Cross-listing and the Home Bias

OLGA DODD [a,*] and BART FRIJNS [a]

[a]Department of Finance, Auckland University of Technology, Auckland, New Zealand

*Corresponding author. Department of Finance, Auckland University of Technology, Private Bag 92006, 1020 Auckland, New Zealand. Tel.: +64 9 921 9999 (ext. 5423); Fax: +64 9 921 9940; Email: olga.dodd@aut.ac.nz

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Abstract

This paper examines the relationship between the choice of the destination market for cross-listing and the home bias of investors. We use two measures of home bias, the domestic bias (the degree of overinvestment in the home market), and the foreign bias (the degree of over-/under-investment in a foreign market). First, we find a strong relationship between the domestic bias of investors and cross-listing decisions of firms. In particular, the level of cross-listing activity of firms *from* a particular market is negatively related to the domestic bias of the home market investors, while the level of cross-listing activity of firms *towards* a particular market is negatively related to the domestic bias of the host market investors. Second, we find a strong relationship between the foreign bias and cross-listings. In particular, the level of cross-listing activity *from* one market *to* another is positively related to the foreign bias in investments allocation of the home market investors as well as of the host market investors. Further tests show that it is the preferences of the host market investors that matter more than the preferences of the home market investors.

Key Words: Cross-listing, home bias, domestic bias, foreign bias.

JEL Classifications: C24; G10.

1. Introduction

The incidence of cross-listings, i.e. firms listing their shares on exchanges outside their home market, has provoked questions about the motives for this decision. One question that is still not well understood is what drives the choice of market to cross-list in (Pagano et al., 2002; Sarkissian and Schill, 2004). Numerous theories have been proposed that provide rational explanations for the choice of "host" market. [1] These are based on the overcoming of barriers and frictions, such as market segmentation and informational barriers, or a preference for "better quality" markets with improved investor protection, etc. Most recent research suggests that firms cross-list in *host* markets that share similarities with the *home* market (Sarkissian and Schill, 2004), which has become known as the proximity preference hypothesis. However, despite a significant body of literature[2] there are still unanswered questions regarding cross-listing behavior.

Another strand of literature that has yet to be resolved is the existence of a home bias in the equity allocation of investors. Numerous studies have shown that investors prefer to hold domestic assets over foreign assets, even though this leads to considerable under-diversification. Interestingly, many of the arguments that have been used to explain the cross-listing decision, have also been used to explain the home bias. In particular with regard to the proximity preference argument, Sarkissian and Schill (2004) note "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" – p. (769). Although proximity may be one reason why

[1]Note that we refer to home market as the market where firms cross-list from, and host market as the market where firms cross-list in.

[2]see Foerster and Karolyi (1998, 1999), Errunza and Miller (2000), Merton (1987), Doidge et al. (2004), Fuerst (1998), and Sarkissian and Schill (2004).

investors prefer to hold foreign equity and why firms prefer to cross-list in a specific market, there may be other factors that cause a relationship between cross-listing decisions and home bias, for instance psychological biases. Although many studies have examined the determinants of cross-listing and home bias separately, we are not aware of any study that has directly tested the relationship between cross-listing activity and the home bias. In this paper, we intend to fill this gap.

A relationship between cross-listing decision and the home bias of investors can be expected for several possible reasons. On one hand, managers may anticipate the home bias of investors and make their decisions in accordance with investors' preferences and, therefore, cross-listing behavior would reflect the home bias. In addition, managers may exhibit behavioural biases similar to those of investors. This also would lead to cross-listing behavior reflecting the home bias. On the other hand, managers may cross-list to make the company's shares available to investors who otherwise would be reluctant to invest overseas due to their preferences for the domestic market's shares. In this case, cross-listing is a means to overcome the home bias of investors.

In this paper, we examine the relationship between cross-listing activity and the home bias. We obtain data on a sample of cross-listings from 45 home markets to 32 host markets from Sarkissian and Schill (2009b) and obtain data on the domestic and the foreign bias from Chan et al. (2005). Our analysis shows that there is a strong relationship between cross-listing activity and the domestic and foreign bias of both home and host market investors, even after controlling for a range of other variables that have been used to explain cross-listing activity. Specifically,

we observe that cross-listing activity reflects the home bias[3] of both home and host market investors, where firms from countries with higher *domestic* biases tend to engage in less cross-listing activity and firms cross-list less in markets that display a higher domestic bias. For the *foreign* bias, we find that firms have a preference for cross-listing in markets, where the host market investors have a preference for holding equity from those countries, i.e. cross-listings reflect the investment preferences of host market investors. Our findings are robust to different measures of home bias and cross-listing activity and different estimation procedures.

The remainder of this paper is organized as follows. In Section 2 we review the relevant literature on cross-listing and the home bias and develop the hypothesis on the role of home bias in the cross-listing decision. Section 3 describes the data used in this paper. Section 4 presents the findings from our analysis and robustness tests. We conclude in section 5.

2. Literature Review and Hypotheses

Several theories and arguments have been proposed to explain the motivation to cross-list and the choice of host market. Traditional arguments for cross-listing are predominantly based on barriers (e.g. market segmentation [Stapleton and Subrahmanyam (1977)] or informational barriers [Merton, 1987]), preference for better "quality" markets (e.g. improved liquidity [Amihud and Mendelson (1986)]; stronger investor protection [Stulz (1999) and Coffee (1999)]; or stricter disclosure regimes [Fuerst (1998)]); etc. These arguments all suggest that firms look to cross-list in markets that are different to the home market.

[3]Here we consider the home bias as consisting of two parts: the domestic bias, which refers to the preference of holding domestic equities; and the foreign bias, which refers to the preference of holding foreign equities from specific markets.

More recent studies, however, suggest that firms choose to cross-list in markets where they benefit the corporation's global strategy (e.g. Bancel and Mittoo, 2001), where peers are cross-listed (Pagano et al., 2002), and where it improves the firm's image with their global customers (King and Mittoo, 2007). These arguments suggest that firms are more likely to cross-list in proximate markets, either geographically, economically or culturally. This idea was first amalgamated by Sarkissian and Schill (2004) who argue that firms choose to cross-list in familiar markets, leading to a so-called proximity preference bias. Specifically, they show that geographic, economic, industrial and cultural proximity (variables that have also been shown to affect the home bias [e.g. Coval and Moskowitz (1999), Huberman (2001), and Grinblatt and Keloharju (2001)]) also affect the choice of market to cross-list in.

Managers contemplating a cross-listing are likely to be aware of investors' biases.[4] Managers are equally aware of the costs of cross-listing. If cross-listings fail to generate a marked increase in shareholder base then the positive benefits (improved liquidity, reduced cost of capital, and ultimately a valuation premium) are unlikely to materialize. If investors are unwilling to invest in a company, the benefits of the cross-listing, such as increased liquidity, will fail to compensate for the increased costs from the additional listing. Hence, we expect that the home bias of investors will be reflected in the cross-listing decision of corporate managers. This can be at several levels, where the cross-listing decision can reflect the *domestic bias* of home and host market investor and reflect the *foreign bias* of home and host market investors. To examine the

[4]Sarkissian and Schill (2009a) argue that this proximity bias in selecting a host market is driven by managers' beliefs that investors are less willing to invest in companies that are unfamiliar to them.

relationship between the home bias and cross-listings we therefore pose the following four hypotheses.

Hypothesis 1: Cross-listing activity reflects the domestic bias of home market investors.

