Home bias revisited*

Draft: February 16, 2009

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Abstract

We examine a large number of potential home bias determinants, including some novel ones, using extensive panel data. We distinguish between the actual home bias (overinvestment in domestic securities) and foreign investment bias, for which we propose a new measure. For foreign investment bias, we also demonstrate how "size biases" significantly affect the results. We find that the old empirical results based on the U.S. data alone do not generalize to the panel data set; information and familiarity variables and proxies for the degree of capital market openness play an important role in explaining both home and foreign investment biases.

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Electronic copy available at: http://ssrn.com/abstract=1344880

1 Introduction

It is well established that the proportion of domestic stocks in most investors' equity portfolios well exceeds their country's relative market capitalization in the world. As a consequence, they forego substantial diversification benefits even if transaction costs are taken into account[1]. This home bias phenomenon remains one of international finance's major puzzles.

An ever growing number of studies investigate the determinants of home bias from both rational and behavioral perspectives. The determinants proposed by those studies include transaction costs (Glassman and Riddick, 2001), real exchange rate risks (Fidora, Fratzscher and Thimann, 2006), information barriers (Ahearne, Griever and Warnock, 2004), corporate governance issues (Dahlquist, Pinkowitz, Stulz and Williamson, 2003), lack of familiarity (Portes and Rey, 2005), to name a few.

This study explores the determinants of both home bias (overinvestment in the home markets) and foreign investment bias (under- or over-investment in the foreign markets) using a relatively new database: the IMF-Coordinated Portfolio Investment Survey (CPIS). The IMF conducts a survey once a year among 71 holder countries that provide the foreign equity and debt holdings of 236 target countries. Currently, six annual surveys (1997, 2001, 2002, 2003, 2004 and 2005) are available. Such a rich panel data set overcomes a number of limitations of previous research on home bias.

First, much published research on home bias made use of accumulated capital flow data (e.g. Tesar and Werner, 1995) or even flow data (Portes and Rey, 2005) to proxy for portfolio holdings. However, Warnock and Cleaver (2003) show that such data may often constitute inaccurate measures of country level holdings.

Second, many studies focus on data of one individual country, mostly the U.S. (e.g. Ahearne Griever and Warnock, 2004), although studies on Sweden (Dahlquist and Robertsson, 2001) and Finland (Grinblatt and Keloharju, 2001) do exist. However, an individual country's perspective necessarily restricts the analysis of home bias determinants to the characteristics of the holder countries. A complete matrix of target and holder countries permits a more complete analysis of both target and holder

[1] See French and Poterba (1991) and Li, Sarka and Wang (2003) among others.

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countries[2]. We examine the determinants proposed by the previous literature but in addition propose a few new ones, including the diversification attractiveness of foreign countries[3].

Third, with the full matrix available, we can meaningfully separate "home bias" from foreign investment bias. Almost all current studies measure foreign investment bias by the difference between the actual percentage holdings in the target countries and the world market capitalization weights (see e.g. Chan, Covrig and Ng, 2005). Clearly, if one country severely over-invests in its own market, it will naturally imply large foreign investment biases for this country as well. But this may not correctly reveal what makes other countries more or less attractive. To deal with this problem, we create adjusted foreign investment bias measures to differentiate it from home bias.

Finally, apart from a more precise measurement of the biases, we are careful to construct conservative standard errors. Most existing studies use pure cross-sectional analysis and fail to recognize the obvious correlation between observations involving one country (see Ahearne, Griever and Warnock (2004), Amadi (2004), Berkel (2004), Bertaut and Kole (2004) and Chan, Covrig and Ng (2005))[4].

Our results confirm certain results in the existing literature (e.g. the overall important role information and familiarity play) but overturn others (e.g. capital market openness is still a relatively important determinant of home bias). We also show that cleansing foreign investment bias of the effects of home bias and the existence of size biases has significant effects on the results.

This article is organized as follows. Section 2 provides details about data collection and the various measures we employ. Section 3 develops the regression framework and discusses the various determinants of home and foreign investment bias we consider. Section 4 reports the empirical results and section 5 concludes.

[2] Lane and Milesi-Ferretti (2004) also use the surveys to investigate both target and holder country characteristics, which are defined as host and source country respectively, in a study on foreign equity investments.
[3] This is similar to the industry concentration variable in Ferreira and Miguel (2007), a contemporaneous article, which also performs panel data regressions using 1997, 2001 and 2002 data.
[4] Lane and Milesi-Ferretti (2004) perform a panel data analysis but use White standard errors, which we show to underestimate the true standard errors.

2 Data and methodology

2.1 Data

The source of cross country equity holding data is the Coordinated Portfolio Investment Survey (CPIS) conducted by the IMF. Under the guidance of the IMF, national compilers collect data either on a security-by-security or on an aggregated basis. The national survey targets: (i) end-investors (banks, mutual funds, households etc.); (ii) custodians; and (iii) a combination of both end-investors and custodians. For each specific country, the collection system is chosen to minimize under or double counting, and to make CPIS data comparable across countries. Using the national surveys, the IMF produces for each country the geographic breakdown of its residents' aggregate holdings of securities issued by non-residents, where all its holdings are expressed in U.S. dollars.

The CPIS data set has some drawbacks. For example, CPIS still has incomplete country coverage. A number of large markets did not participate, including China and Taiwan. Also, the data set suffers from the third-party holdings problem as with any survey data on cross-border holdings. If a parent company in country A owns a foreign subsidiary in country B, the subsidiary's investments in country C on behalf of the parent company are counted as country B's holdings of C's asset but not country A's holdings.

The CPIS surveys were conducted in 1997, 2001, 2002, 2003, 2004 and 2005. The equity holdings reflect investments from 71 holder countries into 236 target countries. We denote country k's investment in country j as $M_{j,k}$, i.e. j is the target country and k is the holder country. The data yields six annual panels of the whole matrix $M_{j,k}$ except for $M_{k,k}$. In order to backfill $M_{k,k}$, we obtain total market capitalization data (TMS, for "total market size") for each country from Datastream, S&P/IFC or the World Federation of Exchanges database. At each point in time t, $M_{k,k}$ can be derived as:

$$M_{k,k} = TMS_k - \sum_{i \neq k} M_{k,i} \tag{1}$$

Because the number of holder countries is limited, this measure slightly over-estimates the domestic stock holdings.

With the whole matrix $M_{j,k}$ complete, the total stock holdings (TSH) of the domestic and foreign markets by country k can be calculated as:

$$TSH_k = \sum_j M_{j,k} \tag{2}$$

Theoretically, the world market capitalization (WMS for "world market size") is

$$WMS = \sum_k TSH_k = \sum_k TMS_k \tag{3}$$

Because the k-summation is over holder countries for TSH and over target countries for TMS in equation (3), the incomplete country coverage problem in terms of holder countries mentioned above makes the sum of TSH's smaller than the sum of TMS's in all six panel years. The difference is 12.5% in 1997 and ranges from 3.3% to 5.9% in the later surveys as coverage of holder countries increases over time. We use the sum of TMS's as the WMS estimate throughout.

There are 71 holder countries and 236 target countries altogether in the surveys of 2004 and 2005. To avoid problems with outliers, our analysis only includes holder countries with available data in all six years, restricting the sample to 27 holder countries and the corresponding 65 target countries. Table 1 provides a list of these holder countries split over developed (19 countries) and emerging markets (8 countries) and several regional subsets.

The data appendix Table A1 describes the sources for all the other variables we use.

2.2 Home bias

With a relatively large panel available, the definition of home bias is straightforward. Let $W_{j,k}^{act}$ represent country k's actual allocation to country j and W_j^{BM} represent the benchmark weight of country j:

$$W_{j,k}^{act} = \frac{M_{j,k}}{TSH_k} \tag{4}$$

$$W_{j,k}^{BM} = \frac{TMS_j}{WMS} \tag{5}$$

Note that we use the relative market capitalization of the market in the world as the benchmark weight. This is the weight that would be predicted by a World CAPM, when the international parity conditions hold. Of course, all of our analysis could be redone relative to another benchmark (see Sercu and Vanpee (2007) for an excellent survey of different theoretical models). We define "raw" and normalized measures of home bias:

$$HB\_raw_{k,k} = W_{k,k}^{act} - W_{k,k}^{BM} \tag{6}$$

$$HB\_norm_{k,k} = \frac{W_{k,k}^{act} - W_{k,k}^{BM}}{1 - W_{k,k}^{BM}} \tag{7}$$

Clearly, both measures are zero when country k's percentage holdings of stocks in its own country equal the benchmark weight.[5] However, the raw measure will depend on the relative size of the stock market. For example, for large markets it must necessarily be relatively small. The normalized measure divides by the maximum possible size of the home bias. Because all countries in our sample exhibit home bias, the normalized measure has a scale of 0 to 1, with 1 indicating total home bias; the home country investing exclusively in its own stocks.

Table 2 characterizes the home bias levels for the countries in our sample. The U.S. exhibits the least home bias, according to the raw bias, but once normalized its home bias level increases to over 70%, and is worse than Argentina, the least home biased emerging market. As is to be expected, the normalized measure changes the home bias measure the most for the bigger markets: the U.S., the U.K. and Japan. Japan is the most home biased developed country with a bias of close to 90%, whereas the Netherlands is least biased. Emerging markets are more biased than developed markets on average. Europe is the least biased continent, and Asia the most biased, and this is not only because of the concentration of emerging markets in Asia.

We also ran the following regression on the raw measures:

$$HB\_raw_{k,k,t} = TD_t + CE_k + \gamma \cdot NORM_{k,t-1} + \varepsilon_{k,t} \tag{8}$$

where $NORM_k = 1 - W_{k,k}^{BM}$; TD_t is a year dummy and CE_k is a country dummy. Note that to keep regressions well behaved, we correct for size normalizations on the right hand side of the regression equations. Unfortunately, in this particular case γ has the wrong sign, likely because the normalization is really only important for the three main countries. Because, in addition, the time effects are not terribly important, the country effects mainly resemble the averages reported in column 1 of Table 2. Yet, there is a downward trend in home bias. When we replace the time dummies by a time trend, we find a coefficient of –0.015, which is significant at the 1% level. That is, home bias has

[5] Note that because of the way we compute domestic holdings in (1) using an incomplete set of holder countries, we may slightly over-estimate the extent of home bias.

decreased by 1.5% per year, a slow trend indeed. Lastly, the fixed effect regression has an adjusted R^2 of 95%, mostly driven by the country effects. Clearly, the standard home bias determinants should mostly explain these country effects.

2.3 Foreign investment bias

A standard measure

In some cross-sectional studies, foreign investment bias is actually used as an indirect measure of home bias (see e.g. Ahearne, Griever and Warnock, 2004), as home bias induces underinvestment into other countries. Here, we first look at a standard measure of foreign investment bias, but then we try to cleanse the foreign investment bias from the effects of home bias. This will allow us to better distinguish between target and holder country characteristics as determinants of investment behavior.

We measure a country's underinvestment into another country as a positive number, indicating a positive bias and vice versa. However, we normalize under- and over-investment differently. The underinvestment from country k in country j (the difference between country j's market capitalization weight in the world and country k's percentage holdings of stocks in country j) is normalized by country j's benchmark weight (representing the maximum underinvestment); whereas the maximum overinvestment is of course $1\text{-}W_{j,k}^{BM}$.

$$FIB\_raw_{j,k} = W_{j,k}^{BM} - W_{j,k}^{act} \tag{9}$$

$$FIB\_norm_{j,k} = \begin{cases} \dfrac{W_{j,k}^{BM} - W_{j,k}^{act}}{W_{j,k}^{BM} - 0} & when \;\; W_{j,k}^{act} \le W_{j,k}^{BM} \;\; (underinvestment) \\ -\left(\dfrac{W_{j,k}^{act} - W_{j,k}^{BM}}{1 - W_{j,k}^{BM}} \right) & when \;\; W_{j,k}^{act} > W_{j,k}^{BM} \;\; (overinvestment) \end{cases} \tag{10}$$

Note that the normalized measure varies between -1 (total overinvestment) and 1 (no investment at all).

An adjusted measure

Because the portfolio allocation to foreign markets is affected by a country's home bias, the standard FIB measures may fail to reveal the relative attractiveness of foreign

countries depending on their characteristics. In this section, we explore this issue in detail and create a measure that adjusts for this bias.

In equilibrium, the home and foreign investment biases should depend on both holder and target country characteristics: for example, high levels of home bias may be driven by home country investors finding foreign countries relatively unattractive, but it may also be a partial reflection of foreigners not being able or willing to invest in the home country. Even if the home country citizens invest abroad in this case, it is unlikely their foreign shareholdings will substantially dominate the size of the entire home market (although this is theoretically possible). Conversely, if the home country is very attractive to the foreign investors, they may drive up the benchmark weight of the home country, reducing the level of home bias. Yet, most of the literature views home bias as the dominant phenomenon, and has a hard time ascribing it to rational causes. Therefore, we create a foreign investment bias that takes home bias as given and corrects for it.

With such a measure, we can better tease out which target country characteristics cause under- or overinvestment in foreign countries. It is straightforward to derive a CAPM "conditional" on the existence of home bias. Essentially, this will involve excluding country i's assets from the optimal allocation problem for investors in country i; the "sub-optimal" portfolio allocations to other countries' assets should then be in proportion to the market capitalization weights considering only the rest of the world under the CAPM settings. This is the main idea behind constructing the adjusted foreign investment bias measure. First, we change the benchmark and the actual weights into:

$$\overline{W}_{j,k}^{BM} = \frac{TMS_j}{WMS - TMS_k} \tag{11}$$

$$\overline{W}_{j,k}^{act} = \frac{M_{j,k}}{TSH_k - M_{k,k}} \tag{12}$$

Then the definitions for a raw and a normalized adjusted measure are

$$\overline{FIB}\_raw_{j,k} = \overline{W}_{j,k}^{BM} - \overline{W}_{j,k}^{act} \tag{13}$$

$$\overline{FIB}\_norm_{j,k} = \begin{cases} \dfrac{\overline{W}_{j,k}^{BM} - \overline{W}_{j,k}^{act}}{\overline{W}_{j,k}^{BM} - 0} & when \quad \overline{W}_{j,k}^{act} \le \overline{W}_{j,k}^{BM} \quad (underinvestment) \\ -\left(\dfrac{\overline{W}_{j,k}^{act} - \overline{W}_{j,k}^{BM}}{1 - \overline{W}_{j,k}^{BM}} \right) & when \quad \overline{W}_{j,k}^{act} > \overline{W}_{j,k}^{BM} \quad (overinvestment) \end{cases} \tag{14}$$

The adjusted benchmark percentage holdings of country k in country j's assets compares the actual weight of a particular market within the overall foreign holdings ($M_{j,k}/(TSH_k - M_{k,k})$) and the relative market capitalization weight among foreign countries ($TMS_j/(WMS - TMS_k)$). Hence, the adjusted bias measure evaluates how much of country's foreign holdings deviate from the optimal allocations to the foreign markets, measured as the fraction of the world market excluding the home country.

The normalized measure, $\overline{FIB}\_norm_{j,k}$, is 0 if country k is not biased to country j; 1 if country k holds no country j's assets, i.e. completely underinvests in country j; and -1 if country k invests all its portfolio holdings in country j's asset except for its own assets, i.e. completely overinvests in country j, conditional on its own home bias.

For most small countries, $\overline{W}_{j,k}^{BM} \approx W_{j,k}^{BM}$ and $\overline{W}_{j,k}^{act} > W_{j,k}^{act}$. Therefore, by construction (13), the adjusted measure is usually lower than the standard measure. The important question is whether the adjusted measure and the standard measure identify different determinants of foreign investment bias.

Numerical examples

To better appreciate how the new measure works, let's examine some numerical examples in Table 3.

