)	0.0363 (0.7)	-0.0748 (0.3)
<i>D(EMU_{ij})</i>	-0.0563 (1.0)	-0.0713 (2.1)	0.0351 (1.3)	-0.0619 (0.9)	-0.4653 (1.6)
<i>D(TAX_j)</i>	0.1326 ^a (7.0)	0.1305 ^a (8.8)	0.0110 (0.1)	0.2046 ^a (12.1)	0.4120 ^b (5.5)
<i>D(LAW_{ij})</i>	-0.0200 ^b (6.0)	-0.0112 (2.4)	-0.0319 (2.6)	-0.0159 ^c (3.3)	0.1869 (0.2)
<i>ECONOMIC PROXIMITY_{ij}</i>		0.0135 ^a (56.9)	0.0018 (0.9)	0.0132 ^a (36.5)	0.0190 ^a (12.0)
<i>D(CULTURAL PROXIMITY_{ij})</i>		0.1322 ^a (10.0)	0.1000 ^a (16.3)	0.1637 ^a (8.9)	-0.0602 (0.0)
<i>INDUSTRIAL PROXIMITY_{ij}</i>		0.2700 ^a (19.5)	0.1340 ^a (9.9)	0.2763 ^a (12.1)	0.5128 ^b (4.2)
<i>GEOGRAPHIC PROXIMITY_{ij}</i>	0.0187 ^a (24.0)	0.0111 ^a (10.0)	0.0015 (0.3)	0.0148 ^a (10.6)	0.0191 (1.7)

This table provides Tobit procedure regression results using the number of sample overseas listings from each of the 44 home markets placed in each of the 15 host markets with more than 15 foreign listings as of the end of 1998. The dependent variable is the frequency of firms from country *i* listed in country *j*. *CORRELATION* is the correlation between equity market index returns for countries *i* and *j* from 1990 to 1998. *GDP* is the GDP in billions of U.S. dollars for 1998 from the 1999 CIA *World Factbook*. *CAP* is the total capitalization of the home market in U.S. dollars at the end of 1998 from the FIBV. *LIQUIDITY* is the ratio of country *j* liquidity to that in country *i* as measured by Elkins/McShery. Variables *D*(...) are dummy variables. *D(DISCLOSURE_{ij})* is set to one if country *j* has more stringent disclosure requirements than country *i*. *D(TAX)* is set to one if country *j* is considered a tax haven. *D(LAW)* is set to one if country *j* has better investor protection laws than country *i*. *D(EMU)* is set to one if the home and host countries belong to the EMU. *ECONOMIC PROXIMITY* is the percent of exports from country *i* going to country *j* based on the 1996 UN Statistics Department data. *D(CULTURAL PROXIMITY)* is set to one if countries *i* and *j* share a common major spoken language or if they were part of the same colonial empire. *INDUSTRIAL PROXIMITY* is the correlation of the ranked industry distribution of firms listed overseas between each pair of countries. *GEOGRAPHIC PROXIMITY* is the great circle distance between capitals of countries *i* and *j* in megameters taken with a negative sign. Chi-square statistics are reported in parentheses. The superscripts a, b, and c denote significance at the 1%, 5%, and 10% confidence level, respectively.

suggests that firms list in markets with which they trade heavily. Finally, the positive coefficient on the industrial structure similarity proxy, *INDUSTRIAL PROXIMITY*, implies that firms prefer to list in those countries that have a similar industrial base to their home country.²⁴

²⁴ The time disparity between the measurement of independent variables and the listing date generates some concern over the validity of the estimates. To test this we repeat the main regression using only those listings with contemporaneous data—those listings that were placed during the latest three calendar years in our sample, 1995–1998. This subsample includes 660 listings (29% of the sample). We find that the inference is unchanged when only contemporaneous data are used.

