# Real Effects of Financial Market Integration: Does Lower Home Bias Lead to Welfare Benefits?

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**Abstract**

This paper proposes equity home bias as a proxy for financial integration in the ongoing empirical debate on the impact of financial integration on economic growth. In integrated markets, investors are expected to take full advantage of the potential for international diversification. The extent of equity home bias (i.e. overinvesting in domestic stocks and foregoing gains from international diversification) gives therefore a relevant quantity-based measure of financial integration. Using different techniques to compute home bias, this paper investigates whether countries with lower home bias experience faster economic growth. Also, other possible real effects of (decreasing) home bias are analyzed, respectively regarding growth and consumption variability, as well as the degree of international risk sharing and on income inequality. The results suggest that financial integration, proxied by the decreasing equity home bias, has significant positive effects on economic growth and on international risk sharing. Moreover, these benefits do not come at the cost of higher variability in real variables. At the same time, it appears that higher financial integration is associated also with higher income inequality.

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# 1 Introduction

The degree of international financial integration of a country comes from the design, intensity and effectiveness of its restrictions on cross-border transactions (Edison et al., 2002). A state of perfect financial integration arises when all possible barriers to international financial transactions, ranging from tariffs, taxes and quantitative controls to information asymmetries and even cultural biases are eliminated. We are witnessing a global trend towards lifting policy designed restrictions in many countries (so-called *de jure* integration) and rising foreign capital flows (or *de facto* integration) (Prasad et al., 2004).

There are great expectations for higher international financial integration to be welfare improving. Growth depends on investment in specialized, high risk - high return technologies that, through international asset trade (and global diversification) become more affordable to all countries (Obstfeld, 1994). Acemoglu and Zilibotti (1997) show theoretically how diversification results in improved fund allocation and lower growth variability.

The process however may not work as smoothly as theoretically envisaged in the presence of additional distortions. Unrestricted capital inflows need not reach their most efficient uses, if, for instance, markets are underdeveloped and opaque or capital intensive sectors (such as steel and automobile industries) are closed to foreign capital and influence. In these conditions, outflows of returns to foreign investments reduce national income even more, rather than contributing to economic growth (Cooper, 1999; Eichengreen, 2001). Moreover, domestic capital may desert a country in favour of other countries that offer a better institutional environment (Edison et al., 2002).

The empirical debate on growth effects of financial integration starts with two widely acknowledged studies reaching different conclusions at about the same time. Rodrik (1998) does not find any evidence that countries without capital controls enjoy lower inflation, more investment or faster growth. This study uses information on capital restrictions released by IMF to differentiate between open and restricted countries. Quinn (1997) develops a more refined measure of restrictions that allows for different degrees of openness rather than the binary division used in the former study and finds a robust relationship between economic growth and capital account liberalization.

Prasad et al. (2004) review the subsequent literature on the issue and admit that a robust causal relationship between financial integration and growth is difficult to find. Of fourteen papers they present, only three report a positive effect. Different types of capital flows appear to have different effects on growth, of which foreign direct investments and portfolio equity flows fare best (Reisen and Soto, 2001). In many cases, however, the relationship is not robust across periods (Soto, 2003).

One of the most comprehensive studies in the Prasad et al. (2004) review reports results for five proxies of financial integration: the binary IMF restriction as a measure of *de jure* integration and four quantity type measures based on actual flows: stock of capital flows and flow of capital as well as stock of capital inflows and inflow of capital, scaled by GDP (Edison et al., 2002). Of all these measures, flows of capital show the strongest positive influence on economic growth. However, this finding is not confirmed when other possible proxies for financial integration are used.

On the other hand, the study of Bekaert et al. (2005) makes a decisive contribution to the side that champions the positive effects of financial integration. They question whether financial *liberalization* spurs growth and find convincing evidence that this is indeed the case. Their work on the real effects of financial liberalization is continued by establishing that it is associated with lower consumption growth volatility as well as lower ratios of consumption growth volatility to GDP growth volatility, consistent with better international risk sharing (see Bekaert et al., 2006).

This unsettled empirical debate need not harbour a contradiction. Virtually all studies on the topic of market integration face an important measurement issue. The results of any given study are informative relative to the financial integration proxy of choice. The complexity of the process of financial integration (with its various stages) prohibit any absolute measure of integration and limit the scope of research to a certain aspect of financial integration. Financial liberalization defined as "any policy decision that opens up capital markets to foreign investment (or allows domestic residents to make use of foreign capital markets)" (Bekaert et al., 2005) is a prime example of a proxy with a very sharp focus. Whereas financial liberalization is a necessary condition of financial market integration, it is far from being also sufficient. The liberalizing countries in the study of Bekaert et al. (2005) are largely emerging countries that are taking the first steps towards opening up to the world capital markets. A strong case can be made that many fully liberalized countries (largely the developed markets) are far from being also fully integrated in the world markets. The fact that different proxies capture singular aspects of financial integration may explain why mixed empirical results are at odds with the theoretical predictions derived for the (utopic) case of perfect integration (reached when all stages of the process have been successfully crossed). It is likely that certain proxies may match more closely the genuine integration process while other proxies could be to a larger extent contaminated by driving factors that do not speak for financial integration. Indicators of legal financial liberalization versus cross-border capital flows (both unquestionable tools of integration) may well be painting a different image of the process.

In light of these issues, this paper proposes equity home bias as a relevant measure of *effective* (achieved) financial integration. This measure is not intended as a replacement or correction to previous measures of integration used in the literature, but more as a complement, a useful tool for quantifying certain aspects of the complex process of market integration. Several aspects relevant to integration are particularly well captured by the home bias measure and, in the view of this paper, justify adding home bias as a pertinent integration measure to the set of related indicators used in the literature.

The first aspect relates to the differences between the information contained by measures of financial liberalization and the home bias. If financial liberalization can be regarded as an initial (legal) condition for integration that is characteristic to emerging markets, the equity home bias is a phenomenon that is present in all countries notwithstanding their level of development and the fact they have long been fully liberalized. Home bias reflects the observed tendency of many countries to hold too low levels of foreign assets in their portfolios (see French and Poterba, 1991). This strong preference for domestic assets comes at a significant cost in terms of foregone diversification gains (Lewis, 1999). Therefore home bias has been taken as proof that various barriers hinder cross-border transactions (and consequently financial market integration). The list put forth in the literature includes transaction costs, information asymmetries as well as cultural and psychological factors, but the home bias puzzle has yet to be fully explained. However, it is agreed that in perfectly integrated markets, where all the participants explore fully the potential diversification gains, home bias should not exist. Otherwise put, positive levels of home bias may be interpreted as evidence of persisting barriers to cross-border transactions and its decline as a sign that financial integration is taking place. As opposed to more immediate measures of financial liberalization given by changes in the legal environment governing cross-border capital flows, home bias may be interpreted as a proxy of *advanced* integration, as it appears characterized by persistence and reluctant to recede in the presence of all but the most committed policies towards integration. The dynamics of home bias have been recently investigated in relation to financial market integration (Adam et al., 2002; De Santis and Gérard, 2006; Baele et al., 2007). Equity home bias decreased in the last decade in many countries and substantially faster in the Euro Area which strengthens the case that it responds to the energetic elimination of borders between foreign financial markets.

