

INTERNATIONAL INVESTORS' HOME BIAS IN PORTFOLIO EQUITY INVESTMENT

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Abstract

This paper utilizes International Monetary Fund's high quality dataset over the period from 2001 to 2004, to investigate the determinants of home bias in the international context. This paper contributes to the existing literature by using float adjusted measure of home bias for 38 countries. Information asymmetries arising due to countries' regulatory and legal environment have significant impact on home bias. Foreign listing is found to alleviate home bias.

International investors exhibit a preference for nearby and same language countries. Capital controls, trade links and risk adjusted returns are found to significantly affect equity home bias. Transaction costs do not have a significant impact on the equity home bias.

JEL Classifications: G11, G15, G30

Keywords: governance indicators, coordinated portfolio investment survey, float world market portfolio.

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1 Introduction

The traditional international capital asset pricing model (ICAPM) based on Sharpe (1964) and Lintner (1965) suggests that in a world of perfect financial markets, the mean-variance optimizer investors should hold the world market portfolio of common stocks. However, empirical facts suggest that investors around the globe are heavily biased towards domestic assets and do not hold the world market portfolio of common stocks (French and Poterba (1991), Cooper and Kaplanis (1994), Tesar and Werner (1995), Ahearne et al (2004)). This phenomenon is known as the “home bias puzzle”.

The empirical investigation into the home bias puzzle is important for several reasons. First, globalization in general has increased capital mobility and foreign equity investments (Obstfeld, 1995). The identification of the relevance of capital market frictions promoting home bias give further insight into the future changes in portfolios. Second, the ongoing integration process in the European Union is likely to lead a change in its portfolio composition due to the joining of the Eastern European countries. There has also been an increased integration in Western Europe. The financial integration process will also affect the international portfolio equity composition. Third, the severe demographic changes in the European countries and Japan are likely to lead to a change in the capital flows. It is important for the estimation and prediction of future investments to know more about the effect of capital market frictions and the extent of capital mobility.

Fourth, one of the major problems in the research on home bias has been relatively poor quality of data on cross border holdings. In the past, the cross border holdings were estimated using accumulated capital flows and valuation adjustments (Tesar and Werner (1995)). Warnock and Cleaver (2002) show that capital flows data are ill suited to estimate bilateral holdings. This paper contributes to the existing literature by employing the International Monetary Fund's (IMF's) Coordinated Portfolio Investment Survey (CPIS) dataset on bilateral equity holdings for the years 2001 to 2004. CPIS reports data on foreign portfolio asset holdings (divided into equity, long term debt, and short term debt) by residence of issuer. In 1997, IMF conducted the first CPIS wherein 29 countries participated; the next survey was conducted in 2001 wherein 69 countries participated and now CPIS is being conducted on an annual basis.

Fifth, traditional studies on home bias assume that portfolio investors can hold world market portfolio. However, Dahlquist et al (2003) state that portfolio investors can only hold the float adjusted world market portfolio i.e. world portfolio of shares not held by insiders. This paper contributes to the existing literature on international home bias, by using float adjusted measure of home bias for the years 2001 to 2004. Sixth, optimal insider ownership depends on institutions that support corporate governance in a country as well as on the risks of predation by state. Home bias will tend to reduce in countries' whose institutions support decentralized ownership. This paper contributes to the existing literature on international home bias by examining the effect of legal and governance indicators on home bias. Seventh, this paper also empirically investigates the international home bias puzzle by analysing the role of direct barriers to investment viz. capital controls and transaction costs; information asymmetries arising due to culture (language), proximity (distance) and foreign listing; and control

variables viz. trade links and historical risk adjusted returns. Eighth, overall this paper fills in the gap by empirically investigating the phenomenon of home bias puzzle in the international context; which is critical to understanding international portfolio positions and capital flows.

This paper is structured as follows: Section 2 provides a literature review of the home bias puzzle. Section 3 describes about home bias and float market capitalisation. Section 4 describes the various measures of home bias. Section 5 outlines the model of home bias. The empirical results are presented in section 6 and finally, section 7 concludes.

2 Literature Review

The earlier literature on home bias focuses on the role of barriers to international investment. Black (1974) and Stulz (1981) develop a two country capital market equilibrium model where there are barriers to cross border investment and these barriers can be considered as tax on net foreign investment. This tax represents various kinds of barriers to international investment such as direct controls on the import or export of capital, possibility of expropriation of foreign holdings, reserve requirements on bank deposits and other assets held by foreigners, restrictions on the fraction of business that is owned by foreigners. It may also include barriers due to information asymmetries i.e. unfamiliarity of residents of one country with the stock markets of other countries. Merton (1987) develops a model where investors hold stocks that they know. In this model, investors think that the risk of stocks they do not know is extremely high. Accordingly, the investors may overweight domestic stocks. Cooper

and Lessard (1981) develop an international capital market equilibrium model which allows for differential taxes on foreign investment depending on the country of investment and the origin of investor. They obtain unique solutions for taxes under extreme assumptions that taxes depend on the country of investment, or on the origin of investor. Cooper and Kaplanis (1986) extend the international capital market equilibrium model developed by Cooper and Lessard (1981), obtains upper bounds and unique solutions for the taxes under alternative assumptions, and estimates empirically the level of these barriers to crossborder investment. Cooper and Kaplanis (1994) find that hedging against inflation risk cannot explain the home bias.