The cross-listing activity of firms from a specific country may reflect the domestic bias of home market investors (preference for investing in the domestic market). There are several possible reasons for this. First, if domestic investors have a strong preference for investing domestically, then there may be less need for corporate managers to seek a listing elsewhere, because there is sufficient investor base in the home market. This can be seen as a rational reason as to why firms do not choose to cross-list. Second, it can be the case that managers are prone to the same behavioural biases as investors (such as a familiarity bias), and as such countries where people have a stronger bias against investing abroad, may also have management in firms that has a stronger bias against listing abroad.

Hypothesis 2: Cross-listing activity reflects the domestic bias of host market investors.

Cross-listing activity can also reflect the domestic bias of *host* market investors, i.e. the decision to cross-list in a specific country may be affected by the domestic bias for investors in that market. This domestic bias of host market investors can affect cross-listing activity in two different ways. On the one hand, the decision to cross-list in a particular market can be an attempt of corporate managers to overcome the domestic bias of host market investors. For example, if host market investors have a high domestic bias (strong preference for investing locally), a foreign firm may attempt to overcome this bias by cross-listing in the host market, and

so become part of the investable universe of the host market investors (this is similar to the habitat formation argument put forth by e.g. Barberis et al., 2005). On the other hand, the choice of the destination market for cross-listing may be negatively related to the domestic bias of host market investors (the stronger the domestic bias of the host market investors, the smaller the number of cross-listings towards this host country). This is because managers may be aware of the domestic bias of the host market investors, and if this domestic bias is a bias against any foreign firm even when listed in the domestic market, then foreign firms may prefer not to cross-list in such a market (as they would recognize that investors would not buy their shares). This argument is similar to the argument of Sarkissian and Shill (2004).

Hypothesis 3: Cross-listing activity reflects the foreign bias of home market investors.

Cross-listing activity can further reflect the foreign bias of home market investors. This would mainly be the case if the psychological biases of corporate management reflect the biases of home market investors. If investors have a strong preference for investing in specific foreign markets, then corporate managers may have the same preferences and choose to cross-list in those markets.

Hypothesis 4: Cross-listing activity reflects the foreign bias of host market investors.

Our final hypothesis considers the relationship between the choice of the destination market for cross-listing and the foreign bias of the host market investors. As with the domestic bias for host market investors, we can expect either a positive or negative relationship. We could expect to see a negative relationship, because a preference of host market investors into a specific market may

make it less necessary for firms to cross-list in that market. That is, since foreign investors are already holding equity of home market firms, there will be fewer benefits from cross-listing in these particular markets, and there will be more benefits from cross-listing in markets where investors do not invest in foreign equity. However, if host market investors have a preference for investing in a particular home market, then we could expect to see a positive relationship between the foreign bias and cross-listing activity if corporate managers see this as an opportunity to raise more capital from those investors, they may prefer to cross-list in these markets.

3. Data and Summary Statistics

3.1 Cross-Listing Activity

We measure cross-listing activity between two countries by the number of companies that cross-list from a home market into a host market. We obtain these data from Sarkissian and Schill (2009b). In total, these data include 3,635 cross-listings from 45 home markets to 32 host markets as at the end of 2006 (excluding OTC, investment funds and off-exchange listings).[5]

We measure cross-listing activity as the ratio of cross-listings between a pair of home and host countries to the total number of domestic companies in the home country: CL_{ij}/DC_i, where CL_{ij} is

[5]From the sample of Sarkissian and Schill (2009b) that includes 3,683 cross-listings from 73 home countries in 33 host markets we exclude home countries that contribute less than five cross-listings. We also exclude United Arab Emirates as a host country due to unavailability of investor protection data for this country.

the number of cross-listings from home country *i* to host *j* and DC_i is the total number of domestic companies listed in country *i* (see also Sarkissian and Schill, 2004).[6]

INSERT TABLE 1 HERE

In Table 1, we report summary statistics on cross-listing activity *from* a home market and *towards* a host market. From a home market perspective, we report the number of cross-listings and the ratio of cross-listings over domestically listed companies. In absolute terms, we observe that Canada has the greatest number of cross-listed firms (651). We also observe considerable numbers of cross-listings from the US, UK, Japan, Australia, Germany, the Netherlands, Israel, and France. As a percentage of domestic listings Ireland, the Netherlands and Luxembourg dominate with more cross-listings than domestic companies.[7] The lowest percentages of cross-listings (1%) are from Egypt, Malaysia, Spain and Thailand. From a host market perspective, we observe that the US is the most popular market for cross-listing (1,404 cross-listings, or nearly 40% of the sample). This is followed by the UK with 475 cross-listings. We further observe significant cross-listings in both Luxembourg and Switzerland, traditional tax havens. As a percentage of the number of host country domestic firms, Luxembourg is the most popular destination market with 775%, indicating it hosts considerably more firms than it has domestic listings (279 cross-listings compared with 36 domestic listings). We also observe high percentages in the Netherlands, Belgium and Switzerland. Emerging markets in the sample host

[6]We have also conducted our analysis with an alternative and often used measure of cross-listing activity, which is the ratio of cross-listings between a specific pair of home and host countries to the total number of cross-listed companies from the home country: CL_{ij}/CL_i, where CL_i is the total number of companies with a listing in any other market. Although we do not report the results of this analysis, all results are in line with those presented in the paper.
[7]This is possible if firms cross-list in more than one host market. In this case, each cross-listing is counted in the number of cross-listings.

a very small number of cross-listings, less than five firms with the exception of South Africa which hosts 17 cross-listings.

A closer look at the distribution of cross-listings in the sample description reveals that there is considerable clustering in cross-listings. From a home market perspective, we observe that most firms cross-list in a single host market. For instance, Canada, with 651 cross-listings, has 567 of these in the US (87%). Likewise, Chilean and Israeli cross-listings are predominantly in the US. Indian, Irish, Polish and Egyptian firms cross-list primarily in the UK. We observe similar patterns for host markets, all firms cross-listing in Ireland are from the UK and 95% of firms cross-listing in New Zealand are from Australia. Such strong clustering in the choice of destination market may indicate a familiarity bias in the choice of destination market.

3.2 Domestic and Foreign Bias

Our data on foreign asset allocation are based on the holdings of mutual fund managers from 26 countries investing in a broader sample of 45 countries. The country-level data are based on underlying individual fund-level data obtained from Thomson Financial Services for the years 1999 and 2000.[8] All types of mutual funds are included in this sample, i.e. closed- and open-end funds, and equity or balanced funds. However, the allocation of one country into another only considers the equity part of the funds. Aggregating at the country level therefore, shows the proportion of money allocated by mutual fund managers from country *i* to the share market of country *j* (w_{ij}). This proportion has been used as a measure of home bias (domestic and foreign bias) by Chan et al. (2005, 2009), and Beugelsdijk and Frijns (2010), among others.

[8]For a more detailed discussion on the data, see Chan et al. (2005).

To examine the relationship between the home bias and cross-listing activity, we consider two dimensions of the home bias: the domestic bias (preference for investing in the home market) and the foreign bias (when investing in foreign assets, preference for foreign assets from specific countries). To compute scores for both biases, we calculate deviations from the optimal portfolio as described by the CAPM (see also Chan et al., 2005, 2009; and Beugelsdijk and Frijns, 2010). According to the CAPM, optimal weights are given by the market value of a particular country relative to the global market value. The difference between the actual investments in a country and the optimal weight reflects the degree of bias towards a particular country.