The second aspect relates to comparing the information content of home bias and other quantitative indicators, such as foreign assets and liabilities. Although correlated with the dynamics of foreign assets and liabilities, home bias weighs their influence against an optimal investment "benchmark". Home bias is computed as the deviation of actual foreign equity holdings from optimal foreign holdings for a certain country. For each country it gives therefore a synthetic measure of its foreign assets and liabilities together with the absorption capacity of the domestic equity market (i.e. optimal domestic holdings). It is constructed to take values from 1 (when a country is completely closed to the world market) to 0 (when a country's actual and optimal amounts of foreign assets match exactly). This construction can result in a different perspective on the state of financial integration. For instance in Japan, in the period 1995-2004, the sum of foreign assets and liabilities (in equity portfolios) scaled by GDP almost tripled. In the US, the same indicator of international linkages only doubled in this decade. Yet, Japan appears more home biased that the US. Home bias in Japan decreased over the same period by around 8% from 0.94 to 0.87 whereas in the US, the change is higher (almost 10%) and home bias is also lower in levels, decreasing from 0.75 to 0.68. This example suggests that despite the encouraging rise in equity flows, in Japan there are still significantly stronger barriers to full diversification than in the US. Considering that international diversification is an important channel of growth by financial integration, home bias might be more informative as to which country is *effectively* better integrated in the world (equity) market (as opposed, for instance to being merely financially liberalized or legally open to foreign capital).

Last but not least, another reason for which home bias should be relevant as a channel for improved welfare, is the new evidence that it is linked to risk sharing. In a recent contribution, Sørensen et al. (2007) show that less home bias is associated with more international risk sharing. International risk sharing occurs when income or consumption rates are equalized across countries. Home bias need not be linked to risk sharing, if foreign investment is not driven by hedging considerations. However, the study finds that lower equity home bias increases (consumption and income) risk sharing in a statistically and economically meaningful relationship and that equity home bias has a stronger impact than debt home bias.

Apart from introducing equity home bias to the debate over the real effects of financial integration, this paper makes use of recent methodological advances to measure more reliably the phenomenon of home bias.

A prime issue when measuring home bias, as the deviation from optimal international investment, is the choice of "benchmark", i.e. the "correct" mix of domestic and foreign equity. Traditionally, in the home bias literature it is assumed that the optimal portfolio weights equal each country's share in the world market capitalization. This result is valid only to the extent that the generating model, the International CAPM (I-CAPM) is an accurate description of the returns data. In this case, the I-CAPM investor holds the market portfolio. Each country is expected therefore not to hold a larger proportion of domestic assets than its own share in the world market. At the same time, the optimal portfolio weights in foreign equity of all other countries are given by their respective market shares. No country raises to the challenge. Given the rather strict assumptions of the I-CAPM, it is natural to question the validity of its investment prediction. The alternative to the I-CAPM optimal portfolio weights, the so-called 'model-based' approach was until recently, a pure 'data-based' approach (see Pástor, 2000). Discarding completely the I-CAPM assumption, purely 'data-based' optimal weights are calculated in a standard mean-variance framework using the sample moments of the return data. However, the sample mean and variance of asset returns are notoriously unreliable estimates of the true expected returns and variance (see Merton, 1980; Britten-Jones, 1994; Jenske, 2001). The resulting optimal weights take extreme and volatile values, of little use as optimal investment "benchmarks". Thus, the wide use of the 'model-based' approach is not necessarily evidence for the pertinence of the I-CAPM but more for the lack of a viable alternative.

Alternatives to the debatable I-CAPM prediction have been recently made possible, through the Bayesian portfolio selection frameworks developed by Pástor and Stambaugh (2000), Pástor (2000) and Garlappi et al. (2007) that provide different sets of optimal portfolio weights and alternative measures of home bias. Pástor (2000) investigates to what extent optimal portfolio weights vary with various degrees of mistrust in the asset pricing model. In this Bayesian framework, the investor is neither forced to accept unconditionally the pricing relation nor discard it completely in favor of the data. As the degree of skepticism about the model grows, the resulting optimal weights move away from those implied by the 'model-based' to those obtained from the 'data-based' approach. While this methodology typically produces weights that are much more stable over time compared to the 'data-based' approach, its reliance on sample data for higher levels of model uncertainty means, however, that extreme and volatile weights cannot be ruled out. This can be addressed by applying the volatility correction technique developed by Garlappi et al. (2007). Their methodology introduces estimation risk in the standard mean variance framework by restricting the expected return for each asset to lie within a specified confidence interval around its estimated value, rather than treating the point estimate as the only possible value, i.e. they allow for multiple priors. In total, three measures of equity home bias are computed for a sample of 25 countries using three frameworks, namely (1) the I-CAPM , (2) the Multi-Prior technique of Garlappi et al. (2007) combined with the Bayesian approach of Pastor (2000) and (3) the same volatility correction mechanism of Garlappi et al. (2007) applied to the 'data-based' approach. These measures have been computed and are readily available from Baele et al. (2007). In line with other empirical evidence (see Pástor, 2000; Li, 2004; Asgharian and Hansson, 2006), Baele et al. (2007) show that reasonable degrees of mistrust in the model lead to lower, yet mostly positive, levels for home bias measures. In a panel of 25 developed and emerging markets, the average Bayesian home bias is lower by $10 - 15\%$ when departing from the rather restrictive prediction of the I-CAPM. Moreover, home bias exhibits common trends across the various measures, such as a robust downward trend, that accentuates significantly within the European Monetary Union, a pattern fully consistent with the stronger efforts towards financial market integration.

Building on the evidence presented in Baele et al. (2007) that alternative measures of home bias offer a more reliable picture of the phenomenon, the present paper investigates whether a meaningful link can be established between home bias (measured in three alternative ways) and several real variables: economic growth, consumption and output fluctuations, tests of international risk sharing and income inequality (measured by the GINI coefficient). The results, obtained for a dataset of 25 countries support the view that financial market integration, proxied by the decreasing home bias has positive effects on economic growth, that are significant both in economic and statistical terms. Moreover, home bias seems to lead to better international risk sharing and come at no cost in terms of higher variability of consumption and output variables. However, decreasing home bias appears associated with higher income inequality.

The remainder of this paper is organized as follows. Section 2 describes the measure of home bias and the dataset, while in Section 3, empirical evidence is brought in support to a positive link between financial integration (proxied by the equity home bias) and various real variables. Finally, a review of results is given in Section 4.

# 2 Home Bias Measures and Data Issues

This section introduces the measures of home bias in terms of actual and optimal portfolio weights, as well as the main characteristics of the dataset used.