Several papers consider the effect of indirect barriers i.e. information asymmetries on equity investment and home bias. French and Poterba (1991), for instance, find that information asymmetry can generate the same observed portfolio patterns as if investors expect the domestic returns to be several hundred basis points higher than the returns in foreign markets. Gehrig (1993) uses a noisy rational expectations model to investigate the effect of asymmetric information between domestic and foreign investors. Investors observe noisy signals with different degrees of precision. The domestic investors receive signals of future returns that are more precise. The investors remain incompletely informed, even in equilibrium. Domestic bias arises from better investor information about domestic stocks. Thus, on average foreign investments appear to be more risky. Hasan and Simaan (2000) derive the premium that an investor is willing to pay to buy the full information of the mean return vector and show that rational investors prefer home country dominated portfolios over diversified portfolios if the variability of estimation errors far exceeds the variability of the mean return vector.

There are several papers related to cultural-proximity barriers and equity investment. Coval and Moskowitz (1999, 2001) show that the weight of a US stock in US mutual funds is negatively related to the distance between the location of the fund and the location of the headquarters of the firm. The mutual fund managers do better with their holdings of stocks of firms located more closely to where the mutual fund is located. Aviat and Coeurdacier (2004) state that distance affects bilateral asset holdings mainly through its impact on trade in goods. Once the impact of trade in goods on equity holdings is taken into consideration, distance loses its significance as an explaining factor for equity holdings. This variable is expected to have a negative impact of foreign equity holdings. Sarkissian and Schill (2004) find that geographic, economic, cultural, and industrial proximity play a dominant role in the selection of overseas listing stock exchange. Their findings imply that proximity constraints that lead to home bias in investment portfolio decisions are similar to those which influence financing decisions. For Finland, Grinblatt and Keloharju (2001) show that language matters in an investor's portfolio allocation. Finnish investors whose native language is Swedish are more likely to own stocks of companies in Finland that have annual reports in Swedish and whose CEOs speak Swedish than those investors whose native language is Finnish. For Korea, Choe, Kho and Stulz (2001) find that foreign investors buy at higher prices than resident investors and sell at lower prices. Shukla and van Inwegen (1995) show that UK money managers under perform American money managers when picking US stocks. Hau (2001) finds that proprietary trades on the German stock market do better when they are geographically closer to Frankfurt.

There are several papers investigating the home bias puzzle related to individual countries. Kang and Stulz (1997) study the home bias related to foreign stock

ownership in Japan. They find that foreign investors concentrate on equity investments in large, export oriented and good accounting performance firms. Dahlquist and Robertsson (2001) characterise foreign ownership by analysing dataset of ownership and attributes of Swedish firms. They find that foreigners show preference for large firms, firms paying low dividends, and firms with large cash positions on their balance sheets. Kim and Wei (2002) test the hypothesis that non-resident foreign investors in Korea, may herd more than resident foreign investors like Korean subsidiaries and branches of foreign institutions as the latter have more timely information about the country they live in. They find that a significant information asymmetry exists between the resident foreign investors and non-resident foreign investors. For the United States (US), Ahearne et al (2004) find that information cost is an important factor behind the home bias phenomenon. For Australia, Mishra and Daly (2006) state that the major determinants of Australia's geographical allocation of portfolio investment indicate a broad correspondence between stock market capitalisation of destination countries and the allocation of Australian financial investments but with some deviations from that baseline, where the deviations are correlated with Australian trade patterns.

Dahlquist et al (2003) show that home bias is closely linked to corporate governance. They show that United States investors underweight those foreign countries in their portfolios which have closely held firms. They construct an estimate of the world float portfolio. They also analyse Swedish firm level data on foreign ownership and closely held shares and show that the weight of a Swedish firm in the portfolio of foreign investors is inversely related to the fraction of firm held by controlling share holders.

3. Home Bias and Float Market Capitalisation

The ICAPM suggests that to maximize risk adjusted returns, investors should hold equities from countries around the world in proportion to their market capitalisation. Table 1 compares the actual share of domestic equities in the home portfolio with the benchmark share in the world portfolio as per the ICAPM model. Column (1) of Table 1 shows strong preference for domestic equities. For instance, the actual domestic equity holding of Australia in 2002 was 78.08 %. Column (2) of Table 1 indicates the share of each country in the world market portfolio as predicted by ICAPM; under the assumptions of complete global capital markets, where there are no barriers to international investment. The benchmark equity holding of Australia in 2002 was 1.84 %. The actual percentage of domestic equity holdings is much greater than the benchmark percentage as computed from the ICAPM and investors' portfolios are heavily biased towards domestic equities. This differential is very high and investors around the globe have a bias towards domestic securities. The situation where investors hold far too high a share of their wealth in domestic securities compared with the optimal share predicted by the traditional theory of portfolio choice is termed as the 'home bias puzzle'.