3.2.1. Domestic bias

Our first measure reflects the degree of over-/under-investment in the home country. Following Chan et al. (2005, 2009) and Ferreira and Miguel (2011), we calculate the extent of the domestic bias for country *i* ($DBIAS_i$) as the proportion of actual investments in domestic equities relative to the weight of the home market in the global market measured by market capitalization, i.e.,

$$DBIAS_i = \frac{w_{ii}}{w_i^*} \quad (1)$$

where w_{ii} is the proportion of investments in domestic equities of the home market, and w_i^* is the optimal weight of investment allocation according to the CAPM, i.e.,

$$w_i^* = \frac{MarketCap_i}{\sum_j MarketCap_j} \quad (3)$$

where $MarketCap_i$ is a home market's market capitalization and $\sum_j MarketCap_j$ is the total global market capitalization. Based on the evidence that investors tend to overinvest in their home market (e.g. Chan et al., 2005), we expect that $w_{ii} > w_i^*$, and the domestic bias score to be greater than 1.

In Table 2, we report summary statistics for the optimal investment in domestic equities (w_i^*), the actual investments in domestic equities (w_{ii}), and the domestic bias score ($DBIAS_i$) (columns (1), (2) and (3), respectively) for the 26 home countries. The optimal proportion of investments allocated to domestic equities is the highest for the US, Japan and the UK (46.85%, 11.29% and 8.13%, respectively), while the actual proportions of investments allocated to domestic equities are the highest for Greece, the US and New Zealand (93.46%, 85.66% and 74.93%, respectively). All countries exhibit a domestic bias as indicated by the domestic bias score, which is greater than unity for all countries. New Zealand exhibits the greatest domestic bias (1,070.4), followed by Norway (256.89) and Portugal (240.05), while the US exhibit the lowest domestic bias (1.83).

3.2.2. Foreign bias

Our second measure reflects the degree of over- or under-investment from a home country to a particular foreign country. Let w_{ij} be the weight of mutual fund holdings of home country *i* in host country *j*, i.e.,

$$w_{ij} = \frac{Investments_{ij}}{\sum_j Investments_{ij}}, \quad (4)$$

where $Investments_{ij}$ is the investments of mutual funds from country *i* in country *j* and $\sum_j Investments_{ij}$ is the total amount of money mutual funds from country *i* allocated to all markets. We compute the foreign bias score as the ratio of the actual allocation of country *i* in country *j*, adjusted for the weight of the home market in the global market measured by market capitalization, relative to the optimal portfolio allocation, i.e.,

$$FBIAS_{ij} = \frac{w_{ij}/(1-w_{ii})}{w_j^*/(1-w_i^*)}, \quad (5)$$

where w_{ij} is the weight of investments from country *i* in country *j*, w_{ii} is the proportion of investments in domestic equities, w_i^* and w_j^* are the optimal weights by market capitalization of the home and host markets, respectively. This is a modified variant of the measure used by Chan

et al. (2005) and Beugelsdijk and Frijns (2010).[9] A foreign bias score greater than one indicates that the home market investors allocate more to market *j* than is optimal and vice versa.

INSERT TABLE 2 HERE

In Table 2, we report the average and median foreign bias score of the market *i* ($FBIAS_{ij}$) (columns (4) and (5)). From a home market perspective, only three countries, the UK, Denmark and Belgium, have average and median foreign bias scores that are greater than one, implying overinvesting from these three countries into foreign markets. The US has foreign bias score close to one (1.023 mean and 0.975 median) indicating that, on average, the US has no foreign bias. Canada and Greece have the lowest foreign bias scores, meaning significant underinvestment from these two countries into other foreign markets. Altogether, eight countries have average and median foreign bias scores of less than one, indicating systematic underinvestment from these markets towards other foreign markets. For the remainder of the countries we find mean foreign bias scores greater than one and median foreign bias scores less than one. This suggests that the distribution of foreign bias scores is skewed to the right, i.e. home market investors tend to underinvest in most of the foreign markets, but overinvest in a few foreign markets.[10]

[9]We modify their measure by adjusting the weight of the equity holdings of home country *i* in host country *j* (w_{ij}) for the proportion of investments in the home market (w_{ii}) to make the foreign bias score independent of the domestic bias. Without this correction, a strong domestic bias of a country implies a significant underinvestment in other countries, and affects the calculation of the foreign bias (see also Bekaert and Wang, 2009). However, a measure without this correction produces similar results to the ones presented in this paper.

[10] For example, Hong Kong investors overinvest considerably in Singapore and Taiwan (7.7% and 6.5% of their total investments are allocated to Singapore and Taiwan markets, respectively), but underinvest in European markets such as Norway, Belgium, Italy, Denmark, Germany (0.1% or less of the total investments). Finland overinvests in Luxembourg, Sweden, Denmark and Norway and underinvests in North American, South American and Asian

Finally, Table 2 reports the average and median foreign bias for 45 host markets (columns (6) and (7) respectively). Out of 45 host markets, 23 markets have an average foreign bias of less than one, implying underinvestment in these markets by foreign investors. 17 host markets, on average, attract more than the optimal share of foreign investments, evidenced by the foreign bias ratio that is greater than one. However, only 6 host markets have median foreign bias greater than one. This confirms that the degree of under- and overinvestment varies across host markets: particular host markets receive significant investments from a handful of particular home countries.[11]

3.3 Correlations between Home Bias and Cross-listing

Summary statistics on the distribution of cross-listings and foreign investments show that there may be some similarities between the choice of the market for cross-listing and the choice of the host market for equity allocation. As an initial assessment of this relationship, we compute correlations between the measures of home bias, domestic bias and foreign bias scores, and the measures of cross-listing activity.

INSERT TABLE 3 HERE

equity markets. Also, New Zealand overinvests in Australia and Hong Kong and underinvests in European and North American and South American equity markets.

[11] For example, Thailand is heavily overinvested by investors from Hong Kong, Singapore, Taiwan and Japan, with the average foreign bias score to 3.41 while the median score is only 0.54. Hungary is heavily overinvested by investors from Hong Kong, Ireland and Austria, with the average foreign bias score to 2.49 while the median score is only 0.50. Finally, Luxembourg is heavily overinvested by investors from Finland, Norway, South Africa and Spain, with the average foreign bias score to 2.23 while the median score is only 0.33.

Table 3 presents the correlation matrix of our variables of interest. Firstly, we find that there are significant negative correlations between the extent of cross-listing activity and the domestic bias of investors of both home and host market. For the home market domestic bias this suggests that the stronger the tendency of a country's investors to overinvest in domestic equities, the lower the percentage of firms from this country that choose to cross-list (and hence cross-listing activity reflects the domestic bias of home market investors). For the host market domestic bias, this suggests that the higher the domestic bias of host market investors, the fewer firms tend to cross-list in these markets (i.e. firms prefer not to cross-list in host countries where investors have a strong home bias). When we turn to the foreign bias, we find a significant positive correlation for both measures of cross-listing activity. In other words, the higher the weight of investments from a particular home country into a particular host country the higher the number of firms from this home country choosing to cross-list in this host country.