## 2.1 Home Bias Measures

The home bias measures are computed and described in full detail in Baele et al. (2007). For each country $i$, home bias is defined as the relative difference between actual ($ACT_i$) and optimal ($OPT_i$) foreign portfolio weights:

$$HB_i = 1 - \frac{ACT_i}{OPT_i}. \tag{1}$$

Optimal portfolio weights are calculated using three alternative methodologies (see Baele et al., 2007; Pástor, 2000; Garlappi et al., 2007, for a complete description) leading to the so-called the I-CAPM , the Bayesian and the 'data-based' measures of home bias. The first case is traditional in the home bias literature and assumes that the I-CAPM constitutes a valid description of the data. Optimal holdings are given by the relative country shares in the world market capitalization. The two alternative measures of home bias result from applying the Multi-Prior correction of Garlappi et al. (2007) to the 'data-based' approach and to the Bayesian approach of Pástor (2000) respectively in order to obtain smoother series. The actual portfolio holdings ($ACT_i$) are determined using data from the International Investment Position (reported to the IMF as part of the Balance of Payments). Typically, the home bias measures range between 0 (in the case when actual portfolio holdings match the optimal "benchmark") and 1 (in the case when, suboptimally, a country has no foreign holdings). An analysis of the three measures of home bias found in Baele et al. (2007) shows that home bias is present and substantial (the I-CAPM measure averaging $0.70 - 0.80$) in all countries in the sample that includes many developed markets. However, alternative measures result in lower levels of home bias (by $10\% - 15\%$ on average). More importantly, the decrease in home bias is linked empirically to the process of market integration, in line with theoretical expectations that in perfectly integrated markets, this phenomenon should completely disappear.

## 2.2 Data

The link between real variables and the home bias behavior is investigated for a set 25 countries of which 19 are European: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Italy, The Netherlands, Poland, Portugal, Spain, Switzerland, Sweden, United Kingdom, Turkey and 6 form a non-European control group: Australia, Canada, Hong Kong, Japan, New Zealand and United States. The heterogeneity of the sample results into an unbalanced panel, with distinctively better data coverage for the more developed countries.

First, the home bias measures are computed as described in Baele et al. (2007) using several types of data: actual portfolio weights based on the International Investment Position (IIP) in foreign portfolio assets and liabilities (a chapter of the Balance of Payments) recorded with annual frequency in the IMF's International Financial Services database as well as weekly Dollar-denominated total returns for the 25 countries and for the global market portfolio over the period January 1973 - December 2004 based on Datastream's total market indices. The risk-free rate is the one-month Treasury Bill rate from Ibbotson and Associates Inc., available on Kenneth French's website[1]. Market capitalization figures are obtained from Datastream (for developed countries) and Standard & Poor's Emerging Markets Database, respectively.

Second, a set of variables that are usual in models of economic growth are taken into account when investigating the real effects of home bias. GDP growth is computed as the logarithmic difference of real GDP per capita, from the World Bank Development Data (World Development Indicators 2006). Alternative dependent variables use data on final consumption and the Gross National Income (GNI) as well as various explanatory variables: inflation, population growth and the ratio of investment over GDP are obtained from the same source. Data on human capital, defined as the logarithm of average years of secondary schooling in the population over the age of 15 is taken from the updated Barro and Lee (2000) dataset. The share of private credit by deposit money banks (as a share of GDP) is provided in the database on the structure and development of the financial sector compiled by Beck et al. (2000). Data on GINI coefficients (increasing in income inequality) is obtained from the World Income Inequality Database.

Finally, the *Shareholder Protection Index* is taken from the Martynova-Renneboog corporate governance database (see Goergen et al., 2005; Martynova and Renneboog, 2006, for a more detailed description), as a measure of quality of the corporate environment. The index increases with the ability of shareholders to curb opportunistic managerial behavior and it quantifies the potency of rules regarding appointment and replacement of managers, direct shareholder decision-making (in issues such as anti-takeover measures, for instance), the monitoring efficiency of the board of directors as well the

[1] http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html

quality of information available to investors. Considering the higher uncertainty affecting international transactions, it is expected that issues of corporate governance are especially relevant in a cross-country context. A country with higher corporate governance standards appears as a more attractive investment destination and as such, could avoid the flight of capital associated with financial integration in the presence of low institutional quality. Since it has been argued that institutional quality decides whether financial integration could help or hurt the growth prospects of a country, countries with higher level of shareholder protection are expected to be able to reap the benefits of financial integration.

# 3 Home Bias and Welfare Benefits

The previous section summarized the main characteristics of the three measures of home bias for the 25 countries in this sample. As shown by Baele et al. (2007), home bias decreases as financial market integration proceeds, and in the present section home bias dynamics are linked with several real variables (consumption and output fluctuations, international risk sharing and income inequality) that are expected to respond to higher financial market integration.

## 3.1 Home Bias and Economic Growth

The real variable that has received the highest interest in the literature on the real effects of international finance is economic growth. The empirical literature is divided over the effects of various measures of financial integration on economic growth. In this section, home bias, as a proxy for financial integration is introduced in the debate. Regression results are presented for a number of specifications linking economic growth to the measures of home bias in the presence of a set of control variables that are traditionally used in the literature. Panel data estimations allowing for fixed country effects and using a feasible GLS technique to control for cross-sectional heteroskedasticity, are conducted in the following framework:

$$\Delta logGDP_{it} = \alpha_i + \beta_1 HB_{it-1} + \beta_2 X_{it} + \epsilon_{it}, \tag{2}$$

where the dependent growth variable is computed as the annual logarithmic difference of the real GDP per capita of country, $HB$ is the equity home bias measured using the different methods presented in the previous sections, and $X_{it}$ is a set of control variables that includes: the previous year level of GDP, the previous year level of schooling (SCHOOL), inflation (INFL), investment ratio to GDP (INVRATIO), population growth (POPGROWTH), private credit by deposit money banks as a share of GDP (PRIVCRED), as well as the Shareholder Protection Index (SHLD PROT)[2]. The choice of

[2] To reduce the influence of large outliers, data that is positive by construction is used in logarithms (see Edison et al., 2002; Schularick and Steger, 2006)

control variables is consistent with previous research on growth effects of financial integration. Human capital (represented by the lever of schooling) and a convergence effect (the previous year level of GDP) are considered fundamental growth drivers (Schularick and Steger, 2006). Together with inflation and population growth, these variables make the base growth regression in the comprehensive study of Levine and Renelt (1992). It has been pointed out that the impact of financial integration on economic growth might be mediated by the quality of the institutional setup (Cooper, 1999; Eichengreen, 2001; Edison et al., 2002). To take into account this hypothesis, the model is extended to include an interaction term between the Shareholder Protection Index and the measure of home bias:

$$\Delta logGDP_{it} = \alpha_i + \beta_1 HB_{it-1} + \beta_2 X_{it} + \beta_3 HB_{it-1} \times SHLDPROT_{it} + \epsilon_{it}, \tag{3}$$

In this case, the impact of home bias on economic growth will be given by $\beta_1 + \beta_3 \times SHLDPROT$.