Our findings support the home bias reflection hypothesis. If foreign investors prefer holding assets with which they are familiar, managers may be forced to list only in those countries in which the familiarity cost is relatively small. Global information is likely to be available for large economies at a lower cost than for small economies. If so, firms from small countries are likely to be more constrained from listing in distant or less familiar markets. We predict therefore that managers from smaller countries will be less able to widely sell securities. To test this possibility, we create three subsamples with the listings from the G5 markets in one group and those of the other 39 markets in another. We also examine crosslistings from a set of 16 emerging markets. The set of emerging markets include those studied by Bekaert and Harvey (2000) and Bekaert, Harvey, and Lumsdaine (2002) that placed at least one overseas listing. They include Argentina, Brazil, Chile, Colombia, Mexico, and Venezuela from the Americas; India, Indonesia, Korea, Malaysia, Philippines, Taiwan, and Thailand from Australasia; and Greece, Portugal, and Turkey from EAME. The 15 host markets remain the same. The subsamples provide 70 observations (5 home markets times 15 host markets – 5 matched markets) for the G5 markets, 575 observations (39 home markets times 15 host markets – 10 matched markets) for the non-G5 markets, and 240 observations for the 16 emerging markets (16 home markets times 15 host markets – 0 matched markets).

The subsample results are reported in columns (3)–(5) of Table 7. Equation (3) shows these results for the G5 countries, Equation (4) shows results for the other 39 markets, while Equation (5) shows results for the 16 emerging countries. We observe striking differences across the three sets of estimates, especially between subsamples of firms from G5 and non-G5 countries. For the G5 market firms, the capitalization and liquidity provide significant explanatory power, while the importance of two out of four proximity variables—trade and distance—disappears. The estimates for firms from non-G5 countries are consistent with the overall findings. Among major host countries, market selection of these firms appears to be largely influenced by capitalization, liberal tax environment, and all proximity variables.

For the subset of firms from emerging markets, we observe an even stronger (in economic terms) preference for listing in proximate markets. The slope coefficient on the distance dummy is 30% more positive than that for the whole non-G5 subsample of firms [0.0191 in Equation (5) versus 0.0148 in Equation (4)], although it is no longer statistically significant due to a smaller sample size. Interestingly, the coefficient on the industrial structure similarity variable is much larger in magnitude than for the entire sample, and is still significant, indicating that firms from emerging markets also tend to list in countries with familiar industry representation. We provide more evidence related to this finding in

Section 4. We further observe that market selection of emerging market firms, similar to those from the entire subsample of non-G5 countries, is also driven by relative market capitalization, tax consideration, and trade.

Finally, we can observe that the preference of firms to list in overseas markets, which are highly correlated with their own home markets, is present only for smaller developed and emerging economies. It may be that the puzzling sign on the market correlation coefficient is due to the correlation between proximity and market correlation. If neighboring markets produce correlated market returns, the market correlation variable proxies geographic distance. We find that if we rerun these regressions without *CORRELATION*, most of the coefficients on proximity variables in both full-sample and subsample estimations are more significant and larger in magnitude relative to their respective values in Equations (2)–(5).²⁵ Thus our evidence suggests that geographic and other proximity variables are particularly acute outside the G5 markets.

3.2.3 Firm-level test results. In this subsection we study proximity preferences across firms that share similar company-specific characteristics, such as tradability and size. Table 8 reports the multivariate regression results for firm-level tests. The test results based on the type of firm output are presented in panel A. Since univariate tests have shown that proximity bias is particularly large among nontradable firms from G5 countries, we conduct our tests on the subsamples of firms from G5 and non-G5 countries. Most of the proximity variables are more important for firms from non-G5 countries, irrespective of the type of the output. However, as before, proximity preference appears to be most important for non-G5 firms producing nontraded output. While the coefficient on the distance is significant at the 5% level for tradable non-G5 firms, its economic value and statistical significance increase markedly for nontradable ones.

Panel B of Table 8 presents the test results for different firm sizes. To see whether any possible size effect is a result of firm size and not country size, we again present our results on the subsamples of firms from G5 and non-G5 countries. Both large and small firms in the G5 group of countries do not show substantial proximity bias. The coefficient on the industrial structure similarity is the only significant one across the two groups of firms, while the export and culture variables are significant for small firms. However, both large and small firms in the non-G5 group of countries exhibit strong proximity biases. All slope coefficients are statistically significant and their signs always have the expected direction. Thus our results again favor the home bias reflection explanation, suggesting that foreign investors prefer investing in firms with whose products they are

²⁵ These results are available upon request.