For simplicity, assume there are three countries in the world market – one big market and two small markets. The total market capitalizations equal the total stock holdings for each market, i.e. $(TMS_1, TMS_2, TMS_3) = (TSH_1, TSH_2, TSH_3) = (60, 20, 20)$. According to the standard world CAPM, the benchmark domestic equity holdings should be (36, 4, 4).

In the first numerical example, the investors in all three countries are home biased, i.e. domestic equity holdings are (45, 10, 10). At the same time, the portfolio allocations to foreign countries are proportional to the market capitalizations of foreign countries. For example, $M_{2,1} / M_{3,1} = 7.5 / 7.5 = 20 / 20 = TMS_2 / TMS_3$ and $M_{1,2} / M_{3,2} = 7.5 / 2.5 = 60 / 20 = TMS_1 / TMS_3$. Consequently, the investors allocate their foreign investments optimally except for the bias to their own markets, so that the "pure" foreign investment bias should be zero. Yet, we find that the $FIB\_raw_{j,k}$ measures are positive. The large country, which is less home biased, also exhibits less foreign investment bias. The

$\overline{FIB}\_raw_{j,k}$ measure is indeed zero.

Numerical example 2 presents a case in which all three countries are home biased, i.e. domestic equity holdings are (58, 15, 15), but in addition the allocations to foreign countries are not proportional to the relative market capitalizations. For example, $M_{1,2}$ / $M_{3,2}$ = 1 / 4 < 60 / 20 = TMS_1 / TMS_3. Clearly, the investors in country 2 and country 3 are not allocating their foreign portfolio holdings optimally conditional on their home biases. Actually, given that investors in country 2 are home biased, they overinvest in country 3 relative to country 1. However, $FIB\_raw_{3,2} = 0$ because $M_{3,2} = 4$ is equal to the CAPM benchmark holdings. The $\overline{FIB}\_raw$ measure corrects this problem by presenting a negative $\overline{FIB}\_raw_{3,2}$ and an offsetting positive $\overline{FIB}\_raw_{1,2}$.

Super-adjusted measure

Controlling for "home bias" is related to Dahlquist et al (2003)'s argument that the existence of controlled shares (e.g. by families) in many countries is an important driver of home bias. If certain stocks are simply not available for purchase, one should control for their non-available market capitalizations in computing a foreign investment bias measure. In constructing our adjusted measure, we viewed each country in isolation. Of course, we can also create a fully adjusted measure that only looks at the "available" market capitalization in the world and controls for all "home biased allocations." That is, assuming that home bias is fully driven by local institutional factors, are foreign allocations in line with the benchmark model (in our case the CAPM)? To implement this idea, first redefine the benchmark and actual weights as follows:

$$\widetilde{W}_{j,k}^{BM} = \frac{TMS_j - M_{j,j}}{WMS - TMS_k - \sum_{i \neq k} M_{i,i}} \tag{15}$$

$$\widetilde{W}_{j,k}^{act} = \frac{M_{j,k}}{TSH_k - M_{k,k}} \tag{16}$$

Then, the raw foreign investment bias is:

$$\widetilde{FIB}\_raw_{j,k} = \widetilde{W}_{j,k}^{BM} - \widetilde{W}_{j,k}^{act} \tag{17}$$

Note that when summed over target and holder countries, this measure should add up

to zero.[6] Therefore, this measure should really only reflect the relative attractiveness of foreign countries. As we did before, we can normalize the measure to lie in between –1 and 1:

$$\widetilde{FIB}\_norm_{j,k} = \begin{cases} \dfrac{\widetilde{W}_{j,k}^{BM} - \widetilde{W}_{j,k}^{act}}{\widetilde{W}_{j,k}^{BM} - 0} & when \quad \widetilde{W}_{j,k}^{act} \le \widetilde{W}_{j,k}^{BM} \quad (underinvestment) \\ -\left(\dfrac{\widetilde{W}_{j,k}^{act} - \widetilde{W}_{j,k}^{BM}}{1 - \widetilde{W}_{j,k}^{BM}} \right) & when \quad \widetilde{W}_{j,k}^{act} > \widetilde{W}_{j,k}^{BM} \quad (overinvestment) \end{cases} \tag{18}$$

Empirical characteristics of foreign investment biases

Table 4 reports some characteristics of the foreign investment biases for our sample. We first report averages for the three major markets (U.S., Japan, U.K.) and several regional groups. Not surprisingly, when viewed as target countries, the big markets experience severe under-investment, almost proportionally to their size. When normalized, the U.K. comes out least biased, even less biased than the Euro zone, the country group with the least bias. Japan is the most biased country. The holder perspective biases are small for the big countries, reflecting the small average size of the markets they invest in. Normalized for the maximum possible under-investment, the U.S. and Europe under-invest in foreign markets by slightly over 60%; whereas Japan, the most biased country again, under-invests by 90%.

When we correct for home bias, with the adjusted measure, the relative picture changes little. The U.K. is now by far the least biased country, both as a target and as a holder country, even relative to Europe, the least biased region. Some numbers are now negative reflecting average over-investment. The normalization is necessary to demonstrate how biased Japan really is. Even correcting for home bias, it under-invests on average by almost 50% and experiences a larger than 60% under-investment by other countries. It is striking that the normalized numbers are all positive. The reason is that over-investments are divided by numbers that are typically close to 1 (maximum possible over-investment), whereas under-investments are divided by relatively small numbers (the benchmark weights of most countries); hence the under-investments really dominate the normalized measure. The U.K. remains the least biased, both as a target and holder

[6] In actuality, missing countries may lead to non-zero sums.

country. Finally, the super-adjusted measure shows that countries, conditional on home bias, over-invest in the U.S. and under-invest in Japan. As holder countries, emerging markets under-invest the most, even conditioning on home bias everywhere. Normalization again makes all numbers positive except for U.S. as a target country. Japan and emerging markets are the least attractive target countries (most under-investment), whereas they are also the countries under-investing the most in other countries.

Table 4 also reports the correlation of the foreign investment bias measures with the home bias measures. As indicated before, home bias automatically implies under-investment bias in other countries. Hence, when viewed from the holder country perspective, the FIB and HB measures are highly positively correlated. Normalization does not change that fact. From the target country perspective, the correlation between the raw FIB and HB measure is actually negative. This is due to the fact that the benchmark weight of the target country enters in both measures with the opposite sign. Using a normalized home bias measure reduces the effect, and normalizing the FIB measure eliminates it entirely. We would expect the adjusted and super-adjusted measures to be less correlated with home bias measures than their raw counterparts and that is generally the case.

Finally, Table 4 reports some regression output. We simply regress the non-normalized measures on fixed effects and either a time trend or time dummies (regressions a and b). In regressions c and d, we correct for the normalization on the right hand side of the regression, using lagged values of the normalization variables. While mostly negative, none of the trend coefficients are significantly different from zero. Clearly, there has not been a big overall reduction in foreign investment biases since 1997. For the time dummies regressions, we simply report the R^2, setting a benchmark for the regressions with determinants to come. Note that we include both holder and target fixed effects. The R^2s are around 95% for the raw foreign investment bias regressions. However, when we use the adjusted and super-adjusted measures, which correct for home bias, the R^2 drops considerably. Explaining the over- and under-weighting of different countries, after having corrected for home bias effects, will be much more challenging.

3 Regression framework and explanatory variables

3.1 Regression framework

To examine foreign investment bias, we use variants of the following regression:

$$FIB_{j,k,t} = c + \alpha \cdot Z_{j,k} + \beta \cdot X_{j,k,t} + \delta^{TARGET} X_{j,t}^{TARGET} + \delta^{HOLDER} X_{k,t}^{HOLDER} + \gamma \cdot NORM_{j,k,t-1} + \phi \cdot HB_{1997} + \varepsilon_{j,k,t} \quad (19)$$

The explanatory variables include time invariant variables for country pair j,k ($Z_{j,k}$), time-varying variables for country pair j,k ($X_{j,k,t}$), time-varying variables capturing target country characteristics ($X_{j,t}^{TARGET}$), and time-varying variables capturing holder country characteristics ($X_{k,t}^{HOLDER}$). Using these variables constitutes the benchmark regression, but we also examine the effect of certain additional controls. First, note that we use the raw FIB measure as the left hand side variable, so that this measure may exhibit a size bias. The NORM variables allow controlling for the potential magnitude of this bias on the right hand side. In particular, we separate NORM_UNDER and NORM_OVER because we use different scales for normalizing under- and over-investment.

$$NORM_{j,k,t} = \left(NORM\_UNDER_{j,k,t} \quad NORM\_OVER_{j,k,t} \right)$$

where

$$NORM\_UNDER_{j,k,t} = \begin{cases} W_{j,k,t}^{BM} & when\ FIB\_raw_{j,k,t} > 0\ (underinvestment) \\ 0 & when\ FIB\_raw_{j,k,t} < 0\ (overinvestment) \end{cases}$$

$$NORM\_OVER_{j,k,t} = \begin{cases} 0 & when\ FIB\_raw_{j,k,t} > 0\ (underinvestment) \\ 1 - W_{j,k,t}^{BM} & when\ FIB\_raw_{j,k,t} < 0\ (overinvestment) \end{cases} \quad (20)$$

In the case of underinvestment the normalization variable simply equals the market size of the target country. Because market size also appears on the left hand side of the regression, we lag the normalization variable by one panel year. Alternatively, we use the normalized variable as the dependent variable. Because this variable is in the (-1,1) interval, we first apply a Fisher transformation[7] ($\ln \frac{1+x}{1-x}$). In addition, we conjecture that the foreign investment bias may be affected by the extent of home bias, and create two new measures to adjust for this. Another option is to look at the raw FIB measure, but

[7] The dataset contains a lot of zero investments which implies that under-investment is complete and the raw FIB measure equal to the local market weight. Because these zeros may well reflect measurement error, we first exclude them from the dataset. However, we also redo the analysis including these observations, but then of course cannot apply a Fisher transformation.

have controls for home bias on the right hand side. That is what the HB variable accomplishes. In particular, in the most general specification we consider HB_j and HB_k for the year 1997. However, HB_j is only available for holder countries in our data set. Therefore, we obtain HB_j for the other countries from the fitted value of a regression on home bias for the available countries[8].

The main regression can be easily modified to mimic previous regressions focusing on the U.S., by excluding holder country characteristics and home bias controls.

The actual examination of home bias itself occurs in a closely related regression:

$$HB_{k,t} = c + \alpha \cdot Z_{w,k} + \beta \cdot X_{w,k,t} + \delta^{HOLDER} X_{k,t}^{HOLDER} + \gamma \cdot NORM_{k,t-1} + \varphi \cdot \sum_{i \neq k} FIB_{k,i,1997} + \varepsilon_{j,k,t} \qquad (21)$$

The benchmark variables are now time invariant variables for country k relative to the world ($Z_{w,k}$), time-varying variables for country k relative to the world ($X_{w,k,t}$), and time-varying variables for country k ($X_{k,t}$). We also consider specifications using $(X_{k,t} - \sum_{j \neq k} X_{j,t})$ as regressors, for some explanatory variables. The variable FIB tries to assess the indirect effect described above: if a country is very unattractive for other countries, its market capitalization will be depressed and foreign holdings reduced, increasing the extent of home bias. We would therefore expect φ to be positive. However, foreign investment bias into country k depends positively on the benchmark weight of country k and home bias depends on it negatively. This could mechanically lead to a negative relation that essentially corrects for the relative size of the country. To mitigate this endogeneity, we use FIB measured in 1997.

3.2 Standard errors estimation

Given the limited number of time series observation, we use pooled OLS for the parameter estimates. In a typical panel data set, the residuals may be correlated across time for a given cross-sectional unit and/or across cross-sectional units for a given point of time.[9] These "cross-sectional unit" and "time" effects may imply that the OLS

[8] The regression is $HB_{k,t} = c + \alpha \cdot Z_{w,k} + \beta \cdot X_{w,k,t} + \delta^{HOLDER} X_{k,t}^{HOLDER} + \gamma \cdot NORM_{k,t-1} + \varphi \cdot \sum_{i \neq k} FIB_{k,i,1997} + TD_t + \varepsilon_{j,k,t}$ After an initial regression, we eliminate the regressors that are not 10% significant. In the second stage regression, the R^2 of the regression is 0.805 and we compute the fitted value based on this regression.

[9] According to Petersen (2006), of all finance papers, published during 2001 – 2004 and using panel data, 42% did not adjust the standard errors for possible dependence in the residuals.

standard errors are biased but clustered standard errors are designed to achieve unbiased standard errors.

In our context, the dependent variable $FIB_{j,k,t}$ suggests three possible cross-sectional clustering methods: 1) target country effect (captures potentially omitted target country variables that drive under- or over-investment in a particular country); 2) holder country effect; 3) target-holder country pair effect. The "time unit" effect should recognize potential correlation of the residuals of the same year, that is, correlations between countries cross-sectionally (or clustering by year).

Note that if the country or time effects are fixed, the clustering strategy is equivalent to including country or time dummies. However, using clustered standard errors is robust to "temporary" clustering effects (see Petersen, 2006)[10]. Preliminary analysis suggests that including time dummies suffices for time effects, but we explore several cross-sectional clustering strategies in the empirical analysis.

Our baseline standard errors are heteroskedasticity robust White (1980) standard errors, without clustering. In the foreign investment bias regression, assume there are J target countries, K holder countries and T survey years $FIB_{j,k,t} = \pi' P_{j,k,t} + \varepsilon_{j,k,t}$. Then the total number of observations is J×K×T. There are *p* regressors; which is the dimension of the vectors π and $P_{j,k,t}$. The White standard error is given by:

$$s^2_{White\_f}(\pi) = \frac{JKT}{JKT - p} D_f^{-1} \left[\sum_{j=1}^{J} \sum_{k=1}^{K} \sum_{t=1}^{T} (P_{j,k,t} P'_{j,k,t} \varepsilon_{j,k,t}^{\ 2}) \right] D_f^{-1} \tag{22}$$

where $D_f = \sum_{j=1}^{J} \sum_{k=1}^{K} \sum_{t=1}^{T} \left(P_{j,k,t} P'_{j,k,t} \right)$

In various regressions, we use two different clustered standard error specifications:

1) clustered by target country:

$$s^2_{TG\_f}(\pi) = \frac{J(JKT-1)}{(JKT-p)(J-1)} D_f^{-1} \left[\sum_{j=1}^{J} \left[\left(\sum_{t=1}^{T} \sum_{k=1}^{K} P_{j,k,t} \varepsilon_{j,k,t} \right) \left(\sum_{t=1}^{T} \sum_{k=1}^{K} P_{j,k,t} \varepsilon_{j,k,t} \right)' \right] \right] D_f^{-1} \tag{23}$$

2) clustered by target-holder country pair:

[10] Petersen (2006) uses the terminology "temporary effect" for a firm or time effect that varies through time.

$$s^2_{TGHD\_f}(\pi) = \frac{JK(JKT-1)}{(JKT-p)(JK-1)} D_f^{-1} \left[\sum_{j=1}^{J} \sum_{k=1}^{K} \left[\left(\sum_{t=1}^{T} P_{j,k,t} \varepsilon_{j,k,t} \right) \left(\sum_{t=1}^{T} P_{j,k,t} \varepsilon_{j,k,t} \right)' \right] \right] D_f^{-1} \quad (24)$$

In the home bias regression, $HB_{k,k,t} = \pi' P_{k,t} + \varepsilon_{k,t}$, assume there are K holder countries and T survey years and again *p* regressors. Then the total number of observation is K×T. The White standard error is:

$$s^2_{White\_h}(\pi) = \frac{KT}{KT-p} D_h^{-1} \left[\sum_{t=1}^{T} \sum_{k=1}^{K} \left(P_{k,t} P'_{k,t} \varepsilon_{k,t}^{\ 2} \right) \right] D_h^{-1} \quad (25)$$

where $D_h = \sum_{t=1}^{T} \sum_{k=1}^{K} \left(P_{k,t} P'_{k,t} \right)$.