The model presented is tested on three different measures of home bias, depending on the investment benchmark used: the I-CAPM home bias, the 'data-based' and the Bayesian home bias.

Table 1 presents the results for the first set of estimations, where the proxy for financial integration is the I-CAPM home bias measure. The benchmark regression, given by equation 2, includes apart from the home bias measure, the previous level of GDP and schooling, as well as a measure of inflation, as control variables. The results are reported in the Table 1 (column 1). Subsequently, models 2 to 5 are extended with additional control variables: the investment ratio, population growth, private credit and the Shareholder Protection Index. In all these models, the coefficients of the measure of home bias have a negative sign suggesting that countries with higher home bias, hence less integrated in the world equity market, face lower economic growth. Tables 2 and 3 report the results of similar specifications where the proxies for financial integration are the Bayesian and the 'data-based' home bias. Models 1 to 5 uncover the same negative relationship between economic growth and home bias. With one exception (Table 1, column 5), the relationship is statistically significant at usual levels of confidence. The exception occurs for a specification where the proxy of financial integration is represented by the I-CAPM home bias and a proxy for corporate governance, the Shareholder Protection Index is included. The corporate governance index is statistically significant across all measures of home bias and specifications, which suggests that countries with better shareholder protection enjoy benefits also in terms of economic growth. However, it should be noted that models 5 and 6 should be regarded in a different context than the previous four models. Data availability on the Shareholders Protection Index restricts the sample to only 19 countries (data is available only for European countries and the US) and the period to 1990-2004. Therefore the relationship between home bias, corporate governance and economic growth can be investigated only for this subsample in model 6. Concerns that institutional quality mediates the relationship between financial integration and economic growth are taken into account by introducing an interaction term between the measures of home bias and the Shareholder Protection Index. When the interaction term is present, the coefficients estimating the direct impact of home bias on economic growth change sign. The positive effect of financial integration (decrease of home bias) on economic growth seems to be entirely driven through the interaction term, negative and statistically significant for all three measures of home bias. Whereas the results for the subsamples analyzed in models 5 and 6, continue to support a negative overall impact of high home bias on economic growth, the change in sign on the coefficients for the home bias measures recalls the theoretical views that countries with low institutional quality could avoid flight of capital and thus benefit more from segmentation rather than opening to foreign capital markets.

Table 4 gives estimates of the economic significance of the results discussed above (the estimated coefficients are multiplied with the average annual decrease in home bias), for the three measures of home bias employed over six different models. In the most complex specification (model 6), the annual change in the (logarithmic) growth rate of the real per capita GDP is 0.01 (for the I-CAPM home bias measure), 0.06 (for the Bayesian home bias) and 0.05 (for the 'data-based' home bias), respectively. Considering that the measure of GDP growth (the logarithmic difference of real GDP per capita) changes by an average of 0.10 (in absolute terms) per year, the estimated impact of the home bias measures appears significant in economic terms. The effects appear stronger for the measures of home bias that depart from the traditional I-CAPM model. Baele et al. (2007) show that the alternative Bayesian and 'data-based' measures, change significantly the view on the extent and dynamics of home bias for a number of countries, that appear to be integrating faster in the world markets, which might explain the difference in growth effects.

In this setting, the results support the view that there is a positive and significant effect of financial integration on economic growth, when equity home bias is taken as the proxy of financial integration. Moreover, a good institutional climate (represented by a high level of shareholder protection) appears both to promote growth and to increase the response of the real variable to lower home bias (more financial integration).

## 3.2 Home Bias and International Risk Sharing

If the previous results suggest that there are benefits to *advanced* financial integration (taking the form of decreased home bias) in terms of economic growth (in levels), the process of integrating financial market has always brought about fears of disruptive effects on volatility of economic variables. These concerns are not common only to the emerging countries where more fragile institutions might heighten their vulnerability to speculative and whimsical foreign capital, but also to developed markets (Bekaert et al., 2006). This section focuses on the effects of (decreasing) home bias on the variability of consumption and GDP growth rates as well as on measures of consumption and income smoothing. Consumption smoothing is achieved when consumption growth rates are equal across countries. Similarly, income smoothing takes place when the growth rate of GNI is identical in all countries (Sørensen et al., 2007). Tests of consumption and income smoothing can therefore be based on estimating the co-movement of countries' idiosyncratic consumption/income growth with their idiosyncratic GDP growth in year $t$, based on the following relations:

$$\Delta logC_{it} - \Delta logC_t = \alpha + \eta\left(\Delta logGDP_{it} - \Delta logGDP_t\right) + \varepsilon_{it} \tag{4}$$

and

$$\Delta logGNI_{it} - \Delta logGNI_t = \alpha + \kappa\left(\Delta logGDP_{it} - \Delta logGDP_t\right) + \varepsilon_{it}. \tag{5}$$

The coefficients $\eta$ and $\kappa$ measure the extent to which GDP fluctuations are translated into consumption and income variability. The smaller the coefficient, the smaller the cost of output shocks in terms of consumption and income variability.

As a preliminary step the effects of home bias on consumption and GDP variability are investigated separately. Imbs (2006) shows that although consumption fluctuations tend to synchronize in more financially integrated countries, the effect is considerably stronger for GDP fluctuations. This has a negative effect for international risk sharing. In theory, consumption fluctuations are expected to be more correlated across countries than output fluctuations based on two reasons. First, capital is expected to chase higher returns and abandon countries with low prospects (thereby fostering a negative output correlation) and second, agents should be able to synchronize their consumption plans, through diversification. The fact that this does not occur in practise has been attributed to restrictions to capital flows that limit the diversification gains (in terms of consumption smoothing) and/or to possible failures of investors to respond to better investment opportunities (for reasons of imperfect information, for instance). Uninformed (herding) investors might, in this case, be using international financial infrastructure to synchronize rather than increase disparities in GDP fluctuations. Imbs (2006) finds that international financial linkages not only increase consumption correlations, but also (and even more so) output correlations. The author suggests that apart from a (weaker) direct and positive impact of international finance on consumption correlations (consistent with the hypothesis of risk sharing), a stronger and opposite effect of finance on (increased) output correlations drives the low risk sharing.

Bekaert et al. (2006) focus on proxies financial liberalization and find that liberalized countries do not face higher volatility in consumption growth or GDP growth then their segmented counterparts. If not always significant, the coefficients that measure the impact of financial liberalization on volatility measures, are always negative. At the very least, the results suggest that financial liberalization does not come at the cost of increased volatility of consumption and GDP growth rates. Moreover, the authors investigate the impact of financial liberalization on the ratio between consumption and GDP growth volatility as a measure of risk sharing. The relative consumption-output volatility decreases significantly with indicators of financial liberalization. These results, however, do not hold for other indicators of capital account openness.