4. Results

4.1 Model Specification

While the correlations show a significant relationship between the cross-listing decision and home bias of investors, we conduct regression analysis to ensure this relationship is not driven by other potential motivations to cross-list. We estimate the following equation:

$$CrossList_{ij} = \alpha + \beta_1 HB_{ij} + \gamma_m Controls_{ijm} + \varepsilon_{ij}, \quad (7)$$

where $CrossList_{ij}$ is the measure of cross-listing activity defined in Section 3.1, HB_{ij} are the measures of home bias of investors defined in Section 3.2. We evaluate the relationship between cross-listing activity from country *i* to country *j* and the domestic and foreign biases of investors from country *i* as well as host country *j*. Lastly, $Controls_{ijm}$ are various variables that represent other reasons for cross-listing (defined below). Because the dependent variable is left-censored, we estimate Equation (7) as a Tobit model.[12]

4.2 Control Variables

While we argue that there is a relationship between the cross-listing decision and home bias of investors of the home and host countries, the home bias of investors is likely to be correlated with other factors that also determine the choice of a market for cross-listing. We therefore control for other possible explanations for cross-listing in Equation (7).

4.2.1. Proximity Preference

A first set of control variables considers the degree of proximity between the home and host markets. Proximity has been shown to affect the extent of home bias (Chan et al., 2005; Grinblatt and Keloharju, 2001) as well as the extent of cross-listing activity between countries (Sarkissian and Schill, 2004). To control for this potential explanation, we include several control variables to examine whether the relationship between cross-listing activity and home bias of investors is not merely driven by familiarity preferences of corporate managers and investors.

[12]In many situations there are no cross-listings for a particular home-host pair of countries. In these cases the ratio of cross-listings is zero. In that value was set at .0001 and the natural log of that value was used as the dependent variable.

First, we include a dummy for shared language. Shared language is often used as a measure for familiarity (Chan et al., 2005; Sarkissian and Schill, 2004) and has been shown to affect both the home bias (e.g. Chan et al., 2005; Grinblatt and Keloharju, 2001) and cross-listing decisions (Sarkissian and Schill, 2004). We expect a positive relationship between shared language and cross-listing activity.

Second, we include a dummy for shared common law, which is one if both countries have common law legal systems. As common law is largely restricted to current and former members of the British Commonwealth, this measure captures a shared historical background and also controls for the superior investor protection prevalent in common law countries (see e.g. La Porta et al., 1998). Based on the proximity preference argument (Sarkissian and Schill, 2004), we expect a positive relationship between shared common law and the proportion of cross-listing to a particular country.

Third, we include the log of the geographical distance in kilometres between the countries' main financial centres.[13] Sarkissian and Schill (2004) show that geographic distance is negatively related to the proportion of cross-listing to a particular country. In addition, Grinblatt and Keloharju (2001) find that investors prefer stocks of firms that are headquartered in nearby locations, and Beugelsdijk and Frijns (2010) find that geographic distance has a negative impact on foreign asset allocation. Hence, we expect a negative relationship between geographic distance and the proportion of cross-listing to a host market.

The next two control variables are economic and industrial proximity measures as employed by Sarkissian and Schill (2004). Economic proximity is measured by the percentage of home country *i*'s exports going to host country *j*. Industrial proximity is measured by the correlation of

[13] Geographic distances are the distances between the major financial centres of the countries calculated "as the crow flies". Data source: the distance calculator from http://www.geobytes.com.

industry rankings between each pair of countries. For both variables, we expect a positive relationship.

4.2.2. Fundamental factors

The second group of control variables proxy for the fundamental factors that potentially affect cross-listing decision. First, Alexander et al. (1987) and Errunza and Miller (2000) argue that firms seek to cross-list to overcome market segmentation. Higher segmentation means markets are less likely to move together, and, from an investor's point of view, offer greater diversification benefits. We capture the level of segmentation between markets by using the correlation between stock market index returns of host and home countries (see also Chan et al., 2005; Beugelsdijk and Frijns, 2010), calculated using monthly Datastream Total Market index returns over the past five years. The market segmentation hypothesis suggests a negative relationship between stock market correlations and cross-listings.

Second, to control for the legal bonding motivation for cross-listing posited by Doidge et al. (2004), we include a variable that measures the difference in the quality of the investor protection laws. *Legal* is calculated as the difference in investor protection between the host and home markets. We measure the investor protection of the home and host markets using the Anti-Self Dealing index of Djankov et al. (2008). We expect a positive relationship between the difference in legal environment and the extent of cross-listing activity.

Third, we control for liquidity motives for cross-listing (see Foerster and Karolyi, 1998) by including the log difference in market liquidity between the host and home markets. Market liquidity is measured by the market turnover ratio, computed as the value of the Datastream Total Market index's annual trading volume divided by the index's market capitalization for the period

2002-2006. More liquid markets are expected to attract more cross-listings and hence we expect a positive relationship with cross-listing.

Finally, more economically and financially developed markets are likely to offer greater benefits to cross-listing firms. We control for differences in economic development by employing *Economic Development*, computed as the log difference in GDP per capita in 2006 (measured in US$) between the host and home market. *Financial Development* is computed as the log difference in the ratio of total stock market capitalization to GDP between host and home market. All values are from 2006, stock market capitalization values come from the World Federation of Exchanges' statistics, while country GDP is collected from UN statistics division. [14] We expect that host countries with higher levels of economic and financial development relative to those of the home country attract larger number of foreign listings.

4.2.3. Tax Motives

Cross-listing activity as well as cross-border investment flows might be motivated by tax motives. Some host markets, so called tax-havens, attract foreign investors and foreign firms for listing by providing an attractive low-tax environment. Empirically, Sarkissian and Schill (2004) show that, firms tend to cross-list more actively in host markets that have a more liberal tax environment. We control for these tax-savings motives of cross-listing and, following Sarkissian and Schill (2004), include a control variable *Tax Haven*, a dummy variable that equals one if the host market is a tax haven country and zero otherwise. In our sample of host markets, we classify Hong Kong, Ireland, Luxembourg, Singapore, and Switzerland as tax havens.

[14] Available online at http://www.world-exchanges.org/statistics and http://unstats.un.org/unsd/databases.htm

4.3 Estimation Results

4.3.1 Domestic Bias of Investors and Cross-listing Decisions

We begin our analysis with the evaluation of the relationship between the domestic bias and the choice of host market for cross-listing. We examine the domestic bias of both home and host market investors. We report the results for Equation (7) in Table 4.

INSERT TABLE 4 HERE

Panel A of Table 4 reports the results for the domestic bias of home market investors (with various controls). We find highly significant and negative relationships between the domestic bias of home market investors and cross-listing decisions for all the different specifications. These relationships are robust to controlling for proximity measures between the home and host markets, for fundamental determinants of cross-listing and for tax-savings motivation to cross-list. The results suggest that the cross-listing decision reflects the domestic bias of home market investors, i.e. if home market investors have a strong preference to hold domestic equity, then we observe less cross-listing activity from this market.

For the control variables, we find that most have the expected sign and several of them are significant. Specifically, shared language, economic and industrial proximity between home and host countries are positive determinants of cross-listing activity between the countries. These results are in line with the findings of Sarkissian and Schill (2004). In addition, the correlation

between the home and host stock market returns is a positive and significant determinant of cross-listing activity. This is contrary to the predictions of the market segmentation theory of cross-listing, but is in line with Sarkissian and Schill (2004). Possibly, higher correlations reflect higher levels of similarity between markets. Next, an improvement in the legal environment is a positive determinant of cross-listing destination (significant at the 10% level in one of the specifications). Lastly, the economic development variable is a positive determinant of cross-listing, significant at 1% in models (3) and (5).