Table 8
Tobit regression results based on firm characteristics

Panel A. Subsample of firms with tradable and nontradable output
G5 firms

Sample	G5 firms		Non-G5 firms	
	Tradable	Nontradable	Tradable	Nontradable
Observations	70	70	575	575
Intercept	0.0754 ^c (3.2)	0.0370 (1.3)	-0.3123 ^a (25.1)	-0.5520 ^a (41.9)
<i>CORRELATION_{ij}</i>	-0.1015 ^c (3.4)	-0.0159 (0.1)	0.2322 ^b (5.4)	0.4710 ^a (14.1)
$\ln(GDP_j/GDP_i)$	0.0110 ^b (5.9)	0.0129 ^a (13.4)	0.0210 ^b (5.3)	0.0507 ^a (17.7)
$\ln[(CAP_j/GDP_j)/(CAP_i/GDP_i)]$	0.0224 ^b (6.4)	0.0176 ^b (6.6)	0.0161 (1.7)	0.0683 ^a (17.4)
<i>LIQUIDITY_{ij}</i>	-0.0574 ^b (6.0)	-0.0473 ^a (7.3)	0.0277 (1.0)	0.0218 (0.4)
<i>D(DISCLOSURE_{ij})</i>	-0.0057 (0.2)	0.0020 (0.0)	0.0156 (0.2)	0.0269 (0.4)
<i>D(EMU_{ij})</i>	0.0219 (1.2)	0.0181 (1.4)	-0.0347 (0.6)	-0.0111 (0.0)
<i>D(TAX_j)</i>	-0.0023 (0.0)	0.0117 (0.6)	0.1162 ^a (7.8)	0.1768 ^a (11.2)
<i>D(LAW_{ij})</i>	-0.0201 (2.2)	-0.0218 ^b (4.6)	-0.0172 ^b (5.7)	-0.0064 (0.8)
<i>ECONOMIC PROXIMITY_{ij}</i>	0.0017 (1.7)	0.0003 (0.1)	0.0085 ^a (31.7)	0.0073 ^a (15.8)
<i>D(CULTURAL PROXIMITY_{ij})</i>	0.0552 ^a (11.1)	0.0474 ^a (14.4)	0.1296 ^a (8.0)	0.1133 ^b (5.3)
<i>INDUSTRIAL PROXIMITY_{ij}</i>	0.1040 ^a (13.7)	0.0397 ^c (3.4)	0.1575 ^a (8.0)	0.2387 ^a (10.9)
<i>GEOGRAPHIC PROXIMITY_{ij}</i>	0.0015 (0.7)	0.0001 (0.0)	0.0077 ^b (5.9)	0.0119 ^a (7.9)

Panel B. Subsample of small and large firms

Sample	G5 firms		Non-G5 firms	
	Small Cap	Large Cap	Small Cap	Large Cap
Observations	70	70	575	575
Intercept	-0.0059 (0.0)	0.0461 ^c (3.7)	-0.3663 ^a (23.0)	-0.2620 ^a (26.9)
<i>CORRELATION_{ij}</i>	-0.0121 (0.1)	-0.0515 ^c (2.7)	0.1564 (2.2)	0.1993 ^a (6.8)
$\ln(GDP_j/GDP_i)$	0.0018 (0.4)	0.0049 ^c (3.7)	0.0058 (0.4)	0.0005 (0.0)
$\ln[(CAP_j/GDP_j)/(CAP_i/GDP_i)]$	0.0126 ^b (4.1)	0.0117 ^b (5.4)	0.0104 (0.6)	-0.0081 (0.8)
<i>LIQUIDITY_{ij}</i>	-0.0303 ^b (3.9)	-0.0402 ^a (9.2)	0.0133 (0.2)	0.0102 (0.2)
<i>D(DISCLOSURE_{ij})</i>	0.0019 (0.0)	-0.0045 (0.3)	0.0667 ^c (0.2)	0.0322 (1.8)
<i>D(EMU_{ij})</i>	-0.0111 (0.7)	0.0224 ^b (3.9)	-0.0492 (1.0)	-0.0518 (2.4)
<i>D(TAX_j)</i>	-0.0059 (5.2)	-0.0041 (0.1)	0.0874 ^b (3.9)	0.0673 ^b (4.8)
<i>D(LAW_{ij})</i>	-0.0122 (2.0)	-0.0270 ^a (12.4)	-0.0113 (2.0)	-0.0067 (1.3)
<i>ECONOMIC PROXIMITY_{ij}</i>	0.0015 ^c (3.2)	0.0001 (0.0)	0.0045 ^a (10.2)	0.0030 ^a (8.3)
<i>D(CULTURAL PROXIMITY_{ij})</i>	0.0403 ^a (13.5)	0.0041 (0.2)	0.1109 ^a (8.4)	0.0632 ^a (5.6)