The paper measures home bias as,

$$HomeBias_{ij} = \frac{1 - \text{share of foreign equities at domestic level}}{\text{share of foreign equities in world float portfolio}}$$

Home bias is equivalent to normalizing source country holdings in host country by the country's float market capitalisation and then dividing by the share of source country holdings in the worldwide float market capitalisation.

The traditional theory of home bias calculates the world market portfolio assuming that all shares issued by a corporation could potentially be held by foreign investors. Ahearne et al (2004) employ the traditional approach to measure home bias in United States.

La Porta et al (1999) state that firms outside the United States are typically controlled by large resident shareholders (insiders). Foreign investors cannot hold the shares held by insiders within a company. Dahlquist et al (2003) state that foreign investors can hold the world market portfolio of shares not held by insiders. This measure of world market portfolio is known as the float adjusted world market portfolio.

The empirical analysis in this paper employs the float adjusted home bias measure for the years 2001 to 2004. The float market capitalisation is computed using the World scope database.

4. Measures of Home Bias

4.1 Explicit Costs

Black (1974), Stulz (1981), Cooper and Kaplanis (1986), Aherane and Grierer (2004) state that investors face explicit costs related to equity investment viz. transaction fees, taxes, commissions, and the costs of gathering information.

(i) Capital Controls ($CapitalControl_j$)

With the advent of liberalization, capital controls have been reduced in many countries and foreign investors are allowed to invest in stock markets of both, developed

countries as well as emerging countries. However, capital controls can still affect the equity investment and lead to home bias.

This paper employs the Miniane (2004) capital control measures. Miniane (2004) has utilized the IMF's Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER) and extended the IMF's post 1996 disaggregated capital account indices back to 1983 for a sample of 34 countries. The disaggregated indices are better than the pre-1996 single dummy in tracking both global trends toward capital account liberalization and country specific liberalization during that period. This variable is expected to have positive impact on the measure of home bias.

(ii) Transaction Costs ($TransactionCost_j$)

Home bias can arise due to high transaction costs associated with trading foreign equities. The transaction cost data is derived from Elkins-McSherry Co. Elkins-McSherry Co. receives trade data on all global trades by institutional traders and computes measures of trading costs. The trading cost data comprises of three cost components viz. commissions, fees and market impact costs. This paper takes into account the total cost comprising of all the three cost components for the years 2001 to 2004. Investors would underweight high transaction cost countries' in their portfolios. Therefore, this variable is expected to have positive impact on the measure of home bias.

4.2 Proximity Costs

Mishra (2006); Sarkissian and Schill (2004); Aviat and Coeurdacier (2004); Coval and Moskowitz (1999, 2001) and Grinblatt and Keloharju (2001) find that distance and

language play a dominant role in investors' preference for equity investment. The following section discusses two proximity measures of home bias, distance and language.

(i) Distance ($Dist_{ij}$)

Distance is the distance between capital city of source and host country.² Geographical distance is a barrier to interaction among economic agents and cultural exchange. Investors prefer investing in countries which are in geographic proximity due to lower information costs arising from cultural similarities and familiarity. This variable is expected to have a positive impact on the measure of home bias.

(ii) Language ($Language_{ij}$)

Language is the common language dummy variable which is equal to one if source and host country share a common language; otherwise its value is zero.³ The cultural proximity arising from common language is important for bilateral equity investment and investors prefer investing in countries having common language due to cultural similarities and familiarity. This variable is expected to have a negative impact on the measure of home bias.

4.3 Regulatory and Corporate Governance Information Costs

Generally, the investors gather information about the foreign firms by analysing their accounting statements and historical stock market data. The accounting information is based on accounting principles and disclosure requirements that may differ greatly

² <http://www.indo.com/distance/>

³ <http://www.cia.gov/cia/publications/factbook/>

from those in their home countries. The credibility of this information is determined to a large extent by the regulatory environment that varies from country to country. The cross country differences in accounting practices, disclosure requirements and regulatory environments give rise to information asymmetries between local and foreign investors. Foreign investors have to translate and interpret this information in light of the relevant legal and business environment which leads to additional costs. These information costs associated with investing in some countries may be significantly higher than in others. Accordingly, this paper investigates the impact of countries' accounting standards, disclosure requirements, regulatory environments and corporate governance standards on the measure of home bias. These legal and governance indices are expected to have a negative impact on the measure of home bias. A brief description of these legal and governance indices is provided below:

(i) La Porta et al (1998) legal indicators

This paper considers three legal indices of La Porta et al (1998) viz. efficiency of judicial system, rule of law and rating of accounting standards.