Here, we can only cluster by holder country:

$$s^2_{HD\_h}(\pi) = \frac{K(KT-1)}{(KT-p)(K-1)} D_h^{-1} \left[\sum_{k=1}^{K} \left[\left(\sum_{t=1}^{T} P_{k,t} \varepsilon_{k,t} \right) \left(\sum_{t=1}^{T} P_{k,t} \varepsilon_{k,t} \right)' \right] \right] D_h^{-1} \quad (26)$$

3.3 Variance decomposition analysis

To gauge the relative importance of the determinants, we also perform a variance decomposition analysis. Let $\hat{FIB}_{j,k,t}$ be the fitted value of the regression for observation $FIB_{j,k,t}$. Then, the relative explanatory power of the regressor $X_{j,k,t}$ is:

$$VARC_{X_{j,k}} = \hat{\beta}_{X_{j,k}} \frac{\text{cov}(\hat{FIB}_{j,k,t}, X_{j,k,t})}{\text{var}(\hat{FIB}_{j,k,t})} \quad (27)$$

It is clear that the VARC's of all the regressors sum to one. It makes little sense to compute such variance decomposition in a regression that features many insignificant coefficients. This is likely to occur in our set-up because our regressions contain a large number of correlated explanatory variables. We therefore proceed by re-running the regression with all variables that are at least 10% significant, and report the variance decomposition for that regression. Such a "paring down" of the regression is motivated by the analysis in Hendry (1995) among many others. Note that the VARC of any particular variable can be negative as the variance decomposition measures an unconditional variance contribution whereas the regression coefficients measure partial correlation. This is less likely to occur in the pared-down regression.

As an alternative measure of the economic magnitude of the effect of an independent variable on the dependent variable, we simply report the predicted partial effect of a one-standard deviation change in the independent variable ($\beta_{X_{j,k}} \cdot \sigma_{X_{j,k}}$). We also only do this for the pared-down regressions.

3.4 Explanatory variables

In this section, we detail how the various explanatory variables are constructed and discuss the rationale for their inclusion in the analysis. We consider 6 categories of variables. Appendix Table A1 describes the data sources.

Familiarity and information

Perhaps the most popular explanation for home bias is information asymmetry; investors have less information about foreign securities and hence under-invest abroad (see, for instance, Brennan and Cao (1997)). Empirical studies such as Portes and Rey (2005) and Chan, Covrig and Ng (2005) have difficulty distinguishing an informational story from a "familiarity bias", also documented in domestic investment studies (see e.g. Huberman (2001)). We include standard familiarity variables together with some proxies for international information flow.

The familiarity variables include $Dist_{j,k}$, the log distance between the two countries, (which, of course, is negatively correlated with familiarity) and $CommLang_{j,k}$, a dummy variable taking a value of 1 if country j and k have a common official language and 0 if not. For the home bias regressions, $Dist_{w,k}$ is the weighted average of $Dist_{j,k}$ over all j ($j \neq k$) and $CommLang_{w,k}$ is the weighted average of dummy $CommLang_{j,k}$. It is conceivable that lack of familiarity may also proxy for lack of investment relevant information. We collected panel data on three information proxies. A unilateral information availability proxy is the number of internet users (per 100 people) "Internet". The second and third proxies are trade measures, reflecting the idea that international trade conveys information about the countries with which one trades (see also Bertaut and Kole (2004)).

Bilateral trade is constructed as the ratio of total bilateral trade (imports and exports) between the holder and target country relative to the holder country's total imports and exports with all the partner countries: $BiTrade_{j,k,t} = (Import_{j,k,t} + Export_{j,k,t})/(Import_{k,t} +$

$Export_{k,t}$). More significant trade links should reduce foreign investment biases. $UniTrade_j$ represents the unilateral trade openness of country j; computed as $UniTrade_{j,t} = (Import_{j,t} + Export_{j,t}) / GDP_{j,t}$; which is especially relevant for the home bias regressions. Of course, these trade variables also measure effective economic integration and are only imperfectly correlated with information flow. In particular, previous research has found that analogous variables may also proxy for financial integration (see Baele, Pungulescu and Ter Horst (2007), Chen and Zhang (1997), Bekaert and Harvey (1995)). We will however control directly for financial openness (see below). We expect higher trade openness of the target country to be associated with higher foreign investment and lower home bias. There is another reason why trade (and especially imports) may matter. In equilibrium models with consumption home bias, equilibrium portfolio allocations are proportional to consumption fractions, as agents use equities to hedge their consumption streams. Home bias then results endogenously with foreign investment allocations directly linked to import flows (see Collard et al. 2007).

Diversification potential

International diversification of an equity portfolio can reduce risk at no loss in expected return (see Solnik (1974)). Hence, from a holder country's perspective, a foreign country's attractiveness as an investment may depend on its diversification potential relative to the investors' home market. We use two measures related to diversification potential: 1) the correlation between the market returns of two countries, $RtnCorr_{j,k,t}$, and 2) a measure of the difference between the industrial structures of the two countries, $IndusDiff_{j,k,t}$.

$RtnCorr_{j,k,t}$ is computed by the monthly market return correlation between country j and k over the past two years including year t. A higher correlation reduces the diversification potential between the two markets, so we expect the coefficient on RtnCorr to be positive.

While return correlation is widely used as a measure of the diversification potential in previous home bias studies (see e.g. Berkel (2004), Portes and Rey (2005), Tesar and Werner (1995)), the measure has a few disadvantages. First, correlations display substantial time-variation implying that different estimation strategies in terms of window

and data frequency may yield substantially different results. Moreover, periods of high volatility or crisis periods may cause correlations to be temporarily high while having little to do with the long-run diversification potential (Bekaert, Harvey and Ng, 2005). Finally, return correlations may simply be another measure of market integration.

Therefore, we use an alternative measure taking the difference between industrial structures of the two countries, $IndusDiff_{j,k,t} = \frac{\sum_{i=1}^{N} \left| IW_{i,j,t} - IW_{i,k,t} \right|}{N}$, where $IW_{i,j,t}$ is the industrial market capitalization weight of industry i in country j at time t; N is the total number of industries (N = 39 using Datastream industry categories). We assign zero to $IW_{i,j,t}$ if an industry i is not present in country j. The larger the industrial difference between the two countries, the larger the potential diversification benefits for holder country k to invest in the target country j. Therefore, the expected coefficient is negative.

This measure works better when industrial structure explains a major part of cross-country stock return comovements (see Heston and Rouwenhorst (1994), Bekaert, Hodrick and Zhang (2008)). While this remains a controversial issue, there is some consensus that industry factors have become more important over time with increased integration.

For the home bias regression, we use "world" versions of the diversification measures. In particular, $RtnCorr_{w,k,t}$ is the correlation between the market return of country k and the world market return over the past two years including time t. Similarly, $IndusDiff_{w,k,t} = \frac{\sum_{i=1}^{N} \left| IW_{i,w,t} - IW_{i,k,t} \right|}{N}$; where $IW_{i,w,t}$ is the market capitalization weight of industry i in the world market at time t. Thus, $IndusDiff_{w,k,t}$ represents the industrial composition difference between country k and the world level. For a big country, such as the U.S., the difference could be very small because a particular industry of a big country may constitute the main component of that industry at the world level. Therefore, the diversification incentive might be small and the possibility of biases increases for the big countries.

Stock Market Development and Efficiency

We use two standard measures of stock market development, the relative size of the

market and turnover, the latter also being a measure of liquidity. We generally expect stock market development in the target country to be associated with less underinvestment bias. $(MCAP/GDP)_j$ is the market capitalization of country j divided by its GDP; an often used proxy for equity market development in both home bias literature (e.g. Baele, Pungulescu and Ter Horst (2007), Berkel (2004), Chan, Covrig and Ng (2005)) and market integration literature (e.g. Baele (2005)). The market turnover ratio is the ratio of total trading volume over the past year and the year-end market capitalization of the country.

Foreign investors are unlikely to invest in illiquid and inefficient stock markets. As a simple measure of liquidity, we use the average frequency of zero returns (see Lesmond, Ogden and Trizcinka (1999), Lesmond (2005), and Bekaert, Harvey, and Lundblad (2007)). They calculate the capitalization-weighted proportion of zero daily returns across all firms, and average this proportion over the year.

As an efficiency measure, we use the comovement measure due to Morck, Yang and Yeung (2004). They associate lower comovement in individual stock returns with higher efficiency of the stock market, as firm-specific news is more adequately reflected in prices. The measure is constructed as the value weighted average of r-squares of modified market model regressions for individual stocks. We expect higher market comovement of a target country to be associated with more underinvestment bias.

For the home bias regressions, we use these variables in a relative sense: we subtract a market-cap weighted average of the financial development measures of other countries from the holder country's measure. We then expect countries with relatively developed financial markets to be more home biased. It is conceivable that, because such countries may also attract substantial foreign capital, their market capitalization will be driven up, potentially lowering home bias. However, this effect should be of secondary importance.

Financial Openness

A potentially first-order determinant of investment biases is the existence of capital controls. The trend towards financial openness should therefore lead to smaller foreign investment biases. Note that both target and holder country openness may matter. That is because in most cases capital controls are symmetric: both capital inflows and outflows

are restricted. Consequently, relatively closed countries may still show significant foreign investment biases, even relative to open target countries. For the home bias regressions, we cannot separately identify holder and target country characteristics (the cross-sectional variation in the relative openness of other countries obviously depends on the relative openness of the holder country). We therefore look at relative openness: the home openness measure minus the cap-weighted average of the rest of the world. Here we expect openness to be associated with less home bias, exactly because openness also indicates the ability to invest abroad. If restrictions would only apply to inflows, you would expect the opposite effect. Here again, there is the possibility of an indirect effect, where very open countries attract foreign capital, leading to higher valuations, which reduces home bias. That is, the indirect effect reinforces the original effect.

We include three measures of financial openness. The first focuses specifically on equity market openness: $(IFCI/IFCG)_j$ is the investable index (that is, the market capitalization not subject to foreign ownership restrictions) divided by the global index of country j (see Bekaert (1995), Edison and Warnock (2003)).

A second openness measure assesses capital market openness more generally and is based on work by Quinn and Toyoda (2008). This openness measure is constructed using information from the IMF. A value of one indicates full capital account openness, a value of zero a closed capital account, and larger intermediate values indicate increasingly fewer regulations on international capital flows. Because of data limitations, we use the values for 1997.

Finally, taxes can deter foreign investment. In particular, some countries deduct withholding tax from dividends paid to non-resident investors. Investors may be able to claim it back under certain conditions. We include the withholding tax variable to control for the potential influence of foreign investment taxes on the biases. Because the percentage withholding taxes do not display much time variation, we use the average percentage withholding tax in Chan, Covrig and Ng (2005) as a time invariant variable Tax_j (Tax_k). We expect a higher withholding tax in the target country to be associated with more underinvestment bias; whereas high taxes in the holder countries suggests a relatively closed country which may be highly home biased.

Corporate Governance

Dahlquist, Pinkowitz, Stulz and Williamson (2003) claim that poor corporate governance is the main determinant of insufficient foreign investment. To capture the quality of corporate governance in different countries, we use three sub-indices of the Political Risk Index of International Country Risk Guide (ICRG). We use Law and Order, Corruption and Bureaucratic Quality to create a sub-index, which we call Quality of Institutions as in Bekaert, Harvey and Lundblad (2005).

The Law and Order index combines the law component measuring the assessment of the strength and impartiality of the legal system and the order component measuring the assessment of popular observance of the law. La Porta et al. (2000) show that the quality of the legal regime is highly correlated with corporate governance standards. Corruption is mainly concerned with actual or potential corruption in the form of excessive patronage, nepotism, job reservations, "favor-for-favors," secret party funding, and suspiciously close ties between politics and business. The Bureaucratic Quality index gives high points to countries where the bureaucracy has the strength and expertise to govern without drastic changes in policy or interruptions in government services. In the low risk countries, the bureaucracy tends to be somewhat autonomous from political pressure and to have an established mechanism for recruitment and training. Countries that lack the cushioning effect of a strong bureaucracy receive low points because a change in government tends to be traumatic in terms of policy formulation and day-to-day administrative functions.

We normalize the score into a range from 0 (the least effective) to 1 (the most effective). The correlations between the sub-indices are relatively high. For example, the correlation between Law and Order and Corruption is 0.86. The correlation between the Quality of Institutions index and the Law and Order index is 0.91. While the Law and Order index is perhaps most closely associated with corporate governance, narrowly defined, we therefore only use the broader quality of institutions index. We expect a target country with higher quality of institutions to receive more foreign investment and hence feature less underinvestment bias.

The existing literature employs analogous or even identical data. For example, Fidora, Fratzscher and Thimann (2006) use Investment Profile and Corruption indices

from ICRG. Chan, Covrig and Ng (2005) and Ferreira and Miguel (2007) use the Law index and expropriation risk from ICRG. Baele, Pungulescu and Ter Horst (2007) use a similar Shareholder Protection Index from the Martynova-Renneboog corporate governance database. Kho, Stulz and Warnock (2006) use governance measures from the Kaufmann-Kraay-Mastruzzi database.

Finally, we also use the insider trading laws prosecution dummy created by Bhattacharya and Daouk (2002). Bhattacharya and Daouk distinguish between the enactment of insider trading laws and their enforcement. They argue that the enforcement of insider trading laws makes emerging markets more attractive to international investors. Enforcement of insider trading laws is likely a good instrument for the quality of corporate governance, as, in its absence, insiders can more easily exploit (foreign) minority investors. We expect a target country with insider trading laws prosecution to receive more foreign investment and hence feature less underinvestment bias.

In the home bias regressions, the sign of the corporate governance variables is somewhat unclear. Because we use the relative magnitude (home versus rest of the world), you might expect that better relative corporate governance may lead to more home bias, as other countries are not attractive investment options. However, Dahlquist et al. (2003) point out that poor corporate governance is associated with a higher concentration of closely held firms, preventing foreign investment, and leading to potentially higher home bias in such countries.

Other Variables

Fidora, Fratzscher and Thimann (2006) suggest that real exchange rate volatility plays an important role in determining the foreign investment bias level. If real exchange rate volatility is considered as a difficult-to-hedge obstacle for cross border investments, we expect higher real exchange rate volatility of the target country to be associated with more underinvestment bias.

We define bilateral real exchange rate volatility as the standard deviation of monthly real exchange rate changes during the past 12 months. The real exchange rate change is calculated as:

$$\frac{RER_{j,k,t}}{RER_{j,k,t-1}} = \frac{e_{j,k,t}}{e_{j,k,t-1}} \frac{1+\%\Delta CPI_{k,t}}{1+\%\Delta CPI_{j,t}} \tag{28}$$

where $RER_{j,k,t}$ is the real exchange rate of foreign country j's currency with respect to home country k's currency at time t; $e_{j,k,t}$ is the corresponding nominal exchange rate at time t expressed as the amount of foreign country j's currency per unit of home country k's currency; and $\%\Delta CPI_{j,t}$ is the percentage monthly change of the CPI in country j at time t.

Rtn_j is a row vector of the past year and current year market returns of country j. Bohn and Tesar (1996) found that U.S. investors displayed return chasing behavior investing in foreign markets that performed well. This can be generalized to other holder countries as in the previous literature (e.g. Ahearne, Griever and Warnock (2004), Chan, Covrig and Ng (2005), Ke, Ng and Wang (2006)). We expect the past or current return of the target (holder) country to be negatively (positively) correlated with underinvestment bias.

$Crisis_j$ is a dummy variable that takes a value of one if country j is experiencing a banking crisis. In the late 1990s and early 2000s, there were several severe banking crises such as in Thailand, Korea and Turkey. The adverse effects of the crises may deter foreign investors, and may not be fully reflected in the measure extracted from political risk ratings discussed above. The banking crisis periods data are collected from Caprio and Klingebiel (2003), which were also used in Berkel (2004). We expect a crisis in the target (holder) country to be associated with more (less) underinvestment bias.