In Panel B of Table 4 we report the results for the domestic bias of host market investors. As with the domestic bias for home market investors, we observe a negative and highly significant relationship between cross-listing activity and the domestic bias of host market investors. This relationship obtains in all model specifications. Hence cross-listing activity also reflects the domestic bias of host market investors, i.e. if host market investors have a strong preference for holding domestic equity, then there will be little cross-listing into these host markets. This suggests that corporate managers are no attempting to overcome the domestic bias of host market investors, but that they recognize their bias of not wanting to invest in foreign firms. For the remaining control variables the results are similar as for the regression with the domestic bias of home market investors.

Finally, in Panel C of Table 4 we include both the domestic bias of home and host market investors. We observe that both variables remain highly significant in this regression showing that both the domestic bias of home and host market investors play a role in the cross-listing decision.

4.3.2. Foreign Bias and Cross-listing Decision

We continue our analysis with the evaluation of the relationship between the foreign bias and the choice of host market for cross-listing. We examine the foreign bias of home market investors and of the host market investors. We report the results for these regressions in Table 5.

INSERT TABLE 5 HERE

In Panel A of Table 5, we report the results for the foreign bias of home market investors. We find strong empirical support that the extent of cross-listing activity is positively correlated with the degree of foreign bias of home market investors. In these models the relationship is robust to controlling for proximity measures between the home and host markets, for fundamental determinants of cross-listing and for tax-savings motivation to cross-list. This suggests that the cross-listing decision not only reflects the domestic bias of home market investors, but also the foreign bias of home market investors, i.e. firms prefer to cross-list in those market where home market investors prefer to invest and shun cross-listings in markets where home market investors do not invest. According to our argument for hypothesis 3, this could suggest that corporate managers may have the same familiarity biases as investors. Results for the control variables are mainly consistent with the results for domestic bias, reported in Tables 4. Particularly, familiarity measures, common language, economic and industrial proximity, equity market returns correlations and economic development are positive and significant (at the 1% level) determinants of cross-listing.

Panel B of Table 5 shows the regression results for the foreign bias of host market investors. We observe a positive and significant relationship between the cross-listing activity and the foreign bias of host market investors, which obtains even after controlling for a range of additional variables. Hence cross-listing decisions also reflect the foreign bias of host market investors, and the results show that if host market investors have a greater preference for holding equity from the home market, then firms from the home market tend to cross-list more in these host markets. Again the results for the control variables remain largely unchanged in this regression.

Finally, we estimate regressions with both the foreign bias of home and host market investors. The results show that both measures of foreign bias are significant, but in the model that includes all control variables we find that the foreign bias for home market investors becomes insignificant. This suggests that cross-listing activity mostly reflects the foreign bias of host market investors.

4.3.3. Domestic Bias, Foreign Bias and Cross-listing Decision

Table 6 reports the results for regressions that include all four measures of home bias: domestic bias of the home market investors, domestic bias of the host market investors, foreign bias of the home market investors, and foreign bias of the host market investors.

We observe that both domestic bias of the home market investors and domestic bias of the host market investors remain highly significant and negative determinants of cross-listing activity from home to host country. This means that, on one hand, corporate managers, similar to the

home market investors, exhibit home bias in their financing decisions. On the other hand, corporate managers, while deciding to cross-list, take into account the fact that investors of the host market exhibit home bias and, thus, are reluctant to invest in foreign equities. However, in all models the coefficient estimate of domestic bias of host market investors is greater than the coefficient of domestic bias of host market investors.

Both foreign bias of the home market investors and foreign bias of the host market investors variables have a positive coefficient estimate, however, foreign bias of the home market investors is insignificant in regressions that control for proximity and correlations of market index returns between the home and host markets. Foreign bias of the host market investors is significant at the 1% level in all models. Hence, the foreign bias of host market investors seems to be more important for a cross-listing decision than home bias of the home market investors.

4.4. Robustness Tests

In this section, we assess the robustness of the results presented in Tables 4 to 6. We do this in three ways. First, we use alternative measures for the foreign bias and for cross-listing activity. Second, we add home and host country-level fixed effects to our model. Finally, we estimate the model over different sub-samples, by splitting the sample into developed and emerging markets.

4.4.1. Alternative measure of foreign bias

Previous studies (Chan et al., 2005; Beugelsdijk and Frijns, 2010) have used the foreign bias score calculated as a ratio of the actual allocation of country *i* in country *j* to the optimal portfolio allocation, without adjusting for the extent of domestic bias:

$$FBIAS\_Unadjusted_{ij} = \frac{w_{ij}}{w_j^*}, \quad (8)$$

where w_{ij} is the weight of investments from country *i* in country *j* in total investments calculated as in Equation (4) and w_j^* is the weight by market capitalization of the host market in the global market capitalization calculated as in Equation (3). As a robustness test we use this unadjusted measure of foreign bias and re-estimate Equation (7).

INSERT TABLE 7 HERE

Panel A of Table 7 reports the results for this alternative measure of foreign bias.[15] Foreign bias of home market investors is positively related to cross-listing activity; however, this relationship is significant only in two out of 8 regressions. On the other hand, 'foreign bias of host market investors' variable has positive and significant (at the 1% or 5% level) coefficient estimate in all models. Overall, the results for unadjusted foreign bias confirm our earlier findings.

4.4.2. Alternative measure of cross-listing activity

In Panel B of Table 7, we report the estimation results for an alternative measure of cross-listing activity, a cross-listing dummy variable D_CL_{ij} that equals one if there are any cross-listings

[15] To conserve space, estimates of control variables are not reported but were consistent with those reported in Table 3.

from home country *i* to host country *j*, and zero otherwise. We observe that coefficient estimates' signs and significance for all four measures of home bias are the same as those estimated previously and reported in Tables 4, 5 and 6. Our results show that the relationship between home bias of investors and cross-listing activity is robust to alternative measures of cross-listing activity.

4.4.3. Fixed Effects

As a next robustness test, we include home and host country fixed effects in our model. In Table 8 we report the results for these regressions (with all control variables included) estimated with home and/or host market fixed effects. We observe that after controlling for fixed effects, the domestic bias of home and host market investors are still negatively and significantly related with the extent of cross-listing activity. The foreign biases of home and host market investors are the positive determinants of cross-listing activity. However, the foreign bias of host market investors being significant in all models. Overall, our earlier findings on the role of domestic and foreign biases of home and host market investors for cross-listing activity between countries are robust to controlling for home and/or host market fixed effects.

4.4.4. Sub-sample Analysis: Developed versus Emerging Markets

Beugelsdijk and Frijns (2010) report significant differences in the determinants of the foreign asset allocation of mutual fund managers from developed markets and from emerging markets. Dodd et al. (2012) further document that the determinants of the choice of a host market for cross-listing are different for cross-listings from developed home markets and from emerging home markets. To control for differences in foreign asset allocation and cross-listing decision

between developed and emerging markets we estimate Equation (7) for sub-samples of developed home markets and emerging home markets individually. We follow Bekaert and Harvey (2000), Bekaert et al. (2003) and Sarkissian and Schill (2004) to classify countries into developed and emerging. Table 9 reports estimation results.

We observe that the results for developed markets sub-sample corroborate our findings in Tables 4 and 5 and show that home bias of both the home market investors and host market investors are significant determinants of the extent of cross-listing activity between those markets. For the sub-sample of emerging markets, the results hold for home bias (measured by domestic and foreign bias scores) of the host market investors but are insignificant for home bias (both domestic and foreign biases) of the home market investors. The main limitation in this analysis is the small number of observations for emerging markets (only 94 including 74 left-censored observations). Therefore, there is no conclusive evidence that the relationship between cross-listing decision and home bias of investors is different for emerging markets vs. developed markets.