The efficiency of judicial system (*EFF*) index is developed by the country risk rating agency Business International Corporation. This index assesses the efficiency and integrity of the legal environment as it affects business, particularly foreign firms. It may be taken to represent investors' assessments of conditions in the country in question. This index scales from 0 to 10, with lower scores for lower efficiency levels and is averaged over the period from 1980 to 1983.

Rule of law (*ROL*) index developed by the country risk rating agency International Country Risk (ICR) assesses the law and order tradition in the country. This index scales from 0 to 10, with lower scores for less tradition for law and order and is average of the months of April and October of the monthly index between 1982 and 1995.

Rating of accounting standards (*RA*) is the index created by the International Accounting and Auditing Trends; by examining and rating companies' 1990 annual reports on their omission or inclusion of ninety items. These items fall into seven categories viz. general information, income statements, balance sheets, funds flow statement, accounting standards, stock data and special items. A minimum of three companies in each country were studied that represented a cross-section of various industry groups where industrial companies numbered seventy percent and financial companies represented the remaining thirty percent.

(ii) Kaufmann et al (2005) governance indicators

Kaufmann et al (2005) construct six indicators each representing a different dimension of governance viz. voice and accountability, political stability, government effectiveness, regulatory burden, rule of law and graft for approximately 160 countries.

Voice and accountability (*VACC*) index is based on concepts that measure the extent to which the state engages in repression of its citizens and the extent to which the state relies on tactics commonly considered illegitimate in the international community in carrying out internal security tasks. This index focuses on various indicators related to

political process, civil rights, and institutions that facilitate citizen control of government actions, such as media independence.

Political stability and lack of violence (*PS*) index combines indicators that measure the risk of a destabilization or removal from power of the government in a violent or unconstitutional way. The concepts measured include military coup risk, major insurgency, political assassination civil war, social unrest, frequency of political killings, civil unrest, terrorism etc.

Government Effectiveness (*GE*) and Regulatory Quality (*RQ*) indices comprise of indicators that focus on the ability of the government to formulate and implement policies. Government Effectiveness index comprises of indicators that measure the quality of bureaucracy, the competence of civil servants, the quality of public service provision and the credibility of the government's commitment to its policies. Regulatory Quality index consists of indicators related to the regulations of exports, imports, business ownerships, equities ownerships, banking, foreign investment, price controls, tariffs, unfair competitive practices etc.

The Rule of Law (*RL*) and Control of Corruption (*CC*) indices consider the respect, on the part of both citizens and the government, for the institutions that resolve their conflicts and govern their interactions. Rule of Law index includes variables that measure the perceptions on the effectiveness and predictability of the judiciary and enforceability of contracts. It measures concepts related to enforceability of government and private contracts, fairness of judicial process, speediness of judicial process, violent and organised crimes, trust in legal system, patent and copyright

protection etc. Control of Corruption index comprises of different indicators of corruption. It focuses on the measure of corruption within the political system, the rate of severity of corruption within the state, the intrusiveness of the country's bureaucracy, corruption among public officials etc.

4.4 Foreign Listing ($ForeignListing_{ij}$)

Sarkissian and Schill (2004), Ahearne et al (2004), Baker et al (2002), Lang et al (2002) and Merton (1987) state that a firm may be able to overcome familiarity concerns and portfolio bias of foreign investors by listing in the foreign market. Ahearne et al (2004) state that some foreign firms have effectively reduced costs facing US investors by listing their stocks on US exchanges. A foreign firm listing on the US stock exchange must reconcile its accounts with US generally accepted accounting principles (GAAP) and meet other stringent regulatory requirements of stock exchange. US investors can collect information on the US listed foreign firm more easily, without geographical constraints. This alleviates the information cost to US investors.

This paper considers a foreign listing dummy which is equal to one if a source country company is listed on host country's stock exchange otherwise it is zero. This variable is expected to have a negative impact on the measure of home bias.

4.5 Trade and Diversification

Lane and Milesi Feretti (2004) and Mishra (2006) state that bilateral equity investment is strongly correlated with the underlying patterns of trade in goods and services. This paper examines the impact of trade on the international investors' equity home bias.

Bohn and Tesar (1996) state that investors are momentum traders or return chasers, who base their equity investment decisions on the stock markets past performance. They state that investors tend to move into markets where returns are expected to be high and retreat from markets when predicted returns are low. This paper examines the impact of risk to reward ratio on the international investors' equity home bias.

(i) Trade ($Trade_{ij}$)

Trade is the average of imports and exports normalised by the destination country's GDP. This measure is in accordance with Aherane et al (2004). Investors are better able to attain accounting and regulatory information on foreign markets through trade. Consequently, investors may be inclined to hold the stocks of foreign companies with whose products they are most familiar. This variable is expected to have negative impact on the measure of home bias. The data on imports and exports is taken from IMF's Direction of Trade Statistics and GDP data is from World Bank's World Development Indicators.