Table 8
(continued)

Sample	G5 firms		Non-G5 firms	
	Tradable	Nontradable	Tradable	Nontradable
<i>INDUSTRIAL PROXIMITY_{ij}</i>	0.0714 ^a (13.6)	0.0444 ^a (7.3)	0.1864 ^a (8.4)	0.1698 ^a (14.5)
<i>GEOGRAPHIC PROXIMITY_{ij}</i>	0.0004 (0.1)	0.0005 (0.3)	0.0066 ^c (3.5)	0.0045 ^c (3.6)

This table provides Tobit procedure regression results using the number of sample overseas listings from each of the 44 home markets placed in each of the 15 host markets with more than 15 foreign listings as of the end of 1998. The dependent variable is the frequency of firms from country i listed in country j . The sample is reduced by the number of observations available. Industry identification is achieved for all 2,251 sample firms, but market capitalization is obtained for only 1,044 firms (46% of the whole sample). The independent variables are defined in Table 7. Panel A shows regression results dividing the frequency distribution by industry classification. "Tradable" ("nontradable") industries are the subsample of foreign listings from firms that do (not) produce internationally traded goods. Chi-square statistics are reported in parentheses. The superscripts a, b, and c denote significance at the 1%, 5%, and 10% confidence level, respectively.

familiar. Another conclusion that we draw from these tests is that the proximity preference of firms is most importantly a home country phenomenon, more so than an output type or size effect.

All the preceding results, both at the country and firm levels, seem to indicate that firms prefer listing in those overseas markets where they already have a sizable positive correlation. It is conceivable that since this correlation is measured near the end of the sample period, it reflects the correlation of firms already listed on both markets. To test this possibility, we compute the prelisting betas for all firms relative to the target host countries as well as all foregone markets. We obtain monthly return data from CRSP for U.S. firms and Datastream for non-U.S. firms. We estimate host market betas for the 36 months prior to the listing date for 696 firms (31% of the sample). The beta is estimated using monthly dollar-denominated returns over the 36 months prior to the listing month. We use Datastream prices to estimate returns for the non-U.S. firms and CRSP returns for the U.S. firms. The Datastream total market index for each of the 44 non-U.S. countries is used as the market index. The CRSP value-weighted index is used for the U.S. market. Any market combinations with less than 24 months of firm and market return data are eliminated. One reason that we lose so many observations is that many firms placed their shares overseas well before the beginning of the standard electronic datasets. Nearly one-quarter of the firms listed overseas prior to 1980 and nearly 10% listed overseas prior to 1960. We also have had some difficulty obtaining an adequate time series of return data from Datastream.

Table 9 reports two measures of average betas of firms from each country with their respective host and nonhost markets. The first betas, which we call "firm betas," are estimated by regressing monthly returns of

Table 9
Foreign market betas for selected and nonselected overseas listing markets