The main question here is whether the home bias measures are relevant to the question of international risk sharing. Tables 5 and 6 that report on the impact of equity home bias on measures of consumption and output fluctuations, reinforce the findings of Imbs (2006). The measures of financial integration are linked with output fluctuations in a stronger way than with consumption fluctuations, but the results suggest that higher home bias is related with GDP variability than consumption variability (for the models 1 to 5 and especially for the 'data-based' measure). Therefore, higher financial integration appears to facilitate synchronization of output growth rates to a larger extent than consumption growth rates. Even though the statistical significance of the relationship between home bias and output growth variability is lost for the subsample that includes the Shareholder Protection Index, at the very least, it can be ascertained that financial integration does not spur higher output variability. The situation is opposite for the subsample in the case of consumption growth variability (Table 6, column 6). The direct impact of home bias on consumption growth variability is positive and statistically significant, while the relationship is mitigated in the presence of a better institutional environment.

The primary question in Sørensen et al. (2007) is whether and how (higher) financial market integration mediates consumption (and income) smoothing. To address this point, the authors estimate the risk sharing equations, (4) and (5), allowing the $\widehat{\eta}$ and $\widehat{\kappa}$ coefficients to vary over time and over one of several proxies of financial integration $FI$ (equity home bias, foreign equity holdings/GDP, foreign asset holdings/GDP, bond home bias, foreign bond holdings/GDP), as: $\eta = \eta_0 + \eta_1 (t - \bar{t}) + \eta_2 \left(FI_{it} - \overline{FI}_t\right)$ and $\kappa = \kappa_0 + \kappa_1 (t - \bar{t}) + \kappa_2 \left(FI_{it} - \overline{FI}_t\right)$, where $\bar{t}$ is the middle year of the sample period and $\overline{FI}$ is the equally weighted average of any of the five proxies for financial integration $FI_{it}$ at time $t$. Their results show that consumption risk sharing appears higher (on average) than income risk sharing, but only the latter appears significantly improved by financial markets.

The dataset of Sørensen et al. (2007) covers 18 developed markets over a period of eight years (1993-2001). In an attempt to isolate the effects of equity home bias, their methodology is applied for a dataset expanded on several dimensions: 25 countries, three measures of home bias (as proxies of financial integration) a larger period (1980-2004).

The estimated coefficients are interpreted as follows. The values of $1 - \widehat{\eta}_0$ and $1 - \widehat{\kappa}_0$ give the average risk sharing achieved. The parameters $-\widehat{\eta}_1$ and $-\widehat{\kappa}_1$ measure the average yearly increase in consumption (respectively income) smoothing. In turn, (negative) $-\widehat{\eta}_2$ and $-\widehat{\kappa}_2$ show the price paid, in terms of lower consumption (respectively income) risk sharing by countries that suffer from higher home bias. Values of the estimated coefficients are reported in percentages and as 100 times $1 - \widehat{\eta}_0$ ($\widehat{\kappa}_0$ ), $-\widehat{\eta}_1$ ($-\widehat{\kappa}_1$) and $-\widehat{\eta}_2$ ($-\widehat{\kappa}_2$). The average risk sharing is equal to 100% if risk sharing is perfect and 0 if consumption or income move in perfect synchronization with output.

Tables 7 and 8 present the results in a perfectly comparable manner to the ones reported by Sørensen et al. (2007) for panel data estimation using a feasible GLS technique to control for cross-sectional heteroskedasticity (with and without controlling for fixed effects). The results of the estimations without fixed effects are interpreted in terms of “long-run” values.

The results are high and very significant results for average risk sharing, both for consumption and income fluctuations (the latter finding differing to Sørensen et al. (2007)). Average consumption (respectively income) smoothing reaches 40% (respectively $44-48\%$) in the specification without fixed effects, and 10% (respectively 33%), when country averages are taken into account. The results also corroborate the finding that equity home bias mediates income smoothing , with a decrease in home bias by 0.1 increasing income smoothing by $4.4-4.7\%$. Moreover, the dataset reveals that high home bias is also associated with lower consumption smoothing. In a specification without fixed effects, a higher home bias by 0.1 translates into $4.7-7.9\%$ higher consumption fluctuations. The effect is much reduced (and becomes statistically insignificant) when country fixed effects are introduced, but maintains the expected sign. All the results are computed for the three alternative measures of home bias. Invariably, when the alternative (Bayesian and ‘data-based’) measures are used, the estimated coefficients are lower in magnitude. One possible interpretation comes from the fact that, these alternative measures of home bias (see Baele et al., 2007) provide a different (attenuated) picture of the phenomenon of home bias. Computed on different assumptions about the optimal investment benchmark, that allow investors to include market performance (data on asset returns) in computing optimal portfolio weights, these alternative measures suggest that actual and optimal allocations are closer than traditionally. By this token, risk sharing appears in fact higher and home bias as less costly a phenomenon. However, all the estimations show that risk sharing is far from complete and also suggest that financial integration (regardless of measurement) works in the desired direction.

### 3.3 Home Bias and Welfare Inequality

Findings that financial integration might be associated with higher economic growth and higher risk sharing, at the same time without coming at the cost of highest volatility in consumption or output, seem sufficient to recommend ever increasing integration in the world capital markets. A question that has received far less attention is whether the benefits of financial integration are redistributed towards reducing the wealth inequality in society or, on the contrary, spur larger discrepancies across the different layers of society.

For the emerging markets, the benefits from financial integration seem to have avoided the poorest layers of society. Das and Mohapatra (2003) provide evidence that the positive growth effects documented with respect to financial liberalization for a sample of 19 emerging markets (including some of the poorest countries in the world) have been appropriated entirely by the top quintile of the income distribution, leaving the income of the lowest income share effectively unchanged.

The present exercise is concerned with a different sample of countries, largely developed where more equitable redistribution systems might be at work. Moreover, the effects post-liberalization might be different than the effects of a steadily declining home bias, as a measure of *advanced* integration. Whereas in emerging countries with fragile institutions and possibly biased governments, policy based liberalization might trigger (or be designed with the clear purpose of) wealth appropriation, the decline in home bias encountered in a sample of more developed countries, might be a less arbitrary decision. The relationship between GINI coefficients (as a measure of income inequality) and the measures of home bias is investigated in the same framework as in the previous sections. Table 9 shows the results of (fixed effects) panel regressions of the change in GINI coefficients on changes in home bias and the set of control variables described in Section 3.1. The results do not speak of a better redistribution system in the dataset. The change in home bias is always negatively associated with the change in the GINI coefficient, which suggests that the benefits (and/or costs) of financial integration are unevenly distributed across different layers of society. Unfortunately the use of GINI coefficients does not make it possible to distinguish among the effects on the various income shares in the society. The effect is somewhat mitigated in the presence of higher institutional quality represented by the Shareholder Protection Index. In some of the models and for some of the measures of home bias (especially the 'data-based' measure), the effects fall short of statistical significance (albeit not by much). Therefore the results are interpreted as indicative of a (less than desirable) outcome where financial integration even in developed countries results in higher welfare inequality.