(ii) Diversification ($Diversification_j$)

Diversification measure is the ratio of mean monthly return to standard deviation. This measure is in accordance with Ahearne et al (2004). Investors might tend to underweight those countries whose stock markets have performed poorly, based on their information of past stock returns. This variable is expected to have negative impact on the measure of home bias. The return data is calculated from Morgan Stanley Capital International (MSCI) monthly stock market indices for 120 months ranging from January 1995 to December 2004.

5. Modelling Home Bias

This paper regresses the measure of home bias (discussed in section 2) on a vector of explanatory variables that includes explicit costs, proximity costs, regulatory and corporate governance information costs, foreign listing, trade and diversification (discussed in section 3).

$$HomeBias_{ij} = \alpha_0 + \alpha_1(CapitalControl_j) + \alpha_2(TransactionCost_j) + \alpha_3(Dist_{ij}) + \alpha_4(Language_{ij}) + \alpha_5(ForeignListing_{ij}) + \alpha_6(Trade_{ij}) + \alpha_7(Diversification_j) + \chi_j \quad (1)$$

where $HomeBias_{ij}$: Float adjusted measure of home bias, $CapitalControl_j$: Capital control measure of destination country, $TransactionCost_j$: Transaction cost associated with share trading in destination country, $Dist_{ij}$: Distance in kilometres between capital cities of source and host countries, $Language_{ij}$: Common language dummy with value equal to one if source and host country have same language otherwise the value is zero, $ForeignListing_{ij}$: Foreign Listing dummy with value equal to one if source country is listed on the host country's stock exchange otherwise the value is zero, $Trade_{ij}$: Trade is the average of imports and exports normalised by the destination country's GDP, $Diversification_j$: Diversification is the ratio of destination country's mean monthly return to standard deviation, χ_j : random error term.

$$HomeBias_{ij} = \beta_0 + \beta_1(EFF) + \beta_2(ROL) + \beta_3(RA) + \varepsilon_j \quad (2)$$

where *EFF* : Efficiency of judicial system, *ROL* : Rule of law, *RA* : Rating of accounting standards, ε_j : random error term. *EFF* , *ROL* and *RA* indices are from La Porta et al (1998).

$$HomeBias_{ij} = \gamma_0 + \gamma_1(VACC) + \gamma_2(PS) + \gamma_3(GE) + \gamma_4(RQ) + \gamma_5(RL) + \gamma_6(CC) + \gamma_7(PSF) + \gamma_8(GEFF) + \omega_j \quad (3)$$

where *VACC* : Voice and Accountability, *PS* : Political Stability and Lack of Violence, *GE* : Government Effectiveness, *RQ* : Regulatory Quality, *RL* : Rule of Law, *CC* : Control of Corruption, *AVE* : Average, ω_j : random error terms.

6 Empirical Results

The empirical results are based on regression equations (1) to (3) for the years 2001 to 2004. In the international context, the source countries are Australia, France, Germany, Italy, Japan, Netherlands, New Zealand, Spain, Sweden, Switzerland, United Kingdom, and United States. The host countries are Australia, Austria, Brazil, Chile, China, Hong Kong, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, India, Indonesia, Ireland, Israel, Italy, Japan, Korea, Malaysia, Netherlands, New Zealand, Norway, Peru, Philippines, Poland, Portugal, Russian Federation, Singapore, South Africa, Spain, Sweden, Switzerland, Thailand, Turkey, United Kingdom, and United States.

Table 2 presents the correlation matrix for the variables used in the paper. The measure of home bias is negatively related to trade, foreign listing dummy, language dummy

and diversification variable. Overall, the correlation matrix does not indicate serious correlation among the variables, except the positive correlation (0.62) between capital control and transaction cost.

Table 3 indicates the regression results wherein the dependent variable is $HomeBias_{ij}$. In column (1), the independent variables are $Trade_{ij}$ and $CapitalControl_j$. $Trade_{ij}$ is negative and significant. This supports the theoretical consideration that investors prefer investing in those countries with which they are familiar through trading relations. $CapitalControl_j$ is negative and significant. In column (2), the independent variables are $Dist_{ij}$ and $CapitalControl_j$. $Dist_{ij}$ is positive and significant; implying that investors prefer investing in geographically near countries. $CapitalControl_j$ is positive and insignificant. $Language_{ij}$ and $CapitalControl_j$ are the independent variables in column (3). $Language_{ij}$ is negative and significant, supporting the logic that investors prefer investing in countries having similar language. $CapitalControl_j$ is positive and significant. In column (4), the independent variables are $ForeignListing_j$ and $CapitalControl_j$. $ForeignListing_j$ is negative and significant; implying that host country investors prefer investing in source country on whose stock exchanges host country's companies are listed. Foreign listing lowers direct transaction costs and indirect information costs. $CapitalControl_j$ is positive and significant. $Diversification_j$ and $CapitalControl_j$ are the independent variables in column (5). $Diversification_j$ is negative and significant; implying that investors less underweight countries with higher return to risk ratios. $CapitalControl_j$ is positive and significant.