Home country	Number of of pairings		Firm beta			Firm residual beta		
	Host	Nonhost	Host	Nonhost	<i>t</i> -statistic	Host	Nonhost	<i>t</i> -statistic
Australia	43	1,182	0.744	0.238	3.52	0.081	-0.165	2.77
Austria	1	22	0.616	0.285	NA	0.020	0.023	NA
Belgium	5	247	0.635	0.211	4.55	-0.071	0.004	-1.68
Brazil	2	74	-0.176	0.257	-3.33	-0.218	0.184	-2.88
Canada	90	2,659	0.267	0.161	1.04	-0.145	0.033	-2.12
Chile	5	159	0.509	0.149	3.04	-0.142	0.041	-0.68
Czech Rep.	2	76	-0.696	-0.289	-0.84	-0.730	-0.293	-0.89
Denmark	3	44	0.031	0.212	-0.88	-0.200	-0.050	-3.59
Finland	3	114	0.784	0.476	6.53	0.221	0.148	0.38
France	16	389	0.715	0.395	2.82	0.032	-0.017	0.93
Germany	45	1,151	0.525	0.351	3.00	-0.002	-0.001	-0.01
Hong Kong	8	226	0.594	0.580	0.04	-0.214	-0.091	-1.13
India	16	1,683	0.460	-0.073	1.97	0.279	-0.086	1.84
Ireland	7	183	0.532	0.314	1.71	-0.013	0.007	-0.34
Italy	7	231	0.410	0.350	0.28	0.049	0.109	-0.50
Japan	104	2,492	0.519	0.346	5.16	0.081	0.038	1.43
Mexico	4	126	-1.012	-0.129	-2.06	0.096	0.017	0.61
Netherlands	34	988	0.562	0.318	4.23	0.006	0.021	-0.47
New Zealand	5	140	0.433	0.229	1.11	-0.072	0.019	-0.35
Norway	6	152	0.797	0.608	1.77	-0.219	0.095	-1.24
Peru	1	33	-0.357	-0.880	NA	-1.431	-1.066	NA
Philippines	1	61	1.650	0.259	NA	1.185	0.226	NA
Singapore	2	80	-0.390	0.302	-3.23	-0.640	0.007	-5.97
S. Africa	16	539	0.354	0.277	0.54	0.063	0.068	-0.04
Sweden	13	273	0.467	0.452	0.17	-0.133	-0.037	-2.04
Switzerland	13	369	0.498	0.291	1.63	0.070	0.045	0.32
Taiwan	8	539	0.356	0.064	1.23	-0.093	-0.112	0.11
Turkey	1	71	0.691	-0.032	n.a.	1.076	-0.141	NA
UK	59	1,709	0.578	0.269	2.61	0.061	-0.015	0.67
USA	177	3,998	0.248	0.178	2.42	-0.032	-0.012	-1.04
All countries	697	20,010	0.421	0.222	8.01	-0.005	-0.011	0.32

This table reports the mean foreign market betas by home country for both the market selected to host the foreign listing as well as the markets among the 44 sample countries not selected to host the foreign listing. The betas are given at both firm and local market levels. Firm betas are estimated by regressing monthly returns of all foreign-listed firms from the given home market on the monthly market index returns of the foreign markets for the 36 months prior to the firm's overseas listing. Firm residual betas are estimated by regressing the local market model residuals of monthly returns of all foreign-listed firms from the given home market on the monthly market index returns of the foreign markets for the 36 months prior to the firm's overseas listing. All non-U.S. returns are denominated in U.S. dollars and obtained from Datastream. All U.S. returns are obtained from CRSP. Firms are omitted for which at least 24 months of home market returns or the foreign market index were not available on CRSP or Datastream. Returns for listings prior to 1970 are also excluded. Betas are obtained for 697 foreign listings. The hosted market is the market in which the firm chooses to list; the nonhosted markets are all the other 44 markets excluding the home market. The *t*-statistic is a difference test in the mean beta estimates between nonhost and host markets.

all foreign-listed firms from the given home market on the monthly market index returns of the foreign markets for the 36 months prior to the firm's overseas listing. The second betas, which we call "firm residual betas," are estimated similarly, but the regressor (firm return) is substituted with the firm residual from the single-factor local market regression model. These two beta measures allow us to disentangle the possible effects of marketwide versus firm-level diversification gains.

Across all countries that have return series (30 in total), the average host market firm beta is 0.42, while the nonhost market firm beta is only 0.22. A *t*-test shows that this difference is significant at the 1% level. Across the individual countries, we also observe that firms largely list in markets toward which there is already sizable beta exposure: in 25 of 30 cases the average host market firm beta is larger than the average non-host market firm beta. In only five cases do we see the opposite pattern, but in fact, all of these counter examples have a small number of observations. In contrast, the average firm residual beta for all countries is insignificantly different between host and nonhost markets. The average residual beta for individual countries is only rarely significant.²⁶ Firms appear to list across markets in which the aggregate market correlation is relatively high, but not necessarily in markets with which the firm's unique risk is correlated. Therefore the preference of firms to list in markets with relatively high correlation with the home market appears to be a robust phenomenon, which is directly related to the proximity preference in cross-listing decisions. In addition, consistent with previous results of the article, this preference is primarily a market-driven phenomenon: recall that we also observe larger proximity preference differences across different country groups (G5, developed, emerging) than across different firm characteristics (size or tradability).