5. Conclusion

In this paper, we examine the relationship between cross-listing activity and the home bias. We obtain data on a sample of cross-listings from 45 home markets to 32 host markets from Sarkissian and Schill (2009b). Similarly, we obtain data on the domestic and the foreign bias from Chan et al. (2005).

Our analysis shows that there is a strong relationship between cross-listing activity and the domestic and foreign bias of both home and host market investors, even after controlling for a whole range of other variables that have been used to explain cross-listing activity. Specifically, we observe that cross-listing activity reflects the home bias of both home and host market investors, where firms from countries with a high domestic bias tend to engage in less cross-listing activity and firms cross-list less in markets that display a high domestic bias. For the foreign bias we find that firms have a preference for cross-listing in markets, where the host market investors have a preference for holding equity from those countries, i.e. cross-listings reflect the investment preferences of host market investors. Our findings are robust to different measures of home bias and cross-listing activity and different estimation procedures.

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Table 1. Cross-listing Activity: Sample Description

	As Home Market for Cross-listing		As Host Market for Cross-listing	
Country	CL_i	CL_i/DC_i	$\sum CL_{ij}$	$\sum CL_{ij}/DC_j$
Argentina	28	0.28	1	0.01
Australia	172	0.10	60	0.034
Austria	12	0.13	34	0.354
Belgium	34	0.25	129	0.942
Brazil	40	0.12	3	0.009
Canada	651	0.17	95	0.025
Chile	26	0.11		
China	37	0.03		
Colombia	5	0.05		
Czech Rep	5	0.19		
Denmark	13	0.07	10	0.053
Egypt	7	0.01		
Finland	19	0.14	2	0.015
France	109	0.17	206	0.321
Germany	151	0.23	193	0.294
Greece	25	0.09		
Hong Kong	38	0.03	2	0.002
Hungary	14	0.34		
India	164	0.03		
Indonesia	9	0.03		
Ireland	75	1.27	17	0.288
Israel	149	0.25	5	0.008
Italy	37	0.13	23	0.081
Japan	234	0.08	138	0.048
Luxembourg	40	1.11	279	7.750
Malaysia	7	0.01	3	0.003
Mexico	40	0.30	1	0.008
Netherlands	151	1.18	159	1.242
New Zealand	33	0.22	91	0.603
Norway	27	0.14	21	0.108
South Korea	56	0.03		
Philippines	11	0.05		
Poland	12	0.05	5	0.02
Portugal	7	0.15	2	0.043
Russia	16	0.08		
Singapore	14	0.03	44	0.095
South Africa	96	0.27	17	0.047
Spain	40	0.01	5	0.001
Sweden	60	0.22	32	0.116
Switzerland	51	0.20	175	0.684
Taiwan	69	0.10	3	0.004
Thailand	6	0.01		
Turkey	12	0.04		
UK	285	0.10	475	0.163
US	551	0.11	1,404	0.274

This table reports summary statistics on cross-listing activity as of December 2006 for each sample country as a home market and as a host market. DC_i is the total number of domestic listed companies in home country *i*. CL_i is the total number of cross-listings from home country *i*. CL_{ij} is the number of cross-listings from the home country *i* to the host country *j*.

Table 2. Home Bias: Summary Statistics

	As Home Market of Investors					As Host Market for Investments	
Country	Optimal weight of investments in domestic equities, w_i^*	Actual weight of investments in domestic equities, w_{ii}	Domestic Bias score, $DBIAS_i$	Average Foreign Bias score, $FBIAS_{ij}$	Median Foreign Bias score, $FBIAS_{ij}$	Average Foreign Bias, w_{ij}/w_j^*	Median Foreign Bias, w_{ij}/w_j^*
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Argentina						0.09	0.03
Australia	1.18%	60.50%	51.27	1.628	0.789	1.17	0.28
Austria	0.09%	6.77%	75.22	1.042	0.595	0.81	0.33
Belgium	0.55%	24.73%	44.96	1.343	1.174	0.35	0.21
Brazil						0.35	0.10
Canada	2.44%	26.99%	11.06	0.303	0.320	0.14	0.10
Chile						0.03	0.00
China						0.09	0.01
Colombia						0.23	0.00
Czech Rep						1.80	0.33
Denmark	0.31%	18.41%	59.39	1.632	1.298	1.07	0.39
Egypt						0.10	0.00
Finland	0.95%	45.70%	48.11	2.691	0.431	2.16	1.59
France	4.32%	55.27%	12.79	0.937	0.563	1.13	1.06
Germany	3.99%	33.49%	8.39	1.303	0.638	1.06	0.82
Greece	0.46%	93.46%	203.17	0.494	0.268	0.18	0.11
Hong Kong	1.82%	26.44%	14.53	2.708	0.281	0.75	0.26
Hungary						2.49	0.50
India						0.84	0.20
Indonesia						1.42	0.15
Ireland	0.19%	6.14%	32.32	0.955	0.748	1.47	1.08
Israel						0.23	0.11
Italy	2.22%	35.37%	15.93	0.955	0.672	0.77	0.57
Japan	11.29%	71.82%	6.36	0.720	0.313	0.57	0.50
Luxembourg	0.10%	15.08%	150.80	1.363	0.929	2.23	0.33
Malaysia						0.93	0.85
Mexico						0.41	0.23
Netherlands	1.97%	19.49%	9.89	1.233	0.974	1.31	0.20
New Zealand	0.07%	74.93%	1070.4	2.400	0.299	0.88	1.11
Norway	0.19%	48.81%	256.89	2.339	0.421	1.00	0.29
Philippines						0.71	0.37
Poland						1.18	0.20
Portugal	0.19%	45.61%	240.05	1.293	0.438	0.86	0.33
Russia						0.36	0.58
Singapore	0.51%	18.25%	35.78	2.243	0.201	1.24	0.06
South Africa	0.69%	66.58%	96.49	1.483	0.536	0.29	0.54
South Korea						1.32	0.08
Spain	1.39%	35.96%	25.87	1.391	0.464	0.90	0.71
Sweden	1.03%	46.74%	45.38	1.697	0.618	1.45	1.04
Switzerland	2.21%	21.03%	9.52	0.962	0.883	1.08	1.12
Taiwan	0.91%	60.88%	66.90	0.827	0.628	0.69	0.14
Thailand						3.41	0.54
Turkey						0.29	0.08
UK	8.13%	43.06%	5.30	1.260	1.152	0.91	0.93
US	46.85%	85.66%	1.83	1.023	0.975	0.40	0.38

This table reports summary statistics on our measure of home bias for each sample country as a home market and as a host market.

Table 3. Correlation Matrix

	$log(CL_{ij}/DC_i)$	$log(DBIAS_i)$	$log(DBIAS_j)$	$log(FBIAS_i)$	$log(FBIAS_j)$
$log(DBIAS_i)$	-0.12***	1.00			
$log(DBIAS_j)$	-0.35***	-0.04	1.00		
$log(FBIAS_i)$	0.29***	-0.18***	-0.17***	1.00	
$log(FBIAS_j)$	0.30***	-0.19***	-0.16***	0.36***	1.00

This table reports correlations between cross-listing activity and home and host measures of the domestic and foreign bias. Significance is indicated by *, **, and *** for significance at the 10%, 5%, and 1% levels, respectively.