Correlations among independent variables

Table 5 presents the correlation matrix among explanatory variables averaged over 2001 – 2005. The table reveals that the independent variables are not unduly highly correlated. There are a number of correlations in the 0.5-0.6 range, typically among different variables providing alternative measurements of one economic concept (Distance and common language for familiarity, for instance). The highest correlation is between quality of institutions and the number of internet users at 0.8, followed by a –0.74 correlation between illiquidity and turnover. Generally speaking, multi-collinearity is not likely to be a major problem, but we still primarily focus on second stage regressions,

where highly insignificant variables (less than 10% significance) are removed from the analysis.

4 Empirical results

4.1 Home Bias Results

We report the first batch of results on home bias in Table 6. The regression has exactly 20 independent variables (including a constant), of which 13 are significant at the 10% significance level or better, using White standard errors. Recall that the financial development, openness and governance variables are all measured in a relative sense (holder country characteristics minus average of target countries characteristics). When we cluster standard errors, only 7 significant coefficients remain, with 5 of them significant at the 1% level. Unfortunately, the signs are not always as expected. However, three variables among the financial development are significant with the correct sign, and the same is true for all three openness variables. Of these two groups of variables, the variance decomposition and the economic responses in the last two columns clearly reveal that openness is a much more important determinant of home bias than is financial development. While better financially developed countries exhibit relatively more home bias, their contribution to the variance of the fitted value is negative. Relatively open countries exhibit less home bias, and almost 80% of the variation in home bias is explained by variation in the openness variables. This contradicts much of the literature which has found stock market development and the familiarity variables to be more important (see Chan, Covrig and Ng (2005)). While all of the information and familiarity variables are significant at the 10% level, the classic variables, distance and language familiarity, have the incorrect sign. However, the variables presumably more correlated with actual information flow, the number of internet users and trade openness, do have the correct sign. These two variables account for almost 30% in the variation of home bias. Quality of institutions, another important variable in the literature, has the incorrect sign: countries with relatively better corporate governance exhibit less home bias. Presumably, the mechanism described in Dahlquist et al. (2003) is at work here: countries with poor corporate governance have a higher concentration of closely held firms which leads to high home bias in such countries.

The R^2 for the regression is 77%, which is about 15% lower than the R^2 in a fixed effect regression, which we report in Table 7. Table 7 indicates that the constrained regression still achieves an adjusted R^2 of 76.1%. While this shows that dropping the insignificant independent variables does not at all decrease the fit of the regression, the negative variance contributions reported in Table 6 suggest that multi-collinearity or other biases may still be a problem. Table 7 also shows the effect of corrections for normalization, foreign investment bias, and finally the results of including year and fixed effects.

In column (2) of Table 7, we include the normalization variable, one year lagged, to the regression. While the variable gets a rather large coefficient, it is insignificant. The other coefficients are barely affected and the R^2 does not meaningfully increase, perhaps suggesting that the size bias is not that important. To make sure, we conducted a number of other experiments. First, because the estimated coefficient on NORM at 2.32 is implausibly large, we also investigated a regression using $HB_k - 0.5\ NORM_k$ as the dependent variable (not reported). The regression coefficients remain largely unaltered. Second, we use normalized home bias as the left hand side variable. We do not report these results, as the results are qualitatively largely the same. When we use the normalized bias as is, the variables retained, their significance and magnitudes are almost identical to those reported in Table 7, column (1). When we use a Fisher transformation to avoid using a censored variable, the magnitudes of course change, but the retained variables and significance of the variables are almost identical to the results in Table 7. The main difference is that we lose the UniTrade variable as a significant determinant of home bias, replacing it by the IndusDiff variable; however, the later variable has the wrong sign.

We also include a foreign investment bias control in column (3). This variable adds up how much other countries under-invest in country k. The more they do, the more the market value in the home country should be depressed and the more the home country may be home biased. However, the FIB measure depends positively on the benchmark weight of the home market and the home bias measure depends on it negatively, leading to a natural negative relation. Despite using the 1997 FIB measure in the regression, it is this effect that dominates yielding a 5%-significant coefficient of -0.25. The R^2 increases

to 78%. Nevertheless, the FIB-control does not meaningfully alter the coefficients on the other determinants.

In columns (4) and (5), we introduce time and country effects. The time effects increase the R^2 to 80%, but again leave the effects of the other home bias determinants relatively unchanged. Because the determinants mostly explain relatively time-invariant effects, we first use all possible regressors that exhibit time-variation when introducing fixed effects, then eliminate the determinants that are insignificant at the 10% level. The resulting regression, reported in column (5), identifies the regressors that explain changes in home bias within one country. Not surprisingly, a different set of important variables is identified. Convergence to the world industrial structure and more openness decrease home bias, but a bigger stock market and high past returns increase home bias. Real exchange rate variability also enters significantly but with the wrong sign.

4.2 Foreign Investment Bias Results

We start by demonstrating how a more complete dataset can modify the conclusions from empirical analyses of the determinants of foreign investment bias. In Table 8, column (1) restricts the holder country to the U.S., as a number of previous studies (see e.g. Ahearne, Griever and Warnock (2004)) have done. We obviously must restrict the determinants to target country characteristics. An initial regression identifies 8 significant regressors, with 6 remaining in the pared-down regression. Unfortunately, only 3 variables have the expected sign: general trade openness, the industrial structure difference and illiquidity. Worse, these variables do not account for much of the explained variance. The important role played by bilateral trade (with the wrong sign) is particularly puzzling. In column (2), we again use only target country characteristics, but expend the sample to all countries. We now only find 4 significant coefficients, of which 3 remain in the pared-down regression. While the puzzling effect of bilateral trade remains, the other coefficients now do have the expected sign, including a positive effect of distance and high return correlations on the level of FIB.

When we add holder country characteristics, a large number of additional determinants become significant. The distance and general trade openness effects remain intact, but the return correlation variable now has the wrong sign, consistent with the

extant literature (see e.g. Berkel, 2004). Fortunately, the industrial structure variable is also significant and has the correct sign. While this may appear to resolve the correlation puzzle, the variable's economic importance is small. The bilateral trade variable is now less important but continues to have the incorrect sign and dominates the explained variance in the regression. These results bear some similarity to the purely cross-sectional results in Chan, Covig and Ng (2005) on foreign investment bias. They also identified more significant variables for their foreign investment bias regression than they did for the home bias regression, and both the bilateral and unilateral trade variables were significant in their analysis, as they are in our specification. However, they find the bilateral variable to have the correct sign and the unilateral variable the incorrect sign.

Table 9 reports the full regression, including the coefficients on the holder country characteristics. The number of significant coefficients is daunting, and unfortunately about half of them feature unexpected signs. There is only one variable that has the expected sign and explains more than 5% of the explained variation: the trade openness of the target country.

It is conceivable that normalization may dramatically improve the fit of the regressions. Most countries in the sample have relatively small market capitalizations, so that many observations are clustered around zero. The exception is of course the U.S., which features a large benchmark weight, and the observations with the U.S. as the target country may provide the most cross-sectional variation in the dependent variable. Analogously, the U.S.-only regression in Table 8 may feature the U.K., Japan and a few other countries as relative outliers. This may in effect explain the importance of the bilateral trade variable: small open neighboring countries feature small market capitalizations and thus small FIBs.

If this is true, normalizing should dramatically affect the results. In part (2) of Table 9, we add the lagged normalization variables as regressors. The results show that normalization is indeed important; the R^2 of the regression increases dramatically to over 90%. This happens even though the number of retained significant coefficients decreases a lot. Unfortunately, there are still plenty of coefficients with unexpected signs, including bilateral trade. However, the bilateral trade coefficient is reduced by a factor of 10 and its importance in the variance decomposition reduced to 20.8%. The collective importance

of three other information/familiarity variables (distance and internet usage in target and holder countries) now exceeds that of the bilateral trade variable and these variables all have the correct sign. Finally, the most important variable is now capital market openness of the holder country, accounting for close to 50% of the explained variation. Capital market openness is negatively associated with foreign investment bias, as expected.

To check the robustness of these results to the method of normalization, Table 10 reports the results of two alternative regressions. In part (1), we simply use the normalized FIB directly as the dependent variable; in part (2) we Fisher-transform it. While the results are somewhat dependent on the particular estimation conducted, there are some clear conclusions to be drawn. First, the bilateral trade variable now is no longer significant, suggesting "size bias" was indeed the driving force of its importance. Second, the most important groups of variables driving foreign investment bias are information/familiarity (Dist and CommLang in Table 10) and openness of the holder country (the Quinn capital market openness measure, in particular, although the tax variable is the most important variable in the Fisher-transformed regression). Ahearne, Griever and Warnock (2004), who study U.S.-based foreign investment bias cross-sectionally, find capital market openness of the target countries to be statistically but not economically significant. Of course, they cannot examine the impact of the capital market openness of the holder country. Their most important determinant of the foreign investment bias is the portion of a country's market that has a public U.S. listing, which they interpret to reflect a decrease in information asymmetries, but this variable may also simply proxy for the degree of openness of the foreign country. The prominence of the familiarity variables supports the gravity models in Portes and Rey (2005), Aviat and Coeurdacier (2007) and others.

Among the other determinants, there are a few interesting results to report. The new specification does not resolve the return correlation puzzle: countries with high return correlations feature less FIB. Stock market development has some explanatory power (with the correct sign) but economically is rather unimportant. Governance variables continue to generate unexpected signs. Real exchange rate volatility does increase FIB, as in Fidora et al. (2006), but its effect is economically negligible.

While the regressions in Table 10 (part (1)) excluded zero entries in the bilateral holdings, we re-ran the regression including those observations. The results are qualitatively the same, with the exception that real exchange rate volatility now loses its statistical significance.

To study foreign investment bias, it is clearly very important to use normalized measures, likely because otherwise too many observations are clustered near zero. We therefore continue with the normalized measures. As we pointed out before, measures of foreign investment bias are also contaminated by home bias: if a holder country is totally home biased, its foreign investment bias in any other country will be 100%. Table 11 shows several ways to deal with this problem, using normalized foreign investment bias measures as the dependent variable.

The first specification (part (1)) uses the standard measure but corrects for home bias in both the holder and target country on the right hand side of the regression. The holder country's home bias has a significant and positive effect on foreign investment bias, whereas target countries that are more home biased feature relatively less foreign investment bias, probably because home bias is negatively associated with their relative market capitalization. The regression again shows lots of significant coefficients, fortunately now most having the correct sign. Yet, the main determinants of foreign investment bias remain intact: the information/familiarity variables, especially distance (around 47% of the explained variance) and capital market openness (over 10%).

In specification (2), we use the foreign investment bias measure that for each country looks at its foreign allocations as part of the world portfolio minus the home market ($\overline{FIB}$). The results are reasonably robust, but the importance of the information variables increases, especially of the distance variable, which now accounts for over 55% of the predictable variation. The trade openness of the holder country does enter with the wrong sign. Financial development becomes somewhat more important, overtaking openness as the second most important group of variables explaining foreign investment bias. Real exchange rate variability continues to have the correct sign and now accounts for 2% of the explained variation.

In specification (3), we look at $\widetilde{FIB}$, which removes all domestic allocations, correcting for home bias in an extreme sense. The information variables now increase

even more in importance, with distance, language commonality and bilateral trade all playing an important role. The target and holder country unilateral trade variables also enter significantly but the coefficients unfortunately have the wrong sign. In any case, it makes sense that once home bias is taken out of the picture, international investments seem to be highly correlated with information and trade flows, and pure proximity. Financial development, especially of the target country, continues to be more important than capital market openness, and the real exchange rate variability effect persists as well. These results are intuitive, as capital market openness is primarily a determinant of home bias, but not necessarily of pure relative investment biases towards different countries. So, as we cleanse the results of the effects of home bias, capital market openness becomes less important.

So far, these normalized measures are censored variables between –1 and 1. We also re-estimate all the regressions using Fisher-transformed variables. Table 12 summarizes the results by reporting the total variation proportions explained by the explanatory variables groups, contrasting the standard normalized with the Fisher-transformed results. In addition, we show the results using specifications that use all information, including investments that are exactly zero.

Including zeros does not qualitatively change the results. The information /familiarity variables remain the most important explanatory variables, but their relative importance does decrease somewhat. This is particularly true for the adjusted measures (and especially $\overline{FIB}$), where openness becomes relatively more important. A similar result holds for the Fisher-transformed variables, with the effect most dramatic for the standard measure, where openness now becomes more important than information/ familiarity.

Table 13 reports results using year and country fixed effects, excluding time-invariant variables. Despite the distance and language effects now being absorbed by the country effects, the information/familiarity variables continue to be important drivers of foreign investment bias. All variables have the correct sign but when adjusted measures are used some variables do not survive the paring-down procedure. For $\widetilde{FIB}$, bilateral trade is the only remaining significant variable, but it is highly economically important, accounting for close to 35% of all explained variation.

The results continue to confirm the return correlation puzzle: higher return correlations significantly reduce foreign investment bias. The only variable, apart from the information/familiarity variables, with the correct sign and robustly so for more than one measure, is the illiquidity of the target country.

5 Conclusions

The first main contribution of this article to the home bias literature is the one of measurement. Economically, we disentangle home bias and foreign investment bias. We also demonstrate the importance of normalization to avoid size biases. A panel data set allows the use of clustered standard errors that are more conservative than the ones typically used in the literature.

Our second contribution is to re-examine the determinants of home and foreign investment bias, using our new framework. Our benchmark model is the CAPM, but our methods could be applied to other benchmark models as well. We summarize our findings by comparing our results with the existing literature for each of the main groups of the explanatory variables.

Information and Familiarity

A substantial literature on both gravity models (e.g. Portes and Rey (2005), Aviat and Coeurdacier (2007)) and existing studies of home bias (e.g. Chan, Covrig and Ng (2005), Ahearne, Griever and Warnock (2004)) attributes much of home and foreign investment biases to information and/or familiarity with "distance", a particularly powerful regressor. Our results are more subtle. For home bias, standard familiarity variables, such as distance and common language are not important, but an information variable, such as the internet penetration, is indeed important. Yet, capital market openness is even more important. For foreign investment bias, the importance of distance effects only shines through when the measure is normalized. Controlling for home bias makes its importance even more dominant. Changes in trade patterns measured using the bilateral trade variable do seem to help explain time variation in foreign investment bias, in a fixed effects regression.

Capital Market Openness

One surprising aspect of our study is that we resurrect the importance of the degree

of capital market openness. Despite globalization, there is still cross-sectional variation in the degree of openness that helps explain home bias, and foreign investment bias, albeit less so once the regressions cleansed of the effects of home bias. This result is likely due to the use of more accurate measures of openness, but also to our sample, which includes several emerging markets, where capital controls often still bind, leading to extreme home bias. It is even the case that changes in the degree of equity openness also significantly affect time variation in home bias.

Financial Market Development

We find that financial market development's effect on home and foreign investment biases is much less robust across specifications, than Chan, Covrig and Ng (2005) document. For example, financial market development is simply not a significant determinant of home bias. However, financial market development is about as economically important as capital market openness, when we correct for size biases in the FIB regressions.

Corporate Governance

Another extremely popular determinant of home and foreign investment bias is corporate governance (e.g. Dahlquist et al.(2003), Chan, Covrig and Ng (2005)). For home bias, we confirm the point made by Dahlquist et al. (2003), that countries with poor corporate governance exhibit more home bias. However, we do not find strong and consistent results for corporate governance as a determinant of foreign investment biases.

Return Correlation Puzzle

The puzzle largely persists: when the return correlation variable enters our regressions significantly, it is typically with the wrong sign. The use of industrial structure does not help much, despite the claims to the contrary by Ferreira and Miguel (2007). It rarely comes in significantly and with the correct sign, the exception being the fixed effects regressions for home bias.