Table 4 indicates regression results with $HomeBias_{ij}$ as the dependent variable. Columns (1) to (4), respectively indicate the combined effects of $Trade_{ij}$ with $Dist_{ij}$, $Trade_{ij}$ with $Language_{ij}$, $Trade_{ij}$ with $Diversification_j$ and $Trade_{ij}$ with $ForeignListing_j$ on $HomeBias_{ij}$. Column (1) of Table 4 indicates that upon introducing $Dist_{ij}$ variable, $Trade_{ij}$ loses its significance level from 1 percent to 5 percent, as compared to column (1) of Table 3. There is a possibility that the international equity flows may be driven by international trade flows so that the distance variable picks up the effect of trade linkages rather than information. In column (2), both $Trade_{ij}$ and $Language_{ij}$ are negative and significant; implying that cultural similarities arising due to common language and familiarity arising from trading relations help investors' reduce their home bias in equity investments. Column (3) indicates that both $Trade_{ij}$ and $Diversification_j$ are negative and significant. The negative sign and significance of $Diversification_j$ variable verifies that investors less underweight stocks of countries having high reward to risk ratios. Again, $Trade_{ij}$ and $ForeignListing_j$ are both, negative and significant in column (4). The negative sign and significance of $ForeignListing_j$ asserts that listing reduces investors' indirect information costs thus leading to a reduction in home bias. $CapitalControl_j$ is found to be positive and significant, in accordance with theoretical consideration.

Table 5 examines the effect of transaction cost on home bias. Transaction costs do not appear to have significant affect on the source countries investors' home bias against destination countries.

Table 6 illustrates the impact of La Porta et al (1998) variables on $HomeBias_{ij}$ in the international context. The legal indices viz. rule of law and efficiency of judicial system are both negative and significant. Rating of accounting standards are all significant and negative. Column (1) indicates that a 100 percent increase in destination countries law and order results in the decrease in source countries home bias by 4 percent. Column (2) indicates that a 100 percent increase in destination countries efficiency of judicial system leads to a decrease in source countries home bias by 3 percent. Column (3) indicates that rating of accounting standard index is negative and insignificant. This is in accordance with Ahearne et al (2004). One of the reasons may be that the accounting standard index is available for 1990 and since 1990s accounting standards have changed in many countries. Overall the results imply that the source countries have low degree of home bias against the destination countries that have an efficient judicial system and high tradition of law and order.

Table 7 presents the regression results that show the impact of governance indicators on home bias in the international context. The governance indicators are negative and significant throughout; implying that better governance in the destination countries would lead to greater equity investment in source countries. This would result in lower degree of source countries' equity home bias against destination countries. On individual basis, regulatory quality (RQ) variable has the greatest impact on home bias. A 100 percent increase in destination countries regulatory quality environment leads to a decrease in source countries equity home bias against destination countries by about 32 percent. Column (7) presents the effect of governance indicators grouped together (average) on home bias. A 100 percent increase in destination countries

governance environment leads to a decrease in source countries equity home bias against destination countries by about 27 percent.

7 Conclusion

This paper employs IMF's high quality CPIS dataset to investigate the determinants of home bias puzzle in the international context. The data itself indicates some interesting stylized facts about the home bias puzzle.

Capital controls are found to have a positive and significant impact on the home bias. Trade links are found to have a negative and significant impact on home bias; implying that trade alleviates certain information asymmetries in terms of familiarity with the financial and legal environment of the countries; cultural barriers etc. Information flows positively affect both cross-border finance and trade. Trade in goods and trade in assets become complementary: firm managers learn about each other by trading goods and/or securities. Trading in goods market reduces informational asymmetries in the financial markets (and vice versa).

The paper finds that international investors exhibit a preference for nearby countries, same language and same culture countries. Investors acquire useful information about familiar firms from reading company statements in a language they understand, from general or acquired knowledge about local firms, or from the cultural groups they socialize within. The information based theory of the influence of distance, language, and culture leads to more active trading of these familiar firms and generates superior performance in these firms.

Foreign listing reduces transaction costs and indirect information costs through increased transparency and adherence to stringent stock exchange's regulatory reforms. The paper finds that foreign listing alleviates equity home bias.

Risk adjusted return is negative and significant implying that in their equity portfolios, source countries investors less underweight the destination countries that have higher return to risk ratios. Transaction costs are positive but insignificant.

This paper also investigates the impact of legal and governance indices on homebias. Investors weight countries in their portfolios which have institutions that facilitate citizen control of government actions such as media independence; political stability; efficient governing systems; high tradition of law and order; transparent corporate governance; and effective policies related to trade and development. Consequently, the degree of home bias in investors' equity portfolios will decrease.