Table 4. Regression Analysis: Domestic Bias and Cross-listing Decision *(Dependent Variable: log(CL_{ij}/DC_i))*

	Exp.	Panel A: Domestic Bias Home					Panel B: Domestic Bias Host					Panel C: Domestic Bias Home & Host				
	sign	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Dom. Bias Home	-	-0.93***	-0.53***	-0.92***	-0.93***	-0.68***						-0.85***	-0.50***	-0.64***	-0.85***	-0.44***
		(-5.21)	(-3.60)	(-4.95)	(-5.20)	(-4.31)						(-5.42)	(-3.43)	(-3.68)	(-5.41)	(-2.64)
Dom. Bias Host	-						-1.83***	-1.24***	-1.90***	-1.87***	-1.43***	-1.76***	-1.15***	-1.58***	-1.77***	-1.11***
							(-10.32)	(-6.51)	(-11.12)	(-10.41)	(-7.44)	(-9.87)	(-5.58)	(-8.80)	(-9.86)	(-4.95)
Common law	+		0.56			0.24		1.35**			0.91		0.63			0.40
			(0.82)			(0.35)		(2.11)			(1.48)		(0.89)			(0.58)
Language	+		2.32***			2.01***		2.81***			2.19***		2.13***			2.04***
			(4.05)			(3.65)		(5.02)			(4.02)		(3.86)			(3.68)
Geo distance	-		-0.90***			-0.22		-1.21***			-0.72***		-0.81***			-0.45**
			(-4.06)			(-0.99)		(-6.98)			(-4.01)		(-4.06)			(-1.97)
Econ prox	+		0.29***			0.26***		0.13***			0.13***		0.14**			0.15**
			(3.29)			(3.18)		(3.38)			(3.46)		(2.16)			(2.17)
Industrial prox	+		4.59***			3.52***		4.74***			3.78***		3.69***			3.28***
			(5.72)			(4.47)		(6.16)			(4.82)		(4.75)			(4.07)
Correlation	-			7.47***		3.78***			5.25***		2.87***			5.75***		2.75***
				(8.24)		(4.36)			(6.84)		(4.37)			(6.85)		(3.15)
Legal	+			0.65*		0.44			0.55*		0.54*			0.57*		0.49
				(1.87)		(1.48)			(1.66)		(1.81)			(1.68)		(1.59)
Liquidity	+			0.10		0.12			-0.61***		-0.29**			-0.21		-0.06
				(0.63)		(0.81)			(-3.73)		(-2.05)			(-1.38)		(-0.44)
Fin development	+			0.35		0.31			-0.59***		-0.91***			-0.32		-0.46*
				(1.40)		(1.24)			(-2.63)		(-3.68)			(-1.32)		(-1.66)
Econ development	+			1.80***		1.36***			-0.17		-0.04			0.68*		0.56
				(6.28)		(5.06)			(-0.80)		(-0.22)			(1.72)		(1.47)
Tax haven	+				0.67	0.26				1.52**	2.51***				0.46	1.26*
					(1.04)	(0.37)				(2.50)	(4.15)				(0.74)	(1.75)
Observations		833	833	807	833	807	1,100	1,100	1,099	1,100	1,099	625	625	625	625	625
Left-censored obs.		597	597	572	597	572	817	817	816	817	816	400	400	400	400	400
Log likelihood		-1,034.3	-913.1	-935.9	-1,033.9	-867.0	-1,236.1	-1,134.7	-1,165.3	-1,232.7	-1,099.5	-867.6	-801.7	-837.5	-867.3	-792.1

This table reports the results for Equation (7), where we regress cross-listing activity on the domestic bias of home and host market investors and include various control variables. We compute robust (White) standard errors and report robust t-statistics in parentheses. Significance is indicated by *, **, and *** for significance at the 10%, 5%, and 1% levels, respectively.

Table 5. Regression Analysis: Foreign Bias and Cross-listing Decision *(Dependent Variable: log(CL_{ij}/DC_i))*

	Exp.	Panel A: Foreign Bias Home					Panel B: Foreign Bias Host					Panel C: Foreign Bias Home & Host				
	sign	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
For. Bias Home	+	1.22***	0.61***	0.69***	1.21***	0.46***						0.60***	0.30*	0.35**	0.60***	0.23
		(7.50)	(4.37)	(4.60)	(7.49)	(3.39)						(3.51)	(1.93)	(2.10)	(3.48)	(1.52)
For. Bias Host	+						1.26***	0.76***	0.97***	1.26***	0.64***	0.92***	0.52***	0.75***	0.92***	0.59***
							(10.50)	(6.53)	(8.02)	(10.31)	(5.14)	(5.00)	(3.03)	(3.73)	(4.97)	(3.01)
Common law	+		0.21			0.11		0.19			0.05		-0.23			-0.53
			(0.28)			(0.15)		(0.27)			(0.07)		(-0.28)			(-0.67)
Language	+		2.27***			2.00***		2.76***			2.26***		2.09***			2.03***
			(3.74)			(3.52)		(4.86)			(4.07)		(3.39)			(3.43)
Geo distance	-		-0.46**			0.07		-0.35*			0.04		-0.05			0.43*
			(-2.06)			(0.33)		(-1.83)			(0.21)		(-0.24)			(1.86)
Econ prox	+		0.27***			0.25***		0.22***			0.24***		0.24***			0.25***
			(3.41)			(3.34)		(5.43)			(5.22)		(3.60)			(3.62)
Industrial prox	+		5.04***			4.37***		5.35***			4.77***		5.40***			4.66***
			(6.65)			(5.66)		(6.93)			(6.01)		(7.18)			(5.94)
Correlation	-			6.68***		4.03***			5.37***		3.52***			5.41***		3.72***
				(7.29)		(4.67)			(6.53)		(5.04)			(5.39)		(3.97)
Legal	+			0.76**		0.56*			0.17		0.14			0.50		0.40
				(2.23)		(1.91)			(0.47)		(0.45)			(1.33)		(1.27)
Liquidity	+			-0.09		-0.00			-0.12		-0.00			-0.03		0.08
				(-0.56)		(-0.02)			(-0.77)		(-0.00)			(-0.17)		(0.55)
Fin development	+			0.02		0.01			-0.13		-0.36			-0.02		-0.22
				(0.09)		(0.02)			(-0.57)		(-1.41)			(-0.10)		(-0.85)
Econ development	+			1.39***		1.07***			0.31		0.18			1.14***		0.81**
				(5.06)		(4.22)			(1.48)		(0.94)			(3.16)		(2.52)
Tax haven	+				0.31	0.60				0.33	1.67**				0.27	1.25*
					(0.49)	(0.88)				(0.54)	(2.55)				(0.43)	(1.68)
Observations		807	807	807	807	807	1,100	1,100	1,099	1,100	1,099	625	625	625	625	625
Left-censored obs.		572	572	572	572	572	817	817	816	817	816	400	400	400	400	400
Log likelihood		-988.6	-898.0	-985.6	-988.5	-869.3	-1,227.5	-1,138.6	-1,195.9	-1,227.3	-1,119.3	-895.3	-820.8	-871.7	-895.2	-807.2

This table reports the results for Equation (7), where we regress cross-listing activity on the foreign bias of home and host market investors and include various control variables. We compute robust (White) standard errors and report robust t-statistics in parentheses. Significance is indicated by *, **, and *** for significance at the 10%, 5%, and 1% levels, respectively.