Other Variables

A major finding of our article is that many variables put forward by the recent literature as important determinants of home bias generate inconsistent and/or statistically insignificant results (e.g. return chasing by Bohn and Tesar (1996)); show little robustness across specifications (stock market development variables); or are significant

but economically unimportant (real exchange rate variability by Fidora, Fratzscher and Thimann (2006)).

We conclude that more research should be devoted to the interplay of information, familiarity (see Van Nieuwerburgh and Veldkamp (2007) for example), capital account openness and the difference between home and foreign investment bias. For example, the presence of severe home bias in many emerging markets likely is significantly welfare reducing. Knowing its determinants would appear to be of critical important.

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Table 1. Holder countries list

Category	Developed		Emerging	America	Europe	Eurozone	Asia
	Australia	Portugal	Argentina	Canada	Austria	Austria	Indonesia
	Austria	Singapore	Chile	U.S.	Belgium	Belgium	Israel
	Belgium	Spain	Indonesia	Argentina	Denmark	Finland	Japan
	Canada	Sweden	Israel	Chile	Finland	France	Korea
	Denmark	U.K.	Korea	Venezuela	France	Italy	Malaysia
	Finland	U.S.	Malaysia		Iceland	Netherlands	Singapore
	France		Thailand		Italy	Portugal	Thailand
	Iceland		Venezuela		Netherlands	Spain	
	Italy				Norway		
	Japan				Portugal		
	Netherlands				Spain		
	New Zealand				Sweden		
	Norway				U.K.		
# of countries	19		8	5	13	8	7

Notes: These are the holder countries which have data in all six panel years.

Table 2. Characterizing home bias

		(1) $HB\_raw_{k,k}$		(2) $HB\_norm_{k,k}$
Least home biased	U.S.	0.386	Netherlands	0.468
	Netherlands	0.457	Norway	0.567
	Norway	0.565	Austria	0.574
.	Austria	0.573	Denmark	0.630
.	U.K.	0.626	Sweden	0.639
.	Denmark	0.627	Belgium	0.664
.	Sweden	0.633	New Zealand	0.687
.	Belgium	0.659	Canada	0.689
.	Canada	0.669	U.K.	0.689
.	New Zealand	0.686	Argentina	0.720
.	Singapore	0.717	Singapore	0.721
.	Argentina	0.719	U.S.	0.727
.	France	0.724	Finland	0.740
.	Finland	0.736	France	0.757
.	Italy	0.755	Italy	0.773
.	Japan	0.792	Iceland	0.822
.	Australia	0.814	Australia	0.829
.	Iceland	0.821	Spain	0.852
.	Spain	0.838	Portugal	0.876
.	Portugal	0.874	Japan	0.896
.	Israel	0.921	Israel	0.923
.	Chile	0.957	Chile	0.960
.	Venezuela	0.974	Venezuela	0.975
.	Korea	0.976	Korea	0.985
Most home biased	Malaysia	0.982	Malaysia	0.987
	Thailand	0.989	Thailand	0.991
	Indonesia	0.997	Indonesia	0.998
Average by group	Dev. ex U.S.	0.698		0.715
	Emerging	0.939		0.942
	America	0.741		0.814
	Europe	0.684		0.696
	Asia	0.910		0.929
	Euro zone	0.702		0.713

Notes: Column (1) [Column (2)] shows the individual country's average HB_raw [HB_norm] over the six survey years.

Table 3. Numerical examples

		$M_{j,k}$			$W^{act}_{j,k}$			FIB_raw			$\overline{FIB}\_raw$		
		Holder1	Holder2	Holder3	Holder1	Holder2	Holder3	Holder1	Holder2	Holder3	Holder1	Holder2	Holder3
Bechmark	Target1	36	12	12	60%	60%	60%	0	0	0	0	0	0
	Target2	12	4	4	20%	20%	20%	0	0	0	0	0	0
	Target3	12	4	4	20%	20%	20%	0	0	0	0	0	0
Example1	Target1	45	7.5	7.5	75%	37.5%	37.5%	0.15	0.225	0.225	0.15	0	0
	Target2	7.5	10	2.5	12.5%	50%	12.5%	0.075	0.3	0.075	0	0.3	0
	Target3	7.5	2.5	10	12.5%	12.5%	50%	0.075	0.075	0.3	0	0	0.3
Example2	Target1	58	1	1	96.6%	5%	5%	0.216	0.55	0.55	0.216	0.55	0.55
	Target2	1	15	4	1.7%	75%	20%	0.183	0.55	0	0	0.55	-0.55
	Target3	1	4	15	1.7%	20%	75%	0.183	0	0.55	0	-0.55	0.55

Notes: $(TMS_1, TMS_2, TMS_3) = (TSH_1, TSH_2, TSH_3) = (60, 20, 20)$. The benchmark holdings for the own market are therefore $(M_{11}, M_{22}, M_{33}) = (36, 4, 4)$.

Table 4. Characterizing foreign investment bias

	FIB_raw		FIB_norm		$\overline{FIB}\_raw$		$\overline{FIB}\_norm$		$\widetilde{FIB}\_raw$		$\widetilde{FIB}\_norm$	
	as target	as holder	as target	as holder	as target	as holder	as target	as holder	as target	as holder	as target	as holder
U.S.	0.410	0.006	0.876	0.634	0.115	0.006	0.259	0.303	-0.131	0.005	-0.059	0.219
Japan	0.106	0.017	0.908	0.921	0.075	0.005	0.640	0.482	0.060	0.019	0.593	0.648
U.K.	0.065	0.012	0.729	0.507	-0.043	0.010	0.151	0.183	0.033	0.005	0.350	0.200
Dev. ex U.S.	0.017	0.020	0.782	0.670	-0.004	0.017	0.443	0.389	0.007	0.020	0.526	0.496
Emerging	0.002	0.058	0.834	0.906	-0.003	0.069	0.570	0.552	-0.002	0.075	0.592	0.621
America	0.088	0.053	0.887	0.802	0.027	0.041	0.601	0.515	-0.021	0.044	0.489	0.563
Europe	0.012	0.019	0.751	0.630	-0.012	0.018	0.392	0.362	0.004	0.017	0.492	0.451
Asia	0.017	0.037	0.820	0.873	0.004	0.056	0.510	0.498	0.004	0.065	0.587	0.598
Euro zone	0.011	0.020	0.735	0.650	-0.012	0.022	0.356	0.378	0.003	0.018	0.493	0.470
Correl. with HB_raw	-0.204	0.534	0.410	0.822	0.277	-0.131	0.397	0.048	-0.071	-0.361	0.221	0.004
Correl. with HB_norm	-0.158	0.521	0.408	0.821	0.273	-0.129	0.384	0.048	-0.047	-0.353	0.218	0.008
	Regression a		Regression c		Regression a		Regression c		Regression a		Regression c	
Trend α (std)	-0.0027	(0.0010)	-0.0031	(0.0011)	0.0010	(0.0036)	0.0007	(0.0037)	0.0038	(0.0041)	0.0037	(0.0041)
γ_under (std)			0.0062	(0.0039)			0.0085	(0.0159)			0.0810	(0.2857)
γ_over (std)			-0.0008	(0.0032)			0.0021	(0.0096)			0.0020	(0.0089)
	Regression b		Regression d		Regression b		Regression d		Regression b		Regression d	
baseline R^2	0.970		0.970		0.289		0.290		0.297		0.299	

Notes: We report the average foreign investment biases for the three biggest countries and several country groups, viewed both as target and as holder countries. We also report some results from four regressions using six years panel data:

a: $FIB_{j,k,t} = \alpha \cdot t + CE_j + CE_k + e_{k,t}$

b: $FIB_{j,k,t} = TD_t + CE_j + CE_k + e_{k,t}$

c: $FIB_{j,k,t} = \alpha \cdot t + CE_j + CE_k + \gamma\_under \cdot NORM\_UNDER_{j,k,t-1} + \gamma\_over \cdot NORM\_OVER_{j,k,t-1} + e_{k,t}$

d: $FIB_{j,k,t} = TD_t + CE_j + CE_k + \gamma\_under \cdot NORM\_UNDER_{j,k,t-1} + \gamma\_over \cdot NORM\_OVER_{j,k,t-1} + e_{k,t}$

$$where \quad NORM\_UNDER_{j,k,t} = \begin{cases} W_{j,k,t}^{BM} & when\, FIB\_raw_{j,k,t} > 0\,(underinvestment) \\ 0 & when\, FIB\_raw_{j,k,t} < 0\ (overinvestment) \end{cases} \quad and \quad NORM\_OVER_{j,k,t} = \begin{cases} 0 & when\, FIB\_raw_{j,k,t} > 0\,(underinvestment) \\ 1 - W_{j,k,t}^{BM} & when\, FIB\_raw_{j,k,t} < 0\ (overinvestment) \end{cases}$$

Table 5. Correlations between explanatory variables

	Dist	Comm Lang	Inter-net	Bi Trade	Uni Trade	Rtn Corr	Indus Diff	MCAP/ GDP	Turn over	Co-move	Illiquid	Quinn	IFCI/ IFCG	Tax	Qual_ Inst	Insider Pros	Real Ex	Past Ret	Curr Ret
CommLang	0.65	1																	
Internet	-0.20	0.29	1																
BiTrade	-0.22	0.23	-0.20	1															
UniTrade	0.14	0.50	0.13	-0.001	1														
RtnCorrel	-0.48	-0.16	0.62	0.10	-0.12	1													
IndusDiff	-0.08	-0.08	-0.22	-0.05	-0.16	-0.32	1												
MCAP/GDP	0.06	0.44	0.53	-0.10	0.58	0.37	-0.22	1											
Turnover	-0.41	-0.24	0.59	-0.18	-0.15	0.64	-0.30	0.28	1										
Comove	-0.09	-0.07	-0.16	-0.04	0.16	-0.04	-0.18	0.01	0.09	1									
Illiquidity	0.12	-0.02	-0.57	0.19	0.14	-0.62	0.32	-0.35	-0.74	-0.13	1								
Quinn	-0.33	0.05	0.41	-0.14	-0.01	0.22	0.39	0.05	0.19	-0.06	-0.24	1							
IFCI/IFCG	-0.02	0.20	0.58	-0.62	0.15	0.46	-0.29	0.42	0.36	0.05	-0.60	0.37	1						
Tax	0.59	-0.01	-0.61	0.23	-0.03	-0.57	0.02	-0.19	-0.46	0.11	0.39	-0.61	-0.33	1					
Qual_Inst	-0.28	0.21	0.80	-0.20	0.09	0.63	0.05	0.49	0.34	-0.24	-0.45	0.52	0.64	-0.69	1				
Insider_Pros	0.06	-0.10	0.11	-0.13	0.27	0.16	-0.27	0.44	0.25	0.14	-0.32	-0.04	0.35	0.16	0.01	1			
RealExch	0.18	-0.15	-0.43	-0.02	-0.34	-0.38	0.37	-0.42	-0.33	-0.13	0.38	-0.09	-0.55	0.41	-0.43	-0.22	1		
PastRtn	0.08	-0.01	-0.10	0.05	-0.14	-0.09	-0.003	-0.22	-0.09	-0.07	0.19	-0.15	-0.10	0.09	-0.10	-0.19	-0.09	1	
CurrRtn	0.20	-0.05	-0.14	0.05	-0.13	-0.11	-0.14	-0.29	-0.10	-0.16	0.09	-0.22	-0.01	0.20	-0.15	-0.08	0.02	0.01	1
Crisis	0.42	-0.06	-0.43	0.09	0.05	-0.60	-0.18	-0.27	-0.07	0.21	0.09	-0.49	-0.15	0.60	-0.65	0.31	0.09	0.03	0.41

Notes: The explanatory variables are holder countries characteristics except that Dist, CommLang, RtnCorrel and IndusDiff are calculated relative to the world. We construct the correlation of the panel variables as the average of the cross-sectional correlations of every pair of two variables in each individual year. The correlations between BiTrade and other variables are computed using the actual $BiTrade_{j,k}$ and other characteristics as in the FIB regressions.

Table 6. Determinants of home bias (HB_raw measure)

#obs = 114 Adj. R^2 = 0.768		Prediction	Coeff.	Standard error estimations				VARC	ΔHB/ΔVar
				White		Cluster by holder			
			(1)	(2)		(3)		(4)	(5)
Information/ familiarity	Dist	+	-0.018	0.006	***	0.008	**	-16.82%	-0.055
	CommLang	-	0.362	0.092	***	0.139	***	3.52%	0.092
	Internet	-	-0.004	0.001	***	0.001	***	28.74%	-0.081
	UniTrade	-	-0.457	0.193	***	0.296	*	0.68%	-0.025
Diversification	RtnCorrel	+	-0.115	0.080	*	0.129			
	IndusDiff	-	-2.804	3.164		5.668			
Financial market development	MCAP/GDP	+	0.007	0.057		0.094			
	Turnover	+	0.096	0.041	***	0.058	**	-7.48%	0.043
	Commove	-	-0.244	0.109	**	0.093	***	-2.16%	-0.017
	Illiquidity	-	-0.237	0.145	*	0.141	**	-3.63%	-0.028
Openness	Quinn	-	-0.345	0.069	***	0.117	***	37.80%	-0.065
	IFCI/IFCG	-	-0.110	0.059	**	0.064	**	2.27%	-0.025
	Tax	+	0.026	0.007	***	0.011	***	39.06%	0.088
Governance	Qual_Inst	+	-0.109	0.082	*	0.079	*	18.02%	-0.024
	InsiderPros	+	0.007	0.030		0.039			
Others	RealExch	+	-0.911	0.668	*	0.744			
	PastRtn	+	0.017	0.025		0.024			
	CurrRtn	+	0.008	0.027		0.026			
	Crisis	-	-0.026	0.034		0.041			

Notes: *** means that the coefficient is significant at the 1% level; ** means significant at the 5% level; * means significant at the 10% level. The financial market development, openness and governance measures are in a relative sense, which are calculated by $REL\_X_k = X_k - \sum_{j \neq k} w_j X_j$ where w_j is market capitalization weight of country j in the world. We estimate the regression by pooled OLS, reporting White standard errors in column (2) and clustered standard errors in column (3). Column (4) reports a variance decomposition of the fitted value in a restricted regression that only uses the regressors that are at least 10%-significant using clustered standard errors. Column (5) reports the response to a one standard deviation move in the independent variable in that regression.