### 3.4 Endogeneity

Endogeneity concerns might be raised to the extent that financial integration occurs in response to prospects of higher economic growth. This pattern might be more common for indicators of financial liberalization as in Bekaert et al. (2005), that occurs through a conscious government decision taken at a supposedly auspicious moment in time. However, the authors do not find that liberalization occurs in times of favorable growth opportunities, but rather the opposite. The indicator of financial integration, the (decreasing) home bias is the result of the individual actions of many anonymous agents, that using certain information sets and beliefs, trade foreign equity for their own diversification purposes. Even though the result of less concerted action, home bias measures are also suspect of responding to prospects of economic growth, or even exogenously given consumption or production targets. In the absence of a clear instrument for home bias measures, they might not be completely clear of endogeneity suspicions. To alleviate somewhat these concerns, however, Granger causality tests are performed between all the dependent variables used in the models estimated in the previous sections and the measures of home bias. With respect to the relationship between economic growth and the measures of home bias, the hypothesis that home bias does not Granger Cause economic growth can be rejected at any level of significance. However, the reverse hypothesis (that economic growth does not Granger Cause home bias) cannot be rejected for all the three measures of home bias. For the 'data-based' measure though, the $p-$value is lowest (0.18), which suggest that this is the measure for which concerns of any possible reverse causality are highest. This is not unsurprising since this measure takes into account the stock market performance (the distribution of the asset returns) in computing the investment benchmark. The situation is similar for Granger causality tests on the direction from consumption fluctuations and output fluctuations to home bias measures, with the lowest $p-$values (0.27 and respectively 0.23). With respect to income fluctuations, the $p-$values are prohibitively high to reject the null, but a more precarious situation is encountered for the relationship between GINI coefficients and home bias measures. Even though the null hypothesis cannot be rejected at any of the usual levels of significance, $p-$values are for two out of three measures below 0.20.

### 3.5 EU and Euro Effects

The European Union with its advanced monetary core gives a prime example of purposeful and sustained financial integration. While no apparent link is uncovered between home bias and EU membership, Baele et al. (2007) find evidence of a substantial decrease in home bias in the Euro Area. This section asks whether the relationships between home bias and the real variables analyzed in the previous section harbor any EU or euro effects.

In order to distinguish whether membership to EU or the Euro Area mediates the relationship between home bias and economic growth, the six models proposed in Section 3.1 (see Tables 1, 2 and 3) are augmented by interaction terms of the home bias measures with EU/EMU dummy variables. Table 10 summarizes the results. In the European Union, a clear pattern emerges across all measures of home bias and all tested models: EU membership reduces the negative impact of high home bias (lack of financial integration) on economic growth, without eliminating though all the benefits in terms of growth that the member states would obtain from correcting their home bias. For the European Monetary Union, the results are less consistent. For models 1 to 4, there is no significant impact of EMU membership on the relationship between home bias and economic growth. However, for the subsample that makes the object of models 5 and 6, it becomes apparent that EMU member states suffer even higher costs in terms of economic growth due to their persisting home bias.

Regarding the relationship between home bias and GDP growth variability, the results presented in Table 11 show consistently different patterns for EU versus EMU membership. While the wider EU faces higher variability of GDP growth in the presence of home bias, in the Euro Area the impact is substantially reduced. In these conditions, also the benefits of financial integration in terms of lower output variability, though present, are smaller in the Euro Area. Importantly, it remains unlikely that financial integration could bring about destabilizing effects in terms of output variability. Taking into account the benefits in levels of economic growth, this pleads in favor of higher financial integration. On the relationship between home bias and consumption growth variability (Table 12) the results are, as in the case of the models that do not include EU/EMU effects presented in Section 3.2, generally weaker. The coefficients of the interaction terms between home bias and the EU/EMU dummy variable are in most cases statistically insignificant. When significant, they follow the same pattern as in the case of GDP growth variability. These results reinforce the conclusion that within the EU and EMU as well as for the entire sample, GDP growth variability is more sensitive to the dynamics of financial integration than consumption growth variability, with possible negative effects on international risk sharing.

In order to ascertain whether EU or EMU are better placed in terms of international risk sharing, the models proposed by Sørensen et al. (2007) are re-estimated for sample restricted to the member states of EU and the Euro Area. The results for consumption risk sharing are presented in Tables 13 (for the subsample of EU member states) and 14 (for the subsample of EMU member states). Average consumption smoothing is not essentially different for EU/EMU member states compared to the full sample. In a specification without fixed effects, average risk sharing reaches $31-34\%$ (in the EU sample) and $37-40\%$ (in the Euro Area countries) compared to 40% for the entire set. A remarkable difference comes with respect to the contribution of home bias to increasing consumption smoothing. Across all the models and home bias measures, the average gains due to decreasing home bias are larger by 153% (in the EU) and 170% (in the Euro Area) then in the complete dataset (see Table 7). On the other hand, with respect to income smoothing, no significant effect of (decreasing) home bias is found in the EU member states or in the Euro Area subsample (Tables 15 and 16). Similarly, the search for EU/EMU effects mediating the relationship between home bias and income inequality brings about inconclusive results (Table 17).

The overall analysis on EU/EMU effects across the various real dependent variables provides few clear patterns. They mark a certain difference between the wider EU and the more recently and strongly integrated Euro Area, especially when it comes to impact of home bias on economic growth. A better integrated monetary union appears to be less exposed to the negative effects of (higher) home bias on economic growth, but at the same time, to benefit the most from integration in terms of consumption smoothing.

# 4 Concluding Remarks

This paper introduces a new proxy to the continuing empirical debate on the real effects of financial market integration, namely the equity home bias. The first variable of interest is economic growth. The empirical results in the field are consistently volatile and at odds with theoretical arguments that financial integration should foster higher economic growth. The lack of robustness of empirical results so far is frequently linked to the difficulty in measuring accurately the process of financial market integration. So far, convincing results have been provided only related to one aspect of financial integration, namely financial liberalization (of emerging markets). Recognizing the impossibility of reducing the complex process of financial integration to a single measure, this paper suggests that the dynamics of the equity home bias are relevant for measuring important aspects of financial integration, especially at more advanced stages than financial liberalization. It is generally agreed that home bias behavior is not compatible with a paradigm of fully integrated markets. Therefore, the existence of home bias suggests that optimal cross-borders transactions in equity continue to be hindered by various barriers to integration. The decreasing trend in home bias has been related to financial integration by several authors (Adam et al., 2002; De Santis and Gérard, 2006; Baele et al., 2007). In this paper, the equity home bias is taken as a relevant proxy of *effective* equity market integration. Equity home bias differs from the traditional quantity-based measures of integration given by the actual stocks or flows of foreign capital in an important way. By construction, home bias compares the actual foreign holdings with a theoretically optimal investment benchmark. In the race towards financial integration, home bias does not merely offer information on the distance covered but rather how close or far countries are from their destination. The result is a changed perspective on the extent of financial market integration compared to the traditional quantity-based measures used in the literature. Moreover, it has been shown recently by Sørensen et al. (2007) that countries with lower levels of home bias achieve higher international risk sharing. As financial market integration is expected to influence economic growth through facilitating better international risk sharing, this paper investigates whether countries with lower home bias enjoy higher economic growth. The results for a dataset of 25 countries support the view that financial market integration, proxied by the decreasing home bias has positive effects on economic growth, that are significant both in economic and statistical terms. Moroever, these positive level effects are accompanied by benefits in terms of higher international risk sharing. An often expected cost of financial integration refers to the higher variability of consumption and/or output. No evidence of such costs is found by this analysis. However, the results do point towards one (less than desirable) outcome of (decreasing) home bias, namely higher income inequality.