Table 6. Domestic Bias, Foreign Bias and Cross-listing Decision

	Exp. sign	Dependent Variable: $log(CL_{ij}/DC_i)$				
		(1)	(2)	(3)	(4)	(5)
Dom. Bias Home	-	-0.70***	-0.44***	-0.61***	-0.70***	-0.41**
		(-4.68)	(-3.06)	(-3.82)	(-4.68)	(-2.58)
Dom. Bias Host	-	-1.64***	-1.12***	-1.55***	-1.66***	-1.07***
		(-9.06)	(-5.54)	(-8.61)	(-9.00)	(-4.98)
For. Bias Home	+	0.44**	0.18	0.28	0.43**	0.15
		(2.01)	(0.97)	(1.36)	(1.97)	(0.85)
For. Bias Host	+	0.88***	0.51**	0.76***	0.89***	0.57**
		(3.48)	(2.35)	(2.81)	(3.43)	(2.39)
Common law	+		-0.11			-0.35
			(-0.15)			(-0.48)
Language	+		2.32***			2.27***
			(4.28)			(4.17)
Geo distance	-		-0.35			0.01
			(-1.62)			(0.05)
Econ prox	+		0.14**			0.15**
			(2.39)			(2.44)
Industrial prox	+		3.67***			3.20***
			(4.83)			(4.10)
Correlation	-			3.79***		2.64***
				(4.69)		(3.13)
Legal	+			0.65*		0.56*
				(1.93)		(1.83)
Liquidity	+			-0.19		-0.05
				(-1.35)		(-0.39)
Fin development	+			-0.30		-0.42
				(-1.27)		(-1.60)
Econ development	+			0.89**		0.72*
				(2.18)		(1.94)
Tax haven	+				0.55	1.18*
					(0.90)	(1.67)
Constant		-1.8**	-3.1	-0.6	-1.9**	-5.1**
		(-2.41)	(-1.46)	(-0.82)	(-2.45)	(-2.30)
Observations		625	625	625	625	625
Left-censored obs.		400	400	400	400	400
Log likelihood		-836.9	-794.1	-819.5	-836.4	-783.6

This table reports the results for Equation (7), where we regress cross-listing activity on both the domestic and foreign bias of home and host market investors and include various control variables. We compute robust (White) standard errors and report robust t-statistics in parentheses. Significance is indicated by *, **, and *** for significance at the 10%, 5%, and 1% levels, respectively.

Table 7. Robustness tests: Alternative measure of Foreign Bias and Alternative Estimation Procedure

	Dom. Bias Home	Dom. Bias Host	For.Bias Home	For.Bias Host	Observations	Left-censored obs.	Log likelihood
Panel A. Tobit Model: Foreign Bias Unadjusted							
Dependent Variable: log(CL_{ij}/DC_i)							
Model (1)			0.41***		807	572	-871.1
			(3.22)				
Model (2)				0.57***	1,099	816	-1,124.5
				(4.65)			
Model (3)			0.18	0.50***	625	400	-810.8
			(1.25)	(2.69)			
Model (4)	-0.42***	-1.08***	0.09	0.47**	625	400	-787.2
	(-2.59)	(-4.90)	(0.55)	(2.11)			
Panel B. Probit model, *Dependent Variable: D_CL*							
Model (9)	-0.29***				807		-310.9
	(-5.91)						
Model (10)		-0.29***			1,099		-437.3
		(-5.65)					
Model (11)	-0.24***	-0.20***			625		-271.1
	(-4.45)	(-3.15)					
Model (12)			0.10***		807		-325.6
			(2.80)				
Model (13)				0.12***	1,099		-447.2
				(4.30)			
Model (14)			0.04	0.11**	625		-285.2
			(1.00)	(2.24)			
Model (15)	-0.23***	-0.20***	0.02	0.11*	625		-268.4
	(-4.31)	(-3.04)	(0.33)	(1.70)			

This table reports the results for Equation (7). In panel A, we report the results for the regression of cross-listing activity on an alternative measures for the foreign bias. In Panel B, we construct an alternative measure for cross-listing activity (a dummy variable equal to one if there are any cross-listings from country *i* to *j*, and zero otherwise) and estimate a Probit model for all various specifications of the model. In all regressions we include all control variables as used in Tables 4, 5, and 6. We compute robust (White) standard errors and report robust t-statistics in parentheses. Significance is indicated by *, **, and *** for significance at the 10%, 5%, and 1% levels, respectively.

Table 8. Robustness test: **Fixed Effects** Domestic Bias, Foreign Bias and Cross-listing Decision

	Dom. Bias Home	Dom. Bias Host	For.Bias Home	For.Bias Host	Home fixed effects	Host fixed effects	Obs.	Left-censored obs.	Log Lik
Panel A. *Dependent Variable: log(CL_{ij}/DC_i)*									
Model (1)	-0.55***					YES	807	572	-775.4
	(-3.89)								
Model (2)		-1.05***			YES		1,099	816	-1,032.3
		(-5.07)							
Model (3)			0.41***		YES		807	572	-823.5
			(2.83)						
Model (4)			0.39**			YES	807	572	-777.4
			(2.46)						
Model (5)			0.36**		YES	YES	807	572	-742.1
			(2.21)						
Model (6)				0.72***	YES		1,099	816	-1,034.3
				(4.44)					
Model (7)				0.45***		YES	1,099	816	-989.6
				(3.43)					
Model (8)				0.64***	YES	YES	1,099	816	-928.7
				(3.55)					
Model (9)			0.28*	0.62**	YES		625	400	-765.9
			(1.74)	(2.46)					
Model (10)			0.24	0.44**		YES	625	400	-727.2
			(1.35)	(2.10)					
Model (11)			0.24	0.50*	YES	YES	625	400	-693.6
			(1.24)	(1.79)					

This table reports the regression results for Equation (7), where we control for home and host market fixed effects. In all regressions we include all control variables as used in Tables 4, 5, and 6. We compute robust (White) standard errors and report robust t-statistics in parentheses. Significance is indicated by *, **, and *** for significance at the 10%, 5%, and 1% levels, respectively.

Table 9. Robustness test: Developed home market vs. Emerging home market

	Dev. market	Emerging market	Dev. market	Emerging market	Dev. market	Emerging market
	(1)	(2)	(3)	(4)	(5)	(6)
Dom. Bias Home	-0.42**	8.53			-0.44***	7.11
	(-2.43)	(1.29)			(-2.69)	(0.91)
Dom. Bias Host	-1.03***	-2.36***			-1.03***	-2.09***
	(-4.31)	(-3.34)			(-4.32)	(-2.90)
For. Bias Home			0.15	0.86	0.10	0.46
			(0.95)	(1.40)	(0.52)	(0.74)
For. Bias Host			0.63***	0.54	0.68**	0.17
			(2.99)	(0.94)	(2.58)	(0.25)
Observations	552	73	552	73	552	73
Left-censored obs.	347	53	347	53	347	53
Log likelihood	-704.4	-76.1	-715.1	-78.7	-694.8	-75.6

This table reports the regression results for Equation (7), where we split the sample into developed and emerging markets. In all regressions we include all control variables as used in Tables 4, 5, and 6. We compute robust (White) standard errors and report robust t-statistics in parentheses. Significance is indicated by *, **, and *** for significance at the 10%, 5%, and 1% levels, respectively.