Table 7. Determinants of home bias (HB_raw measure) with size control, FIB control, and fixed effects

		Prediction	(1) Coeff.		(2) Coeff.		(3) Coeff.		(4) Coeff.		(5) Coeff.	
Information/ familiarity	Dist	+	-0.017	***	-0.019	**	-0.019	***	-0.016	**		
	CommLang	-	0.362	***	0.395	***	0.398	***	0.337	***		
	Internet	-	-0.003	***	-0.004	***	-0.004	***	-0.001			
	UniTrade	-	-0.358	*	-0.401	*	-0.389	**	-0.359	*		
Diversification	RtnCorrel	+										
	IndusDiff	-									-3.741	*
Financial market development	MCAP/GDP	+									0.183	***
	Turnover	+	0.084	***	0.099	**	0.102	***	0.078	**		
	Commove	-	-0.260	***	-0.269	***	-0.288	***	-0.270	***		
	Illiquidity	-	-0.186	*	-0.229	**	-0.256	**	-0.204	*		
Openness	Quinn	-	-0.387	***	-0.393	***	-0.372	***	-0.365	***		
	IFCI/IFCG	-	-0.033		-0.021		-0.008		-0.008		-0.237	***
	Tax	+	0.022	***	0.022	***	0.020	***	0.018	***		
Governance	Qual_Inst	+	-0.171	**	-0.194	**	-0.211	***	-0.344	***		
	InsiderPros	+										
Others	RealExch	+									-1.120	**
	PastRtn	+										
	CurrRtn	+									0.045	**
	Crisis	-										
$NORM_{t-1}$					2.317							
FIB_{1997}							-0.252	**	-0.254	**		
Year effect			No		No		No		Yes		Yes	
Holder effect			No		No		No		No		Yes	
#obs			114		114		114		114		114	
Adj R^2			0.761		0.763		0.784		0.805		0.931	

Notes: This table reports the coefficients in the restricted regressions that only use the regressors that are at least 10%-significant using clustered standard errors (Column 3 in Table 6). *** means that the coefficient is significant at the 1% level; ** means significant at the 5% level; * means significant at the 10% level. All the significance levels are calculated using clustered standard errors. The regression of column (5) includes country fixed effects, so it excludes pure cross-sectional independent variables. The NORM control is $NORM_k = 1 - W_{k,k}^{BM}$ The FIB_{1997} control is $FIB_{1997,k} = \sum_{i \neq k} FIB\_raw_{k,i,1997}$

Table 8. Determinants of foreign investment bias (FIB_raw measure) – comparing with the U.S. regression

		Predict	(1) U.S.				(2) Mimic the U.S.					(3) Full Regression				
			Coeff.		Std err	VARC	ΔHB/ ΔVar	Coeff.		Std err	VARC	ΔHB/ ΔVar	Coeff.		Std err	VARC	ΔHB/ ΔVar
Information/ familiarity	Dist	+	-0.026		0.535	-0.005%	-0.0001	3.806	**	1.851	7.42%	0.019	5.234	***	0.880	8.34%	0.026
	CommLang	-	0.003		0.004	-0.90%	0.001										
	Internet	-															
	BiTrade	-	0.732	***	0.157	71.21%	0.014	0.676	***	0.092	74.70%	0.043	0.817	***	0.168	49.95%	0.046
	UniTrade	-	-0.102	***	0.021	5.34%	-0.005	-0.377	*	0.257	17.46%	-0.019	-0.358	***	0.054	9.69%	-0.018
Diversification	RtnCorrel	+						0.012		0.030	0.42%	0.003	-0.025	***	0.010	-0.56%	-0.006
	IndusDiff	-	-0.939	***	0.332	17.84%	-0.005						-0.964	**	0.475	0.84%	-0.006
Financial market development	MCAP/GDP	-											0.031	***	0.008	7.15%	0.015
	Turnover	-											0.021	***	0.006	6.74%	0.011
	Commove	+											-0.128	***	0.030	2.67%	-0.010
	Illiquidity	+	0.033	***	0.012	-0.80%	0.004						-0.090	***	0.026	8.83%	-0.011
Openness	Quinn	-	0.017	**	0.009	0.99%	0.003						0.084	***	0.020	8.03%	0.017
	IFCI/IFCG	-	0.015	***	0.005	6.32%	0.004										
	Tax	+											-0.003	***	0.001	6.52%	-0.011
Governance	Qual_Inst	-											-0.095	***	0.024	-6.97%	-0.019
	InsiderPros	-											0.011	**	0.005	1.80%	0.005
Others	RealExch	+											-0.015	**	0.008	0.06%	-0.002
	PastRtn	-											-0.016	***	0.004	0.75%	-0.005
	CurrRtn	-															
	Crisis	+															
#obs					162					2544					2004		
Adj R^2					0.813					0.294					0.480		

Notes: *** means that the coefficient is significant at the 1% level; ** means significant at the 5% level; * means significant at the 10% level. The dependent variable in part (1) is the FIB_raw measure with the U.S. as the holder country while (2) and (3) include other holder countries in our database. The independent variables in part (1) and (2) are target countries' characteristics only; in (3) we include the holder countries' characteristics but only report the target countries' results. We estimate the regression by pooled OLS in the first stage using all the regressors, then run a restricted regression that only uses the regressors that are at least 10%-significant based on clustered standard errors in the first stage and report the coefficients. The standard errors are clustered at the target country level in part (1) and (2) and at the target-holder country pair level in (3). The number of observations in (3) is less than (2) because in the full regression some holder country's characteristics are unavailable. Therefore we drop the observations.

Table 9. Determinants of foreign investment bias (FIB_raw measure) – full specification

		Prediction	(1)					(2)				
			Coeff.		Std err	VARC	ΔHB/ ΔVar	Coeff.		Std err	VARC	ΔHB/ΔVar
Information/ familiarity	Dist	+	5.234	***	0.880	8.34%	0.026	0.675	***	0.203	10.28%	0.003
	CommLang	-										
	Internet (T)	-						-0.009	**	0.005	4.08%	-0.002
	Internet (H)	-	-0.086	***	0.022	3.44%	-0.016	-0.024	***	0.007	19.45%	-0.005
	BiTrade	-	0.817	***	0.168	49.95%	0.046	0.085	***	0.029	20.80%	0.005
	UniTrade (T)	-	-0.358	***	0.054	9.69%	-0.018					
	UniTrade (H)	-	0.211	***	0.090	-0.08%	0.012	0.052	**	0.027	2.61%	0.003
Diversification	RtnCorrel	+	-0.025	***	0.010	-0.56%	-0.006	-0.009	*	0.005	5.25%	-0.002
	IndusDiff	-	-0.964	**	0.475	0.84%	-0.006					
Financial market development	MCAP/GDP (T)	-	0.031	***	0.008	7.15%	0.015					
	MCAP/GDP (H)	+	-0.032	**	0.014	1.76%	-0.011					
	Turnover (T)	-	0.021	***	0.006	6.74%	0.011					
	Turnover (H)	+	0.023	**	0.010	-2.02%	0.011	0.007	***	0.002	-4.71%	0.003
	Commove (T)	+	-0.128	***	0.030	2.67%	-0.010	-0.021	***	0.008	3.68%	-0.002
	Commove (H)	-										
	Illiquidity (T)	+	-0.090	***	0.026	8.83%	-0.011					
	Illiquidity (H)	-	-0.055	**	0.033	-1.19%	-0.006	-0.012		0.010	-2.68%	-0.001
Openness	Quinn (T)	-	0.084	***	0.020	8.03%	0.017					
	Quinn (H)	-	-0.113	***	0.042	4.91%	-0.018	-0.052	**	0.022	49.21%	-0.008
	IFCI/IFCG (T)	-						0.006	**	0.003	0.19%	0.001
	IFCI/IFCG (H)	-	0.092	*	0.065	-3.74%	0.007					
	Tax (T)	+	-0.003	***	0.001	6.52%	-0.011					
	Tax (H)	+	-0.006	**	0.003	-4.54%	-0.016	-0.002	**	0.001	-15.90%	-0.005
Governance	Qual_Inst (T)	-	-0.095	***	0.024	-6.97%	-0.019					
	Qual_Inst (H)	+	0.037		0.029	-1.28%	0.006					
	InsiderPros (T)	-	0.011	**	0.005	1.80%	0.005					
	InsiderPros (H)	+	0.022	*	0.016	-1.26%	0.007					

Table 9. Determinants of foreign investment bias (FIB_raw measure) – full specification (continued)

		Prediction	(1)					(2)				
			Coeff.		Std err	VARC	ΔHB/ΔVar	Coeff.		Std err	VARC	ΔHB/ΔVar
	RealExch	+	-0.015	**	0.008	0.06%	-0.002					
	PastRtn (T)	-	-0.016	***	0.004	0.75%	-0.005					
	PastRtn (H)	+	0.009	*	0.005	0.13%	0.002					
Others	CurrRtn (T)	-						0.010	***	0.002	8.18%	0.004
	CurrRtn (H)	+	0.006	*	0.004	0.03%	0.002	-0.006	***	0.002	1.99%	-0.002
	Crisis (T)	+						-0.003	***	0.001	0.86%	-0.001
	Crisis (H)	-						-0.005		0.004	-3.29%	-0.002
$NORM\_under_{t-1}$		+						0.838	***	0.037		0.087
$NORM\_over_{t-1}$		+						-0.007	***	0.002		-0.002
#obs					2004					2004		
Adj R^2					0.480					0.932		

Notes: *** means that the coefficient is significant at the 1% level; ** means significant at the 5% level; * means significant at the 10% level. The dependent variable in this table is the FIB_raw measure. The independent variables are target and holder countries' characteristics indicated by (T) and (H). We estimate the regression by pooled OLS, reporting the standard errors clustered at the target-holder country pair level. We report the coefficients in the restricted regressions that only include the regressors that are at least 10%-significant using clustered standard errors in the first stage without or with the NORM control. The NORM controls are lagged by one panel year.

$$NORM\_UNDER_{j,k,t} = \begin{cases} W_{j,k,t}^{BM} & when\ FIB\_raw_{j,k,t} > 0\ (underinvestment) \\ 0 & when\ FIB\_raw_{j,k,t} < 0\ \ (overinvestment) \end{cases} \quad and \quad NORM\_OVER_{j,k,t} = \begin{cases} 0 & when\ FIB\_raw_{j,k,t} > 0\ (underinvestment) \\ 1 - W_{j,k,t}^{BM} & when\ FIB\_raw_{j,k,t} < 0\ \ (overinvestment) \end{cases}$$

Table 10. Determinants of normalized foreign investment bias – full specification

		Prediction	(1) Normalized					(2) Fisher				
			Coeff.		Std err	VARC	ΔHB/ΔVar	Coeff.		Std err	VARC	ΔHB/ΔVar
Information/ familiarity	Dist	+	26.820	***	2.314	46.47%	0.134	148	***	12.1	25.91%	0.739
	CommLang	-	-0.182	***	0.041	9.05%	-0.057	-1.128	***	0.177	4.50%	-0.354
	Internet (T)	-										
	Internet (H)	-										
	BiTrade	-										
	UniTrade (T)	-										
	UniTrade (H)	-										
Diversification	RtnCorrel	+	-0.120	***	0.040	5.44%	-0.026	-0.676	***	0.208	3.14%	-0.148
	IndusDiff	-										
Financial market development	MCAP/GDP (T)	-	-0.053	**	0.025	1.85%	-0.026	-0.188	*	0.116	0.33%	-0.093
	MCAP/GDP (H)	+	0.044	*	0.033	-0.04%	0.015					
	Turnover (T)	-	-0.058	***	0.019	3.77%	-0.032	-0.361	***	0.102	1.74%	-0.199
	Turnover (H)	+						0.309	**	0.143	-1.74%	0.143
	Commove (T)	+										
	Commove (H)	-										
	Illiquidity (T)	+	0.242	***	0.080	2.76%	0.030	1.578	***	0.469	1.29%	0.197
	Illiquidity (H)	-										
Openness	Quinn (T)	-										
	Quinn (H)	-	-0.490	***	0.086	18.59%	-0.077	-2.271	***	0.645	14.60%	-0.356
	IFCI/IFCG (T)	-										
	IFCI/IFCG (H)	-										
	Tax (T)	+										
	Tax (H)	+						0.334	***	0.023	41.27%	0.905
Governance	Qual_Inst (T)	-										
	Qual_Inst (H)	+	-0.318	***	0.095	9.44%	-0.048	-0.717		0.570	3.36%	-0.108
	InsiderPros (T)	-	0.089	***	0.028	0.55%	0.039	0.433	***	0.155	0.23%	0.187
	InsiderPros (H)	+						-0.395	**	0.205	-0.51%	-0.128

Table 10. Determinants of foreign investment bias – full specification (continued)

		Prediction	(1) Normalized					(2) Fisher				
			Coeff.		Std err	VARC	ΔHB/ΔVar	Coeff.		Std err	VARC	ΔHB/ΔVar
	RealExch	+	0.180	***	0.032	1.26%	0.019	0.845	***	0.150	0.47%	0.090
	PastRtn (T)	-	0.043	***	0.014	0.42%	0.015					
	PastRtn (H)	+						0.357	***	0.107	0.18%	0.103
Others	CurrRtn (T)	-	0.035	***	0.014	0.43%	0.012	0.381	***	0.094	0.47%	0.133
	CurrRtn (H)	+										
	Crisis (T)	+										
	Crisis (H)	-						0.572	***	0.194	4.75%	0.193
#obs					2004					2004		
Adj R^2					0.428					0.589		

Notes: *** means that the coefficient is significant at the 1% level; ** means significant at the 5% level; * means significant at the 10% level. The dependent variables are FIB_norm measure and its Fisher transformation in part (1) and (2). The independent variables are target and holder countries' characteristics indicated by (T) and (H). We estimate the regression by pooled OLS, reporting the standard errors clustered at the target-holder country pair level. We report the coefficients in the restricted regressions that only include the regressors that are at least 10%-significant using clustered standard errors in the first stage.

Table 11. Determinants of the normalized foreign investment bias – different measures

		Prediction	(1) *FIB_norm*					(2) $\overline{FIB}$ *_ norm*					(3) $\widetilde{FIB}$ *_ norm*				
			Coeff.		Std err	VARC	ΔHB/ ΔVar	Coeff.		Std err	VARC	ΔHB/ ΔVar	Coeff.		Std err	VARC	ΔHB/ ΔVar
Information/ familiarity	Dist	+	28.716	***	2.461	46.50%	0.143	37.931	***	2.465	55.71%	0.189	28.418	***	3.157	32.62%	0.145
	CommLang	-	-0.171	***	0.039	7.97%	-0.054	-0.273	***	0.044	11.66%	-0.086	-0.299	***	0.064	14.60%	-0.091
	Internet (T)	-	-0.112	*	0.069	1.22%	-0.025										
	Internet (H)	-	0.107	*	0.072	-0.75%	0.020	0.204	***	0.066	0.57%	0.038					
	BiTrade	-											-1.495	**	0.713	20.33%	-0.092
	UniTrade (T)	-	-0.478	**	0.214	0.22%	-0.024						1.288	***	0.361	3.15%	0.070
	UniTrade (H)	-						1.502	***	0.227	5.76%	0.089	1.156	***	0.302	4.88%	0.068
Diversification	RtnCorrel	+	-0.123	***	0.040	5.21%	-0.027	-0.062		0.055	2.08%	-0.014	-0.082		0.067	2.76%	-0.018
	IndusDiff	-											6.340	***	2.510	1.37%	0.039
Financial market development	MCAP/GDP (T)	-						-0.037	*	0.029	1.25%	-0.018	-0.200	***	0.056	6.55%	-0.073
	MCAP/GDP (H)	+	0.059	*	0.036	-0.06%	0.020	-0.057		0.045	-0.67%	-0.019					
	Turnover (T)	-	-0.063	***	0.021	3.84%	-0.035	-0.071	***	0.023	4.91%	-0.039					
	Turnover (H)	+															
	Commove (T)	+	0.287	***	0.122	-0.11%	0.023	0.285	**	0.127	0.31%	0.023	0.429	***	0.158	0.86%	0.029
	Commove (H)	-	-0.075		0.120	-0.35%	-0.005										
	Illiquidity (T)	+	0.254	***	0.077	2.71%	0.032	0.472	***	0.091	6.99%	0.059	0.343	***	0.136	4.70%	0.041
	Illiquidity (H)	-											0.339	***	0.134	3.16%	0.039
Openness	Quinn (T)	-															
	Quinn (H)	-	-0.497	***	0.145	17.60%	-0.078	-0.249	***	0.083	2.43%	-0.039	-0.348	***	0.110	3.93%	-0.054
	IFCI/IFCG (T)	-															
	IFCI/IFCG (H)	-															
	Tax (T)	+	0.006		0.005	2.61%	0.022	0.011	***	0.004	6.18%	0.038					
	Tax (H)	+	-0.018	***	0.007	-8.52%	-0.049										
Governance	Qual_Inst (T)	-	-0.156	**	0.087	3.06%	-0.032						0.285	***	0.086	-1.99%	0.056
	Qual_Inst (H)	+	-0.346	***	0.101	9.59%	-0.052										
	InsiderPros (T)	-	0.072	***	0.024	0.42%	0.031	0.088	***	0.029	-0.01%	0.038					
	InsiderPros (H)	+						-0.101	**	0.044	-0.56%	-0.033	-0.092	**	0.053	-0.33%	-0.031

Table 11. Determinants of the normalized foreign investment bias – different measures (continued)

		Prediction	(1) *FIB_norm*					(2) $\overline{FIB}\_norm$					(3) $\widetilde{FIB}\_norm$				
			Coeff.		Std err	VARC	ΔHB/ ΔVar	Coeff.		Std err	VARC	ΔHB/ ΔVar	Coeff.		Std err	VARC	ΔHB/ ΔVar
	RealExch	+	0.152	***	0.032	0.99%	0.016	0.290	***	0.035	2.00%	0.031	1.058	**	0.477	2.68%	0.025
	PastRtn (T)	-											0.057	***	0.021	0.49%	0.019
	PastRtn (H)	+	0.080	***	0.017	0.31%	0.023										
Others	CurrRtn (T)	-	0.027	**	0.014	0.30%	0.009	0.091	**	0.023	1.40%	0.032	0.071	***	0.020	0.33%	0.023
	CurrRtn (H)	+						-0.043	*	0.028	-0.02%	-0.013					
	Crisis (T)	+	0.040	**	0.022	1.09%	0.015						-0.009		0.039	-0.12%	-0.003
	Crisis (H)	-															
$HB_{j,1997}$ (T)			-0.842	***	0.176	-3.72%	-0.086										
$HB_{k,1997}$ (H)			0.524	**	0.240	9.87%	0.048										
#obs					2004					2004					1584		
Adj R^2					0.455					0.418					0.437		

Notes: *** means that the coefficient is significant at the 1% level; ** means significant at the 5% level; * means significant at the 10% level. The dependent variables are the FIB_norm, $\overline{FIB}\_norm$ and $\widetilde{FIB}\_norm$ measures in part (1), (2) and (3), respectively. The independent variables are target and holder countries' characteristics indicated by (T) and (H). We estimate the regression by pooled OLS, reporting the standard errors clustered at the target-holder country pair level. We report the coefficients in the restricted regressions that only use the regressors that are at least 10%-significant using clustered standard errors in the first stage. $HB_{j,1997}$ ($HB_{k,1997}$) is the normalized home bias measure in 1997.