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Table 1: **GDP Growth and I-CAPM Home Bias**

This table reports the results of (fixed effects) panel regressions of annual growth rate of real GDP per capita on the home bias measure computed in I-CAPM framework (HB I) as well a set of control variables including: the previous year level of GDP, the previous year level of schooling (SCHOOL), inflation (INFL), investment ratio to GDP (INVRATIO), population growth (POPGROWTH), private credit by deposit money banks as a share of GDP (PRIVCRED), as well as the Shareholder Protection Index (SHLD PROT) and an interaction term between the Shareholder Protection Index and the measure of home bias. The results are obtained through feasible GLS, to control for cross-section heteroskedasticity. Values of the coefficients, T-statistics (standard errors are corrected for period heteroskedasticity and serial correlation) and adjusted $R^2$, are reported. Significance of the coefficients is denoted by *** (at 1%), ** (at 5%) and * (at 10%).

| **Dependent Variable** | **Real per capita GDP Growth** | | | | | |
|---|---|---|---|---|---|---|
| | **-1-** | **-2-** | **-3-** | **-4-** | **-5-** | **-6-** |
| No. Obs. | 338 | 334 | 334 | 326 | 224 | 224 |
| **HB I** | **-0.12**** | **-0.14***** | **-0.16**** | **-0.15***** | **-0.08** | **2.04**** |
| (Std. Err.) | (0.05) | (0.05) | (0.05) | (0.05) | (0.07) | (1.02) |
| **HB I×SHLD PROT** | | | | | | **-0.78**** |
| (Std. Err.) | | | | | | (0.38) |
| GDP(-1) | -0.15*** | -0.15*** | -0.15*** | -0.18*** | -0.22*** | -0.23*** |
| (Std. Err.) | (0.03) | (0.02) | (0.03) | (0.03) | (0.04) | (0.04) |
| SCHOOL(-1) | 0.18 | 0.01 | 0.01 | -0.16 | -0.14 | -0.15 |
| (Std. Err.) | (0.20) | (0.19) | (0.19) | (0.20) | (0.26) | (0.26) |
| INFL | -0.03*** | -0.03*** | -0.05*** | -0.03*** | -0.01* | -0.01* |
| (Std. Err.) | (0.01) | (0.01) | (0.01) | (0.01) | (0.00) | (0.01) |
| INVRATIO | | 0.14*** | 0.14*** | 0.14*** | 0.23*** | 0.24*** |
| (Std. Err.) | | (0.04) | (0.04) | (0.04) | (0.05) | (0.05) |
| POPGROWTH | | | -0.01*** | -0.01*** | -0.00 | -0.00 |
| (Std. Err.) | | | (0.00) | (0.00) | (0.03) | (0.02) |
| PRIVCRED | | | | 0.08** | -0.02 | -0.02 |
| (Std. Err.) | | | | (0.03) | (0.03) | (0.03) |
| SHLD PROT | | | | | 0.20*** | 0.79*** |
| (Std. Err.) | | | | | (0.06) | (0.29) |
| Adj $R^2$ | 25% | 28% | 30% | 33% | 32% | 33% |

Table 2: **GDP Growth and Bayesian Home Bias**

This table reports the results of (fixed effects) panel regressions of annual growth rate of real GDP per capita on the home bias measure computed by applying the Multi-Prior correction to the Bayesian approach (HB B) as well a set of control variables including: the previous year level of GDP, the previous year level of schooling (SCHOOL), inflation (INFL), investment ratio to GDP (INVRATIO), population growth (POPGROWTH), private credit by deposit money banks as a share of GDP (PRIVCRED), as well as the Shareholder Protection Index (SHLD PROT) and an interaction term between the Shareholder Protection Index and the measure of home bias. The results are obtained through feasible GLS, to control for cross-section heteroskedasticity. Values of the coefficients, T-statistics (standard errors are corrected for period heteroskedasticity and serial correlation) and adjusted $R^2$, are reported. Significance of the coefficients is denoted by *** (at 1%), ** (at 5%) and * (at 10%).

| **Dependent Variable** | **Real per capita GDP Growth** | | | | | |
|---|---|---|---|---|---|---|
| | **-1-** | **-2-** | **-3-** | **-4-** | **-5-** | **-6-** |
| No. Obs. | 338 | 334 | 334 | 326 | 224 | 224 |
| **HB B** | **-0.07*** | **-0.07*** | **-0.08**** | **-0.08**** | **-0.11**** | **1.46**** |
| (Std. Err.) | (0.04) | (0.04) | (0.04) | (0.04) | (0.05) | (0.72) |
| **HB B×SHLD PROT** | | | | | | **-0.58**** |
| (Std. Err.) | | | | | | (0.27) |
| GDP(-1) | -0.14*** | -0.14*** | -0.14*** | -0.17*** | -0.24*** | -0.24*** |
| (Std. Err.) | (0.03) | (0.03) | (0.03) | (0.03) | (0.04) | (0.04) |
| SCHOOL(-1) | 0.10 | 0.01 | 0.05 | -0.13 | -0.20 | -0.21 |
| (Std. Err.) | (0.19) | (0.19) | (0.19) | (0.20) | (0.25) | (0.25) |
| INFL | -0.03*** | -0.03*** | -0.03*** | -0.03*** | -0.01 | -0.00 |
| (Std. Err.) | (0.01) | (0.01) | (0.01) | (0.04) | (0.00) | (0.00) |
| INVRATIO | | 0.14*** | 0.13*** | 0.13*** | 0.20*** | 0.22*** |
| (Std. Err.) | | (0.05) | (0.05) | (0.05) | (0.04) | (0.04) |
| POPGROWTH | | | -0.01*** | -0.01*** | -0.00 | -0.00 |
| (Std. Err.) | | | (0.00) | (0.00) | (0.02) | (0.02) |
| PRIVCRED | | | | 0.08** | -0.02 | -0.03 |
| (Std. Err.) | | | | (0.03) | (0.03) | (0.03) |
| SHLD PROT | | | | | 0.19*** | 0.59*** |
| (Std. Err.) | | | | | (0.06) | (0.19) |
| Adj $R^2$ | 24% | 26% | 28% | 31% | 34% | 35% |