4. Proximity Preferences and Financial Liberalization

In this section we discuss how proximity preferences in cross-listing decisions affect liberalization processes in emerging markets. We have documented that firms, especially those from smaller or emerging markets, tend to cross list their stocks in more proximate markets. We now investigate the constraints to the *first* foreign listing from an emerging economy and whether it coincides with the beginning of liberalization processes in the respective home markets [Bekaert and Harvey (2000), and Bekaert, Harvey, and Lumsdaine (2002; hereafter BHL)].

Previously liberalization dating was conducted using the first U.S. listing (ADR) rather than the first foreign listing. It is likely that firms within emerging countries may have placed their shares first in non-U.S. markets and achieved some integration with the world market. These listings would have been undetected in the past studies. Moreover, at the end of 1998 the

²⁶ In tests not reported in Table 9, we estimated an additional market-market beta by regressing the monthly market index returns of the given home market on the monthly market index returns of all host and nonhost foreign markets for the 36 months prior to the overseas listing. In other words, at the time of each overseas listing from a given country, we substitute the local market index return for the local firm return for the same 36-month horizon relative to the listing date. We observe that the pattern in market betas is similar to that of the earlier firm betas. Firms tend to list in markets with which their own local market is highly correlated. The mean host market "market beta" is 0.43, which is significantly greater than the mean nonhost market "market beta" of 0.25.

Table 10
Overseas listings, proximity preference, and liberalization dates

Country	BHL liberalization dates			First exchange-traded overseas listing		
	Official	1 st ADR ann. date	Quad	Host market	Listing date	Type of proximity bias
Argentina	Nov-89	Aug-91	Jun-92	USA	Dec-92	Geographic
Brazil	May-91	Jan-92	Apr-90	Luxembourg	Jun-82	Industrial (manuf.)
Chile	Jan-90	Mar-90	Jan-93	USA	Sep-92	Geogr. & econ.
Colombia	Feb-91	Dec-92	May-94	Luxembourg	Feb-93	Industrial (financ.)
Greece	Dec-87	Aug-88	Aug-90	USA	Dec-88	None
India	Nov-92	Feb-92	May-93	UK (Luxembourg)	Apr-76 (Jun-92)	Cultural
Indonesia	Sep-89	Apr-91	Aug-93	USA	Aug-94	None
Korea	Jan-92	Nov-90	Sep-88	Luxembourg	Nov-90	Industrial (manuf.)
Malaysia	Dec-88	Aug-92	Jan-94	UK (Singapore)	Dec-50 (Sep-91)	Cultural
Mexico	May-89	Jan-89	Jan-92	USA	May-91	Geogr. & econ.
Philippines	Jun-91	Mar-91	Jan-90	Singapore	Mar-90	Geogr. & econ.
Portugal	Jul-86	Jun-90	Jun-88	USA	Apr-93	None
Taiwan	Jan-91	Dec-91	Oct-88	Luxembourg	Dec-92	None
Thailand	Sep-87	Jan-91	Oct-93	Luxembourg	Dec-93	None
Turkey	Aug-89	Jul-90	May-89	Luxembourg	Mar-94	Geographic
Venezuela	Jan-90	Aug-91	Jan-94	USA	Nov-91	Geographic

The table reports the liberalization dates for all the emerging countries from Bekaert, Harvey, and Lumsdaine (2002, Table 3) that have overseas listings and the characteristics of the first overseas listings from the same countries based on our sample. The first three columns are from Bekaert, Harvey, and Lumsdaine. The first column (Official) is the official liberalization date based on specific political, economic, or financial events in a given country. The second column gives the date of the first ADR announcement from a given market. The third column (Quad) is the liberalization date based on the breakpoint analysis with four world instruments: world index returns, dividend yield, market capitalization: GDP ratio, and equity holdings: market capitalization ratio. The next three columns show the place and date of the first official exchange-traded overseas listing from a given market in our sample as well as the type of the possible proximity bias. Since both India and Malaysia were former British colonies, we also report (in parentheses) the markets and dates of their first listings placed outside the United Kingdom.