Table 12. Explained variances by different groups of variables

	FIB_norm	*FIB_norm (include zero investments)*	*FIB_norm _Fisher*	$\overline{FIB}$ *_ norm*	$\overline{FIB}$ *_ norm (include zero investments)*	$\overline{\overline{FIB}}$ *_ norm _Fisher*	$\widetilde{FIB}$ *_ norm*	$\widetilde{FIB}$ *_ norm (include zero investments)*	$\widetilde{FIB}$ *_ norm _Fisher*
Information/ familiarity	55.15%	47.88%	30.76%	73.71%	56.75%	59.21%	75.79%	66.52%	63.65%
Diversification	5.21%	7.38%	2.82%	2.08%	4.37%	-0.35%	4.14%	4.57%	2.11%
Financial market development	6.04%	5.30%	1.87%	12.79%	18.79%	14.49%	15.28%	14.49%	9.91%
Openness	11.69%	9.93%	32.22%	8.61%	17.40%	24.81%	3.93%	11.64%	22.28%
Governance	13.07%	16.91%	7.66%	-0.57%	0.14%	-0.70%	-2.32%	-2.10%	-0.18%
Others	2.70%	2.94%	4.22%	3.38%	2.55%	2.54%	3.38%	4.88%	2.23%
#obs	2004	2352	2004	2004	2352	2004	1584	1938	1584
Adj R^2	0.455	0.458	0.608	0.418	0.486	0.407	0.437	0.497	0.434

Notes: We aggregate the explained variation percentage for all variables within our six categories and report them for different FIB regressions. We show the original normalized FIB regressions for the three measures reported in Table 11 and, for each, add a specification where all observations are used, including zeros investments, and one using Fisher-transformed dependent variables. We use the restricted regressions that only include the regressors that are at least 10%-significant using clustered standard errors in the first stage. Including zero investments generally increases the numbers of observations relative to the original and Fisher-transformed normalized FIB regressions. The numbers of observations in the $\widetilde{FIB}$ regressions are less than in other FIB regressions because the construction of $\widetilde{FIB}$ involves the target country's holdings of its home market, yet for some emerging markets such holdings are unavailable.

Table 13. Determinants of the normalized foreign investment bias – including year and country fixed effects

		Prediction	(1) *FIB_norm*					(2) $\overline{FIB}$ *_norm*					(3) $\widetilde{FIB}$ *_norm*				
			Coeff.		Std err	VARC	ΔHB/ ΔVar	Coeff.		Std err	VARC	ΔHB/ ΔVar	Coeff.		Std err	VARC	ΔHB/ ΔVar
Information/ familiarity	Internet (T)	-	-0.202	***	0.083	2.44%	-0.045	-0.489	***	0.093	8.85%	-0.109					
	Internet (H)	-															
	BiTrade	-	-1.643	***	0.245	10.53%	-0.092						-2.108	***	0.403	34.66%	-0.129
	UniTrade (T)	-	-0.773		0.705	0.39%	-0.039	-1.614	**	0.893	1.20%	-0.081					
	UniTrade (H)	-	-2.403	***	0.895	5.83%	-0.142										
Diversification	RtnCorrel	+	-0.386	***	0.040	18.11%	-0.085	-0.579	***	0.049	32.77%	-0.127	-0.528	***	0.057	22.02%	-0.113
	IndusDiff	-															
Financial market development	MCAP/GDP (T)	-											-0.131	***	0.043	5.42%	-0.048
	MCAP/GDP (H)	+	-0.041		0.054	0.04%	-0.014	0.071	*	0.055	0.86%	0.024	-0.015		0.051	-0.12%	-0.005
	Turnover (T)	-	-0.076	***	0.028	5.10%	-0.042										
	Turnover (H)	+															
	Commove (T)	+	0.066		0.101	-0.03%	0.005										
	Commove (H)	-															
	Illiquidity (T)	+	0.100		0.088	1.17%	0.012						0.184	*	0.119	2.93%	0.022
	Illiquidity (H)	-															
Openness	IFCI/IFCG (T)	-	0.098	*	0.074	-0.36%	0.022										
	IFCI/IFCG (H)	-															
Governance	Qual_Inst (T)	-	-0.038		0.111	0.83%	-0.008	0.160	*	0.104	-4.52%	0.033	0.330	***	0.119	-3.48%	0.065
	Qual_Inst (H)	+											-0.046		0.185	0.07%	-0.007
Others	RealExch	+	0.171	***	0.027	1.24%	0.018	0.305	***	0.034	3.22%	0.033					
	PastRtn (T)	-															
	PastRtn (H)	+															
	CurrRtn (T)	-											0.019		0.027	0.10%	0.006
	CurrRtn (H)	+						-0.096	***	0.035	0.01%	-0.028					
	Crisis (T)	+	0.046	**	0.022	1.40%	0.017	0.014		0.030	0.50%	0.005					
	Crisis (H)	-						-0.023		0.036	-0.31%	-0.008					
Fixed effects	Year					0.57%					6.97%					1.18%	
	Country					52.74%					50.45%					37.22%	
#obs					2004					2004					1584		
Adj R^2					0.402					0.263					0.358		

Notes: *** means that the coefficient is significant at the 1% level; ** means significant at the 5% level; * means significant at the 10% level. The dependent variables are the FIB_norm, $\overline{FIB}\_norm$ and $\widetilde{FIB}\_norm$ measures in part (1), (2) and (3). The independent variables are target and holder countries' characteristics indicated by (T) and (H) plus year, target and holder country fixed effects in the form of α_j^T and α_k^H. We estimate the regression by pooled OLS, reporting the standard errors clustered at the target-holder country pair level. We report the coefficients in the restricted regressions that only use the regressors that are at least 10%-significant using clustered standard errors in the first stage plus the year and country fixed effects. All variables that do not exhibit time variation are excluded from the regression.

Appendix Table A1. Data sources of the raw variables

All data are employed at the annual frequency.

Variable	Description and data sources
Dist	Log distance between the capitals of two countries. Source: Wikipedia.
CommLang	A dummy variable taking the value of one if the two countries have the same official language. Source: Wikipedia.
BiTrade	Ratio of total bilateral trade (Imports + Exports) between the holder country and target country relative to the holder country's total import and export. Source: Direction of Trade Statistics (DOT) from IMF.
UniTrade	Ratio of sum of import and export to GDP. Source: Global Insight.
Internet	The number of internet users per 100 people. Source: World Bank.
RtnCorrel	Past year and current year market returns of a country. Source: MSCI market indices.
IndusDiff	Market capitalization of 39 industries by Datastream industry categories. Source: Datastream, S&P Emerging Market Indices.
MCAP	Market capitalization of individual markets denoted in U.S. Dollars. Source: Datastream, S&P Emerging Market Data Base, World Federation of Exchanges.
Gross Domestic Product (GDP)	Real gross domestic product denoted in U.S. Dollars. Source: International Financial Statistics (IFS).
Turnover	The ratio of total traded volume in a year to the market capitalization. Source: Datastream.
Comovement	The market efficiency measures in Morck, Yang and Yeung (2004). Source: Constructed by authors.
Illiquidity	The market illiquidity measures "zeros" in Bekaert, Harvey and Lundblad (2007). Source: Constructed by authors.
IFCI/IFCG	Investable index and global index representing investable market size for foreign investors and total market capitalization of a country. Source: S&P Emerging Market Indices (S&P/IFCI and S&P/IFCG)
Tax	The average percentage of withholding tax on dividends paid to non-residents. Source: Chan, Covrig and Ng (2005). (The original data source is Price Waterhouse, 1996.)
Quinn	Quinn's measure of capital account openness transformed to a scale of 0 to 1. Source: Quinn and Toyoda (2008).
Qual_Inst	The sum of the International Country Risk Guide (ICRG) Political Risk subcomponents: Corruption, Law and Order and Bureaucratic Quality. Source: Bekaert, Harvey and Lundblad (2005).
InsiderPros	An indicator of the existence and the enforcement of insider trading laws in stock markets. Source: Bhattacharya and Daouk (2002).
Inflation	Annual percentage change of CPI. Source: International Financial Statistics (IFS).
RealExch	Nominal exchange rate defined relative to the U.S. (National currency/USD) for the countries other than the U.S. and relative to Germany (USD/DEM) for the U.S. Real exchange rate is the inflation adjusted nominal exchange rate. Source: International Financial Statistics (IFS).
Crisis	A dummy variable taking the value of one if the country is experiencing a banking crisis. Source: Caprio and Klingebiel (2003).

Table A2. Correlations between explanatory variables (relative values)

	Dist	Comm Lang	Inter-net	Uni Trade	Rtn Corr	Indus Diff	MCAP/ GDP	Turn over	Co-move	Illiquid	Quinn	IFCI/ IFCG	Tax	Qual_ Inst	Insider Pros	Real Ex	Past Ret	Curr Ret
CommLang	0.65	1																
Internet	-0.20	0.29	1															
UniTrade	0.14	0.50	0.13	1														
RtnCorrel	-0.48	-0.16	0.62	-0.12	1													
IndusDiff	-0.08	-0.08	-0.22	-0.16	-0.32	1												
MCAP/GDP	0.07	0.44	0.53	0.58	0.36	-0.21	1											
Turnover	-0.41	-0.24	0.59	-0.15	0.64	-0.29	0.27	1										
Comove	-0.10	-0.07	-0.16	0.15	-0.04	-0.18	0.01	0.09	1									
Illiquidity	0.12	-0.02	-0.57	0.15	-0.62	0.32	-0.34	-0.73	-0.13	1								
Quinn	-0.33	0.05	0.40	-0.01	0.22	0.39	0.05	0.19	-0.06	-0.24	1							
IFCI/IFCG	-0.02	0.20	0.58	0.15	0.46	-0.29	0.42	0.36	0.05	-0.60	0.36	1						
Tax	0.59	-0.01	-0.61	-0.03	-0.57	0.02	-0.18	-0.46	0.11	0.38	-0.61	-0.33	1					
Qual_Inst	-0.28	0.21	0.79	0.09	0.63	0.06	0.49	0.34	-0.24	-0.44	0.52	0.64	-0.69	1				
InsiderPros	0.06	-0.10	0.11	0.27	0.16	-0.27	0.44	0.25	0.13	-0.31	-0.04	0.34	0.16	0.01	1			
RealExch	0.18	-0.15	-0.43	-0.34	-0.38	0.37	-0.42	-0.33	-0.13	0.38	-0.09	-0.55	0.41	-0.43	-0.22	1		
PastRtn	0.08	-0.01	-0.10	-0.14	-0.09	0.00	-0.22	-0.09	-0.07	0.19	-0.15	-0.10	0.09	-0.10	-0.19	-0.09	1	
CurrRtn	0.20	-0.05	-0.14	-0.13	-0.11	-0.14	-0.29	-0.10	-0.16	0.09	-0.22	-0.01	0.20	-0.15	-0.08	0.02	0.01	1
Crisis	0.42	-0.06	-0.43	0.05	-0.60	-0.18	-0.27	-0.07	0.21	0.09	-0.49	-0.15	0.61	-0.65	0.31	0.09	0.03	0.41

Notes: The explanatory variables and computation method are the same as in Table 5 except that financial development, openness and governance variables are in a relative sense. For example, assume the holder country is k, $REL\_Quinn_k = Quinn_k - \sum_{j \neq k} w_j Quinn_j$ where w_j is market capitalization weight of country j in the world. The same applies to MCAP/GDP, Turnover, Comove, Illiquidity, IFCI/IFCG, Tax, Qual_Inst and Insider_Pros.

Table A3. Determinants of home bias (HB_raw – 0.5*NORM) with size control, FIB control, and fixed effects

		Prediction	(1) Coeff.		(2) Coeff.		(3) Coeff.		(4) Coeff.	
Information/ familiarity	Dist	+	-0.017	***	-0.020	***	-0.017	**	-0.063	***
	CommLang	-	0.369	***	0.402	***	0.341	***	0.633	***
	Internet	-	-0.004	***	-0.004	***	-0.001			
	UniTrade	-	-0.368	*	-0.396	**	-0.366	*		
Diversification	RtnCorrel	+								
	IndusDiff	-							-11.342	***
Financial market development	MCAP/GDP	+							0.205	***
	Turnover	+	0.087	***	0.104	***	0.080	**		
	Commove	-	-0.262	***	-0.288	***	-0.269	***		
	Illiquidity	-	-0.195	*	-0.260	**	-0.206	*		
Openness	Quinn	-	-0.388	***	-0.375	***	-0.368	***	-0.862	***
	IFCI/IFCG	-	-0.031		-0.007		-0.007		-0.161	***
	Tax	+	0.022	***	0.020	***	0.018	***		
Governance	Qual_Inst	+	-0.176	**	-0.213	***	-0.346	***		
	InsiderPros	+							-0.242	***
Others	RealExch	+							-1.133	**
	PastRtn	+								
	CurrRtn	+							0.029	*
	Crisis	-								
$NORM_{t-1}$										
FIB_{1997}					-0.232	*	-0.233	*	-1.542	*
Year effect			No		No		Yes		Yes	
Holder effect			No		No		No		Yes	
#obs			114		114		114		114	
Adj R^2			0.760		0.780		0.802		0.935	

Notes: This table reports the coefficients in the restricted regressions that only use the regressors that are at least 10%-significant using clustered standard errors. *** means that the coefficient is significant at the 1% level; ** means significant at the 5% level; * means significant at the 10% level. The financial market development, openness and governance measures are in a relative sense, which are calculated by where w_j is $REL\_X_k = X_k - \sum_{j \neq k} X_j \cdot w_j$ market capitalization weight of country j in the world. The regression of column (4) includes country fixed effects, so it excludes pure cross-sectional independent variables. The NORM control is $NORM_k = 1 - W_{k,k}^{BM}$. The FIB_{1997} control is $FIB_{1997,k} = \sum_{i \neq k} FIB\_raw_{k,i,1997}$ We use HB_raw – 0.5*NORM as the left hand side variable, NORM is lagged by one panel year.