Overall the results indicate that both regulations and information costs have impact on cross border equity holdings. Even among countries for which regulatory barriers to foreign equity holdings are small, cultural barriers seem to constitute quite significant barrier to equity holdings.

The main purpose of this paper is to analyse causes for the home bias puzzle and to derive implications from these findings for economic policy. This paper finds that the barriers to the free mobility of equity can arise from two main sources. First, policy measures in the form of capital controls can cause barriers to free equity flows. Second, even if policy induced barriers to equity flows have been lifted, there remain

substantial economic or market inherent barriers. These barriers tend to remain relevant and to affect the way in which financial systems operate and integrate even if economic policy has reduced regulatory barriers to entry. The asymmetries in information between domestic and foreign investors, which can arise from differences in regulatory environments, are of primary importance. The market inherent barriers due to fixed costs of market entry including transaction costs are also important.

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Table 1: International Home Bias

Countries	Actual percentage of domestic equity held by domestic investors		Benchmark percentage as per ICAPM	
	2001	2002	2001	2002
Australia	75.35	78.08	1.47	1.84
Austria	71.71	80.40	0.08	0.16
Belgium	76.76	73.22	0.60	0.65
Canada	84.09	86.45	2.41	2.76
Denmark	79.14	77.11	0.34	0.38
Finland	42.55	39.35	0.77	0.70
France	66.72	69.86	4.61	4.70
Ireland	53.88	30.03	0.28	0.26
Italy	77.38	77.34	2.09	2.40
Japan	86.72	86.32	9.84	11.80
Malaysia	10.30	9.75	0.47	0.61
Netherlands	51.34	50.19	2.22	2.32
New Zealand	80.97	81.67	0.07	0.10
Norway	77.02	77.25	0.27	0.34
Portugal	73.62	73.21	0.20	0.21
Singapore	69.10	65.78	0.46	0.50
Spain	68.97	78.31	1.44	2.25
Sweden	68.20	75.54	0.93	0.99
UK	67.98	63.89	8.75	9.10
US	92.82	91.39	54.86	51.51

Source: Foreign equity investments from the IMF's CPIS, market capitalizations from FIBV

Table 2: Correlation Matrix (2001 to 2004)

	$HomeBias_{ij}$	$Trade_{ij}$	FL_{ij}	$Dist_{ij}$	Lan_{ij}	CC_j	TC_j	$Diver_{ij}$
$HomeBias_{ij}$		-0.16	-0.04	0.30	-0.08	0.13	0.01	-0.09
$Trade_{ij}$			0.01	-0.24	0.21	-0.01	0.12	-0.03
FL_{ij}				-0.09	0.16	-0.32	-0.26	0.18
$Dist_{ij}$					0.04	0.27	0.14	-0.24
Lan_{ij}						-0.19	-0.09	0.05
CC_j							0.62	-0.34
TC_j								-0.29
$Diver_{ij}$								

Note:

$HomeBias_{ij}$: Float adjusted measure of home bias, CC_j : Capital control measure of destination country, TC_j : Transaction cost associated with share trading in destination country, $Dist_{ij}$: Distance in kilometres between capital cities of source and host countries, Lan_{ij} : Common language dummy with value equal to one if source and host country have same language otherwise the value is zero, FL_{ij} : Foreign Listing dummy with value equal to one if source country is listed on the host country's stock exchange otherwise the value is zero, $Trade_{ij}$: Trade is the average of imports and exports normalised by the destination country's GDP, $Diver_{ij}$: Diversification is the ratio of destination country's mean monthly return to standard deviation.

Table 3: International Home Bias Regression Results I (2001 to 2004)

	(1)	(2)	(3)	(4)	(5)
<i>Trade_{ij}</i>	-0.01*				
	(-4.08)				
<i>CapitalControl_j</i>	0.33*	0.03	0.28*	0.24*	0.22*
	(6.13)	(0.70)	(4.23)	(3.60)	(3.30)
<i>Dist_{ij}</i>		0.58*			
		(12.94)			
<i>Language_{ij}</i>			-0.26**		
			(-2.28)		
<i>ForeignListing_j</i>				-0.23*	
				(-2.78)	
<i>Diversification_j</i>					-1.12*
					(-4.40)
Constant	0.43*	-1.61*	0.42*	0.44*	0.52*
	(12.82)	(-9.58)	(10.66)	(10.46)	(11.80)
Adjusted R ²	0.04	0.20	0.03	0.03	0.03
Observations	1285	1285	1285	1285	1285

Note: *,** and *** indicate significance at the 1%, 5% and 10% levels, respectively. White corrected t-statistics in parenthesis. *HomeBias_{ij}*: Float adjusted measure of home bias, *CapitalControl_j*: Capital control, *Dist_{ij}*: Distance, *Language_{ij}*: Common language dummy, *ForeignListing_{ij}*: Foreign Listing dummy, *Trade_{ij}*: Trade, *Diversification_j*: reward to risk ratio.