vast majority of ADR programs were in the most basic Level 1 and Rule 144A issues. Yet in terms of the dollar value, these issues accounted for only 5% of trading across all ADR programs (e.g., see *Euromoney* 1999; 366: 80–82). With such trivial trading volume, ADR issues traded outside regular exchanges may not attract a sufficient pool of foreign investors to qualify as contributing to (or coinciding with) major liberalization processes.²⁷

To examine these issues we have reviewed the liberalization dates for all the emerging countries studied in Bekaert and Harvey (2000) and BHL that have overseas listings. The first three columns of Table 10 are from BHL. The first column (Official) is the official liberalization date based on specific political, economic, and financial events in a given country. The second column gives the announcement date of the first ADR from a given market. The third column (Quad) is the liberalization date based on

²⁷ The placement dates of off-exchange ADRs can be substantially different from the actual liberalization dates of the home countries. For example, foreign listings under Rule 144A can only be held by qualified institutional buyers in the United States; however, the listings in our database are much less restricted.

the breakpoint analysis with four world instruments: world index returns, dividend yield, market capitalization: GDP ratio, and equity holdings: market capitalization ratio. The next three columns show the place and date of the first overseas listing from a given market in our sample, as well as a comment on possible proximity bias in the market selection.

The table presents several interesting results. First, it shows that many firms from emerging markets often choose to list their first overseas stocks outside the United States. The most important initial foreign market for firms from emerging markets is, in fact, Luxembourg.

Second, and more related to the scope of this article, is that we again observe various proximity preferences for the first cross listing. The first listings from Argentina, Chile, Mexico, the Philippines, Turkey, and Venezuela are in geographically close markets (same geographic region). The first overseas listings from India and Malaysia, the former colonies of the United Kingdom, are in the United Kingdom. The first listings from Brazil, Colombia, and Korea are in Luxembourg. These listings belong to the companies in diversified industrials and financials—these sectors rank in the three aforementioned countries and Luxembourg (the host market) as either number one or number two from among the 16 industries considered for each country.

Third, it appears that cross listing of firms in the countries with which the home country has some special relation does not contribute to the liberalization of the home market. The listing only in a less familiar foreign market appears to coincide with the liberalization process in the home country. For example, the first overseas listing in our sample from India and Malaysia is in the United Kingdom in 1976 and 1950, respectively. Note that these countries were British colonies until 1947 and 1957, respectively.

Finally, the table provides additional support for the methodology used in BHL to determine the liberalization dates in emerging markets. In particular, the majority dates of the first country listings that we report (9 times out of 16) are in the same direction from the first ADR announcement dates as the liberalization dates based on the quadrivariate estimation in BHL. For example, according to the BHL estimation results, the liberalization date for Brazil is April 1990, much earlier than both the first ADR announcement and the official liberalization dates. Our data show that the first listing from Brazil was in Luxembourg in June 1982 by Belgo Mineira, one of the largest Brazilian conglomerates involved primarily in the production of steel. Clearly this firm alone could somewhat reduce the segmentation of the Brazilian equity market from the world and thus lead to the earlier detection of liberalization in BHL's estimation. Alternatively, according to the BHL estimation results, the liberalization date for Thailand is October 1993, much later than both the first ADR announcement and the official liberalization dates. Our data show that the first listing from Thailand was in Luxembourg in December 1993 by

Telecomasia, the largest telecom company. In the three cases (Greece, Korea, and Venezuela) our information on the first listings coincides with that in BHL. Only for four countries is the direction on the first listing in our sample opposite that predicted by the quadrivariate estimation. It appears therefore that four global instruments used in BHL can indeed provide valuable information about the integration dates of most of the emerging market economies.

Thus, Table 10 allows us to provide answers to the questions posed above. First and foremost, it shows that the first cross listings from emerging countries are often placed in familiar markets. Second, placing of firms in a foreign market that has a special relation with the home market (e.g., colonial ties) does not contribute to the liberalization processes in the home country. Finally, the first ADRs, if they are not traded on regular exchanges, do not necessarily lead to (or coincide with) liberalization.