Table A4. Determinants of home bias (HB_norm measure) with size control, FIB control, and fixed effects

		Prediction	(1) Coeff.		(2) Coeff.		(3) Coeff.		(4) Coeff.	
Information/ familiarity	Dist	+	-0.017	***	-0.017	***	-0.014	**		
	CommLang	-	0.378	***	0.374	***	0.317	***		
	Internet	-	-0.004	***	-0.004	***	-0.002			
	UniTrade	-	-0.389	*	-0.424	**	-0.443	*		
Diversification	RtnCorrel	+								
	IndusDiff	-							-3.843	*
Financial market development	MCAP/GDP	+							0.192	***
	Turnover	+	0.090	***	0.088	***	0.069	**		
	Commove	-	-0.269	***	-0.248	***	-0.158	*		
	Illiquidity	-	-0.198	*	-0.192	*	-0.130			
Openness	Quinn	-	-0.394	***	-0.388	***	-0.377	***		
	IFCI/IFCG	-	-0.025		-0.040		-0.056		-0.240	***
	Tax	+	0.022	***	0.022	***	0.021	***		
Governance	Qual_Inst	+	-0.183	**	-0.177	**	-0.267	***		
	InsiderPros	+								
Others	RealExch	+							-1.131	**
	PastRtn	+								
	CurrRtn	+							0.046	**
	Crisis	-								
FIB_{1997}					0.002		0.004			
Year effect			No		No		Yes		Yes	
Holder effect			No		No		No		Yes	
#obs			114		114		114		114	
Adj R^2			0.757		0.755		0.774		0.930	

Notes: This table reports the coefficients in the restricted regressions that only use the regressors that are at least 10%-significant using clustered standard errors. *** means that the coefficient is significant at the 1% level; ** means significant at the 5% level; * means significant at the 10% level. The regression of column (4) includes country fixed effects, so it excludes pure cross-sectional independent variables. The NORM control is $NORM_k = 1 - W_{k,k}^{BM}$. The FIB_{1997} control is $FIB_{1997,k} = \sum_{i \neq k} FIB\_raw_{k,i,1997}$

Table A5. Determinants of home bias (Fisher transformations of HB_norm measure) with size control, FIB control, and fixed effects

		Prediction	(1) Coeff.		(2) Coeff.		(3) Coeff.		(4) Coeff.	
Information/ familiarity	Dist	+	-0.118	*	-0.132	**	-0.099	*		
	CommLang	-	1.786	**	2.001	**	1.377	*		
	Internet	-	-0.023	***	-0.025	***	0.003		0.019	**
	UniTrade	-								
Diversification	RtnCorrel	+							1.224	**
	IndusDiff	-	50.14	**	34.084		51.472	*		
Financial market development	MCAP/GDP	+								
	Turnover	+	0.808	**	0.852	***	0.572	**		
	Commove	-	-5.852	***	-6.111	***	-6.144	***	-2.507	
	Illiquidity	-	-1.916	**	-2.001	**	-1.700	**		
Openness	Quinn	-	-3.609	***	-3.460	***	-3.645	***		
	IFCI/IFCG	-								
	Tax	+	0.226	***	0.237	***	0.215	***		
Governance	Qual_Inst	+	-2.858	***	-2.728	***	-4.328	***		
	InsiderPros	+								
Others	RealExch	+								
	PastRtn	+								
	CurrRtn	+							0.954	***
	Crisis	-	0.556		0.554		0.404			
FIB_{1997}					-0.044		-0.024			
Year effect			No		No		Yes		Yes	
Holder effect			No		No		No		Yes	
#obs			114		114		114		114	
Adj R^2			0.797		0.797		0.811		0.926	

Notes: This table reports the coefficients in the restricted regressions that only use the regressors that are at least 10%-significant using clustered standard errors. *** means that the coefficient is significant at the 1% level; ** means significant at the 5% level; * means significant at the 10% level. All the significance levels are calculated with clustered standard errors. The regression of column (4) includes country fixed effects, so it excludes pure cross-sectional independent variables. The NORM control is $NORM_k = 1 - W_{k,k}^{BM}$ The FIB_{1997} control is $FIB_{1997,k} = \sum_{i \neq k} FIB\_raw_{k,i,1997}$

Table A6. Determinants of the normalized foreign investment bias – Fisher transformations of different measures

		Prediction	(1) *FIB_norm_F*					(2) $\overline{FIB}\_norm\_F$					(3) $\widetilde{FIB}\_norm\_F$				
			Coeff.		Std err	VARC	ΔHB/ ΔVar	Coeff.		Std err	VARC	ΔHB/ ΔVar	Coeff.		Std err	VARC	ΔHB/ ΔVar
Information/ familiarity	Dist	+	156.720	***	11.945	26.61%	0.781	116.620	***	10.484	43.26%	0.581	103.270	***	13.023	31.24%	0.528
	CommLang	-	-1.145	***	0.171	4.53%	-0.359	-0.923	***	0.149	9.19%	-0.290	-1.021	***	0.209	10.26%	-0.309
	Internet (T)	-	-0.486	*	0.352	0.36%	-0.108										
	Internet (H)	-	0.640	**	0.379	-1.29%	0.121	0.650	***	0.231	-1.06%	0.123					
	BiTrade	-						-3.083	**	1.416	6.00%	-0.173	-5.989	***	2.261	16.53%	-0.367
	UniTrade (T)	-											5.081	***	1.555	2.42%	0.278
	UniTrade (H)	-	3.320	***	1.301	0.55%	0.196	2.213	**	0.969	1.83%	0.131	2.839	**	1.222	3.20%	0.167
Diversification	RtnCorrel	+	-0.598	***	0.215	2.82%	-0.131						-0.190		0.231	1.50%	-0.041
	IndusDiff	-						8.322		7.717	-0.35%	0.054	24.568	***	9.818	0.61%	0.150
Financial market development	MCAP/GDP (T)	-	-0.246	**	0.124	0.47%	-0.122	-0.177	*	0.115	1.47%	-0.087	-0.718	***	0.194	4.88%	-0.264
	MCAP/GDP (H)	+															
	Turnover (T)	-	-0.335	***	0.115	1.67%	-0.185	-0.278	***	0.111	5.07%	-0.153					
	Turnover (H)	+	0.234		0.201	-1.35%	0.108										
	Commove (T)	+						0.712	*	0.498	-0.04%	0.057					
	Commove (H)	-															
	Illiquidity (T)	+	1.462	***	0.474	1.08%	0.182	1.504	***	0.380	5.33%	0.188	0.556		0.504	1.30%	0.066
	Illiquidity (H)	-						1.155	***	0.443	2.65%	0.132	1.340	***	0.505	3.73%	0.153
Openness	Quinn (T)	-	0.803	**	0.362	-0.17%	0.161	0.631	**	0.340	-0.91%	0.126					
	Quinn (H)	-	-3.162	***	1.083	20.80%	-0.495										
	IFCI/IFCG (T)	-															
	IFCI/IFCG (H)	-	2.271	**	1.204	-3.10%	0.184										
	Tax (T)	+						0.047	**	0.023	5.92%	0.163					
	Tax (H)	+	0.125	**	0.058	14.69%	0.338	0.163	***	0.028	19.80%	0.440	0.192	***	0.035	22.28%	0.513
Governance	Qual_Inst (T)	-															
	Qual_Inst (H)	+	-1.634	***	0.548	7.93%	-0.246										
	InsiderPros (T)	-	0.393	***	0.161	0.12%	0.170	0.157		0.131	-0.33%	0.068					
	InsiderPros (H)	+	-0.386	**	0.214	-0.39%	-0.125	-0.607	***	0.175	-0.37%	-0.197	-0.623	***	0.205	-0.18%	-0.209

Table A6. Determinants of the normalized foreign investment bias – Fisher transformations of different measures (continued)

		Prediction	(1) *FIB_norm_F*					(2) $\overline{FIB}\_norm\_F$					(3) $\widetilde{FIB}\_norm\_F$				
			Coeff.		Std err	Var Comp	ΔHB/ ΔVar	Coeff.		Std err	Var Comp	ΔHB/ ΔVar	Coeff.		Std err	Var Comp	ΔHB/ ΔVar
	RealExch	+	0.784	***	0.149	0.42%	0.084	0.727	***	0.151	1.06%	0.077	3.421	**	2.022	2.55%	0.082
	PastRtn (T)	-															
	PastRtn (H)	+	0.319	***	0.122	0.15%	0.092										
Others	CurrRtn (T)	-	0.274	***	0.094	0.32%	0.096	0.379	**	0.101	1.59%	0.132	0.175	**	0.092	0.15%	0.057
	CurrRtn (H)	+						-0.198	**	0.112	-0.11%	-0.058					
	Crisis (T)	+											-0.342	**	0.148	-0.47%	-0.130
	Crisis (H)	-	0.409	**	0.202	3.33%	0.138										
$HB_{j,1997}$ (T)																	
$HB_{k,1997}$ (H)			0.444	**	0.198	20.45%	0.470										
#obs					2004					2004					1584		
Adj R^2					0.608					0.407					0.434		

Notes: *** means that the coefficient is significant at the 1% level; ** means significant at the 5% level; * means significant at the 10% level. The dependent variables are the Fisher transformations of FIB_norm, $\overline{FIB}\_norm$ and $\widetilde{FIB}\_norm$ measures in part (1), (2) and (3). The independent variables are target and holder countries' characteristics indicated by (T) and (H). We estimate the regression by pooled OLS, reporting the standard errors clustered at the target-holder country pair level. We report the coefficients in the restricted regressions that only use the regressors that are at least 10%-significant using clustered standard errors in the first stage. $HB_{j,1997}$ ($HB_{k,1997}$) is the normalized home bias measure in 1997.

Table A7. Determinants of the normalized foreign investment bias – including zero investments

		Prediction	(1) *FIB_norm*					(2) $\overline{FIB}$ *_ norm*					(3) $\widetilde{FIB}$ *_ norm*				
			Coeff.		Std err	VARC	ΔHB/ ΔVar	Coeff.		Std err	VARC	ΔHB/ ΔVar	Coeff.		Std err	VARC	ΔHB/ ΔVar
Information/ familiarity	Dist	+	23.838	***	2.151	41.98%	0.121	33.2	***	2.606	43.34%	0.169	27.4	***	3.132	31.13%	0.141
	CommLang	-	-0.164	***	0.038	7.57%	-0.049	-0.223	***	0.044	7.60%	-0.066	-0.298	***	0.059	12.21%	-0.085
	Internet (T)	-	-0.091	*	0.056	1.27%	-0.020										
	Internet (H)	-	0.121	**	0.056	-3.15%	0.024	0.235	***	0.061	-4.33%	0.047					
	BiTrade	-						-1.315	***	0.453	9.59%	-0.068	-1.772	***	0.684	20.00%	-0.101
	UniTrade (T)	-	-0.452	***	0.183	0.22%	-0.022	-0.364	*	0.253	0.17%	-0.018	1.239	***	0.344	2.22%	0.067
	UniTrade (H)	-						0.961	***	0.251	0.38%	0.052	0.763	***	0.270	0.95%	0.042
Diversification	RtnCorrel	+	-0.154	***	0.033	7.38%	-0.034	-0.136	***	0.047	4.77%	-0.030	-0.136	***	0.052	4.72%	-0.030
	IndusDiff	-						1.892		1.813	-0.40%	0.013	3.822	**	2.235	-0.15%	0.023
Financial market development	MCAP/GDP (T)	-						-0.083	***	0.023	3.26%	-0.040	-0.215	***	0.055	7.03%	-0.079
	MCAP/GDP (H)	+						-0.111	***	0.041	2.86%	-0.039					
	Turnover (T)	-	-0.056	***	0.018	3.96%	-0.031	-0.085	***	0.026	5.45%	-0.047	0.038		0.037	-1.77%	0.017
	Turnover (H)	+															
	Commove (T)	+	0.222	**	0.104	-0.13%	0.018	0.188	*	0.122	-0.01%	0.015	0.232	*	0.152	0.17%	0.016
	Commove (H)	-	-0.130	*	0.090	-0.79%	-0.009	0.275	**	0.140	0.98%	0.018	0.192		0.157	0.65%	0.013
	Illiquidity (T)	+	0.165	***	0.063	2.27%	0.021	0.339	***	0.079	4.62%	0.044	0.297	***	0.117	3.66%	0.036
	Illiquidity (H)	-						0.142	*	0.100	1.64%	0.017	0.354	***	0.115	4.74%	0.041
Openness	Quinn (T)	-						0.118	**	0.067	-0.56%	0.023					
	Quinn (H)	-	-0.366	***	0.091	17.63%	-0.072						-0.205	***	0.082	4.78%	-0.040
	IFCI/IFCG (T)	-											-0.140	*	0.099	1.53%	-0.026
	IFCI/IFCG (H)	-	0.307	**	0.146	-5.50%	0.039	-0.364	***	0.084	4.05%	-0.046					
	Tax (T)	+	0.008	**	0.004	3.88%	0.029	0.005	*	0.004	2.22%	0.018					
	Tax (H)	+	-0.008	*	0.005	-6.09%	-0.027	0.026	***	0.004	11.68%	0.083	0.013	***	0.006	5.33%	0.043
Governance	Qual_Inst (T)	-	-0.095	*	0.070	2.09%	-0.020						0.322	***	0.095	-2.61%	0.065
	Qual_Inst (H)	+	-0.346	***	0.082	14.91%	-0.061										
	InsiderPros (T)	-	0.055	***	0.020	-0.10%	0.024	0.071	***	0.029	-0.88%	0.032					
	InsiderPros (H)	+	-0.046	*	0.030	0.01%	-0.016	-0.156	***	0.039	1.02%	-0.054	-0.135	***	0.048	0.52%	-0.047

Table A7. Determinants of the normalized foreign investment bias – including zero investments (continued)

		Prediction	(1) FIB_norm					(2) $\overline{FIB}\_norm$					(3) $\widetilde{FIB}\_norm$				
			Coeff.		Std err	Var Comp	ΔHB/ ΔVar	Coeff.		Std err	Var Comp	ΔHB/ ΔVar	Coeff.		Std err	Var Comp	ΔHB/ ΔVar
	RealExch	+	0.112	***	0.034	0.81%	0.014	0.190	**	0.051	1.21%	0.023	0.638	**	0.303	2.08%	0.018
	PastRtn (T)	-	0.047	***	0.016	0.66%	0.017	0.055	**	0.017	0.46%	0.020	0.075	***	0.020	0.56%	0.025
	PastRtn (H)	+	0.013		0.015	0.10%	0.004										
Others	CurrRtn (T)	-	0.022	**	0.012	0.38%	0.008	0.056	**	0.017	0.88%	0.020	0.045	**	0.023	0.18%	0.015
	CurrRtn (H)	+											0.019		0.023	0.09%	0.006
	Crisis (T)	+	0.039	**	0.020	0.99%	0.015										
	Crisis (H)	-											0.064	**	0.034	1.98%	0.024
$HB_{j,1997}$ (T)			-0.695	***	0.165	-4.22%	-0.071										
$HB_{k,1997}$ (H)			0.518	***	0.210	13.9%	0.053										
#obs					2532					2532					1938		
Adj R^2					0.458					0.486					0.497		

Notes: *** means that the coefficient is significant at the 1% level; ** means significant at the 5% level; * means significant at the 10% level. The dependent variables are FIB_norm, $\overline{FIB}\_norm$ and $\widetilde{FIB}\_norm$ measures including the zero investments, i.e. complete underinvestment, in part (1), (2) and (3). The independent variables are target and holder countries' characteristics indicated by (T) and (H). We estimate the regression by pooled OLS, reporting the standard errors clustered at the target-holder country pair level. We report the coefficients in the restricted regressions that only use the regressors that are at least 10%-significant using clustered standard errors in the first stage. $HB_{j,1997}$ ($HB_{k,1997}$) is the normalized home bias measure in 1997.