Table 4: International Home Bias Regression Results II (2001 to 2004)

	(1)	(2)	(3)	(4)
<i>Trade_{ij}</i>	-0.00**	-0.01**	-0.02*	-0.01*
	(-2.44)	(-3.37)	(-4.31)	(-3.92)
<i>CapitalControl_j</i>	0.04	0.29*	0.19*	0.23*
	(0.85)	(4.34)	(2.98)	(3.49)
<i>Dist_{ij}</i>	0.56*			
	(12.73)			
<i>Language_{ij}</i>		-0.20***		
		(-1.65)		
<i>ForeignListing_j</i>				-0.23*
				(-2.77)
<i>Diversification_j</i>			-1.22*	
			(-4.82)	
Constant	1.50*	0.47*	0.61*	0.51*
	(-9.12)	(12.76)	(13.57)	(12.66)
Adjusted R ²	0.20	0.05	0.06	0.05
Observations	1285	1285	1285	1285

Note: *,** and *** indicate significance at the 1%, 5% and 10% levels, respectively. White corrected t-statistics in parenthesis. *HomeBias_{ij}*: Float adjusted measure of home bias, *CapitalControl_j*: Capital control, *Dist_{ij}*: Distance, *Language_{ij}*: Common language dummy, *ForeignListing_{ij}*: Foreign Listing dummy, *Trade_{ij}*: Trade, *Diversification_j*: reward to risk ratio.

Table 5: Effect of Transaction Cost on International Home Bias (2001 to 2004)

	(1)	(2)	(3)	(4)	(5)	(6)
<i>Trade_{ij}</i>	-0.03*					
	(-4.31)					
<i>TransactionCost_j</i>	0.00	-0.00	0.00	-0.00	0.00	0.00
	(1.16)	(-0.93)	(0.26)	(-0.49)	(0.18)	(0.15)
<i>Dist_{ij}</i>		0.77*				
		(11.40)				
<i>Language_{ij}</i>			-0.32**			
			(-2.47)			
<i>ForeignListing_j</i>					-0.14***	-0.00***
					(-1.71)	(-1.79)
<i>Diversification_j</i>				-1.67*		
				(-5.10)		
Constant	0.41*	-2.30*	0.42*	0.61*	0.41*	0.41*
	(3.92)	(-9.05)	(3.96)	(4.57)	(3.43)	(3.49)
Adjusted R ²	0.02	0.09	0.00	0.01	0.00	0.00
Observations	1285	1285	1285	1285	1285	1285

Note: *,** and *** indicate significance at the 1%, 5% and 10% levels, respectively. White corrected t-statistics in parenthesis. *HomeBias_{ij}*: Float adjusted measure of home bias, *TransactionCost_j*: Transaction cost, *Dist_{ij}*: Distance, *Language_{ij}*: Common language dummy, *ForeignListing_{ij}*: Foreign Listing dummy, *Trade_{ij}*: Trade, *Diversification_j*: reward to risk ratio.

Table 6: Effect of Legal Indices on Home Bias (2001 to 2004)

	(1)	(2)	(3)
<i>ROL</i>	-0.04 (-3.95)*		
<i>EFF</i>		-0.03 (-3.30)*	
<i>RA</i>			-0.00 (-0.42)
Constant	0.75 (7.77)*	0.67 (9.32)*	0.60 (4.12)*
Adjusted R ²	0.00	0.00	na
Observation	1188	1188	1188

Note: *,** and *** indicate significance at the 1%, 5% and 10% levels, respectively. White corrected t-statistics in parenthesis. *ROL*: Rule of law. *EFF*: Efficiency of judicial system. *RA*: Rating of accounting standards. na: not applicable. Legal Indices are from La Porta et al (1998).

Table 7: Effect of Governance Indices on Home Bias (2001 to 2004)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>VACC</i>	-0.33 (-7.62)*						
<i>PS</i>		-0.25 (-6.25)*					
<i>GE</i>			-0.19 (-5.91)*				
<i>RQ</i>				-0.32 (-6.65)*			
<i>RL</i>					-0.22 (-7.12)*		
<i>CC</i>						-0.13 (-6.51)*	
<i>AVE</i>							-0.27 (-7.14)*
Constant	0.76 (28.35)*	0.60 (30.00)*	0.69 (20.40)*	0.82 (23.06)*	0.70 (30.90)*	0.61 (21.62)*	0.74 (28.20)*
Adjusted R ²	0.02	0.01	0.01	0.01	0.01	0.00	0.01
Observation	1285	1285	1285	1285	1285	1285	1285

Note: *,** and **** indicate significance at the 1%, 5% and 10% levels, respectively. White corrected t-statistics in parenthesis. Voice and Accountability (*VACC*), Political Stability and Lack of Violence (*PS*), Government Effectiveness (*GE*), Regulatory Quality (*RQ*), Rule of Law (*RL*), Control of Corruption (*CC*), Average (*AVE*). Governance Indices are from Kaufmann et al (2005).