5. Conclusion

We test for geographic and other forms of proximity biases in the overseas financing market using almost the entire universe of cross listings as of 1998. While investors' preferences for investing in domestic or close-to-home assets are well known, the impact of proximity on financing decisions has received little attention.

We study the distribution of cross listings based on both country and firm-specific characteristics and conclude that geographic, economic, cultural, and industrial proximity of foreign stock exchanges between two countries play an important role in host market selection.²⁸ The observed proximity bias is particularly strong in markets outside the G5 group of industrialized countries and for small firms with nontraded product output. We observe that even the first overseas listings of the majority of emerging markets are placed in familiar markets. We find little evidence that investor diversification gains are a leading consideration in the selection of trading venue. Firms tend to list on markets where the return correlation or firm beta risk is relatively high. We find support for the importance of some conventional motives in cross-listing decisions, such as larger market capitalization and low tax environment. Cross-country familiarity, however, provides a dominant role.

Our findings are consistent with a home bias reflection view of overseas listings, in that firms are highly constrained with respect to their choice of trading venue. The evidence is consistent with the view that firms are unable to use foreign listings to overcome the familiarity problems that

²⁸ Our finding that market proximity matters to foreign firms provides support for recent strategic initiatives of exchanges. In the late 1990s, the Thessaloniki Stock Exchange in Greece planned to specialize in trading shares from the Balkan countries, and the Vienna Stock Exchange has worked to become a major trading place for neighboring eastern European companies.

induce home-biased investing. We are unable to discriminate among the underlying causes of our results. Although geographic, economic, cultural, and industrial proximity may all be indicative of investor information advantage, they may otherwise reflect some form of psychological tolerance for these stocks by foreign investors. Due to geographic and other differences in information availability and/or psychological intolerance toward the unfamiliar, we conclude that overseas listing may do little to increase the appetite for unfamiliar equity.

Appendix

To illustrate how different market characteristics generate different cost of capital effects, we can adapt the model of partial integration of Errunza and Losq (1985). Consider a world composed of two countries. Investors in country 1 (e.g., a developed country) can trade those securities, including foreign ones, that are listed in their home market, but are restricted from trading securities listed only in country 2 (e.g., an emerging market). Investors in country 2 can trade all securities of both countries. Let S_1 and S_2 be the sets of domestic securities in country 1 and 2, respectively. Suppose, L is the subset of S_2 that is also listed (and traded) in country 1. Following Errunza and Losq, all securities that can be traded by investors of both countries are denoted "E" for "eligible," while those that cannot be traded are denoted "I" for "ineligible." Thus the set of eligible securities is $E = \{S_1, L\}$, while the set of ineligible securities is $I = \{S_2 \setminus L\}$. The cost of (equity) capital R_e of any eligible security e from the set E is defined as in the case of full market integration as $R_e = \lambda_W \text{cov}(R_e, R_W)$, where λ_W is the price of world market risk and R_W is the return on the world market portfolio, which includes securities in both countries. Under the conditions of partial integration, the cost of (equity) capital R_I for all ineligible securities I commands an additional risk premium. Errunza and Losq show that $R_I = \lambda_W \text{cov}(R_I, R_W) + \lambda_I(1 - \rho_{IE}^2)\sigma_I^2$, where λ_I is the price of risk of ineligible securities and ρ_{IE} is the multiple correlation between R_I and the portfolio of eligible securities which is most highly correlated with R_I . After solving for λ_W and substituting it into the earlier equation, we obtain

$$R_e = [R_I - \lambda_I(1 - \rho_{IE}^2)\sigma_I^2] \left(\frac{\rho_{eW}\sigma_e}{\rho_{IW}\sigma_I} \right). \quad (5)$$

From the equation, it is clear that *ceteris paribus* the cost of capital of any eligible security that is traded in country 1, including any cross-listed stock from market 2, will have a lower cost of capital, the smaller is the correlation ρ_{IE} , assuming that ρ_{eW} and ρ_{IW} are positive. Therefore the static $\delta R_e / \delta \rho_{IE} > 0$ implies that firms prefer listing their shares in those foreign markets that have the lowest correlation with their home market.

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