Table 3: **GDP Growth and 'Data-based' Home Bias**

This table reports the results of (fixed effects) panel regressions of annual growth rate of real GDP per capita on the home bias measure computed by applying the Multi-Prior correction to the 'data-based' approach (HB D) as well a set of control variables including: the previous year level of GDP, the previous year level of schooling (SCHOOL), inflation (INFL), investment ratio to GDP (INVRATIO), population growth (POPGROWTH), private credit by deposit money banks as a share of GDP (PRIVCRED), as well as the Shareholder Protection Index (SHLD PROT) and an interaction term between the Shareholder Protection Index and the measure of home bias. The results are obtained through feasible GLS, to control for cross-section heteroskedasticity. Values of the coefficients, standard errors (corrected for period heteroskedasticity and serial correlation) and adjusted $R^2$, are reported. Significance of the coefficients is denoted by *** (at 1%), ** (at 5%) and * (at 10%).

| **Dependent Variable** | | | **Real per capita GDP Growth** | | | |
|---|---|---|---|---|---|---|
| | **-1-** | **-2-** | **-3-** | **-4-** | **-5-** | **-6-** |
| No. Obs. | 333 | 329 | 329 | 321 | 224 | 224 |
| **HB D** | **-0.11**** | **-0.11***** | **-0.12***** | **-0.10***** | **-0.09**** | **1.38**** |
| (Std. Err.) | (0.03) | (0.03) | (0.03) | (0.03) | (0.04) | (0.57) |
| **HB D×SHLD PROT** | | | | | | **-0.54**** |
| (Std. Err.) | | | | | | (0.21) |
| GDP(-1) | -0.18*** | -0.18*** | -0.18*** | -0.20*** | -0.25*** | -0.25*** |
| (Std. Err.) | (0.03) | (0.03) | (0.03) | (0.03) | (0.04) | (0.04) |
| SCHOOL(-1) | -0.10 | -0.12 | -0.13 | -0.26 | -0.19 | -0.24 |
| (Std. Err.) | (0.19) | (0.19) | (0.19) | (0.19) | (0.24) | (0.24) |
| INFL | -0.02*** | -0.03*** | -0.02*** | -0.02*** | -0.00 | -0.01 |
| (Std. Err.) | (0.01) | (0.01) | (0.01) | (0.01) | (0.00) | (0.01) |
| INVRATIO | | 0.13*** | 0.12*** | 0.12*** | 0.20*** | 0.23*** |
| (Std. Err.) | | (0.05) | (0.05) | (0.01) | (0.04) | (0.05) |
| POPGROWTH | | | -0.01*** | -0.01*** | -0.00 | -0.00 |
| (Std. Err.) | | | (0.00) | (0.00) | (0.02) | (0.02) |
| PRIVCRED | | | | 0.08*** | -0.03 | -0.04 |
| (Std. Err.) | | | | (0.03) | (0.03) | (0.03) |
| SHLD PROT | | | | | 0.19*** | 0.53*** |
| (Std. Err.) | | | | | (0.06) | (0.15) |
| Adj $R^2$ | 30% | 30% | 34% | 35% | 35% | 36% |

Table 4: **Impact of Home Bias Measures on GDP Growth**

This table presents estimates of annual changes in GDP Growth, given the observed annual changes in the home bias measures, based on the estimation results presented in Tables 1, 2 and 3.

| **Home Bias Measure** | **Annual Change in GDP Growth** | | | | | |
|---|---|---|---|---|---|---|
| | **-1-** | **-2-** | **-3-** | **-4-** | **-5-** | **-6-** |
| **HB I** | 0.03 | 0.03 | 0.04 | 0.04 | 0.02 | 0.01 |
| **HB B** | 0.06 | 0.06 | 0.07 | 0.07 | 0.10 | 0.06 |
| **HB D** | 0.14 | 0.14 | 0.15 | 0.13 | 0.11 | 0.05 |

Table 5: **Home Bias and GDP Growth Variability**

This table presents the results of (fixed effects) panel regressions of GDP variability, defined as $\Delta logGDP_{it} - \Delta logGDP_t$ (Sørensen et al., 2007) on the home bias measures computed: (a) in the I-CAPM framework (HB I), (b) by applying the Multi-Prior correction to the Bayesian approach (HB B) and (c) by applying the Multi-Prior correction to the 'data-based' approach (HB D). The models 1 to 6 are the same as Tables 1, 2 and 3, and include a set of basic control variables: the previous year level of GDP, the previous year level of schooling, inflation (model 1) augmented with the following variables: investment ratio to GDP (model 2), population growth (model 3), private credit by deposit money banks as a share of GDP (model 4), as well as the Shareholder Protection Index (model 5) and an interaction term between the Shareholder Protection Index and the measure of home bias (model 6). The results are obtained through feasible GLS, to control for cross-section heteroskedasticity. Values of the coefficients and standard errors (corrected for period heteroskedasticity and serial correlation) are reported. Significance of the coefficients is denoted by *** (at 1%), ** (at 5%) and * (at 10%).

| **Dependent Variable** | $\Delta GDP_{it} - \Delta GDP_t$ | | | | | |
|---|---|---|---|---|---|---|
| | **-1-** | **-2-** | **-3-** | **-4-** | **-5-** | **-6-** |
| No. Obs. | 348 | 347 | 329 | 326 | 224 | 224 |
| | | | | | | |
| **HB I** | 0.12*** | 0.10** | 0.10** | 0.10** | 0.04 | -0.18 |
| (Std. Err.) | (0.03) | (0.04) | (0.04) | (0.04) | (0.03) | (0.35) |
| **HB I×SHLD PROT** | | | | | | 0.08 |
| (Std. Err.) | | | | | | (0.13) |
| **HB B** | 0.09*** | 0.08*** | 0.08*** | 0.08*** | 0.02 | -0.19 |
| (Std. Err.) | (0.02) | (0.03) | (0.02) | (0.02) | (0.02) | (0.25) |
| **HB B×SHLD PROT** | | | | | | 0.08 |
| (Std. Err.) | | | | | | (0.09) |
| **HB D** | 0.05*** | 0.04 | 0.04 | 0.04 | 0.03 | 0.04 |
| (Std. Err.) | (0.02) | (0.02) | (0.02) | (0.02) | (0.02) | (0.20) |
| **HB D×SHLD PROT** | | | | | | -0.00 |
| (Std. Err.) | | | | | | (0.07) |

Table 6: **Home Bias and Consumption Growth Variability**

This table presents the results of (fixed effects) panel regressions of consumption growth variability, defined as $\Delta logC_{it} - \Delta logC_t$ (Sørensen et al., 2007) on the home bias measures computed: (a) in the I-CAPM framework (HB I), (b) by applying the Multi-Prior correction to the Bayesian approach (HB B) and (c) by applying the Multi-Prior correction to the 'data-based' approach (HB D). The models 1 to 6 are the same as Tables 1, 2 and 3, and include a set of basic control variables: the previous year level of GDP, the previous year level of schooling, inflation (model 1) augmented with the following variables: investment ratio to GDP (model 2), population growth (model 3), private credit by deposit money banks as a share of GDP (model 4), as well as the Shareholder Protection Index (model 5) and an interaction term between the Shareholder Protection Index and the measure of home bias (model 6). The results are obtained through feasible GLS, to control for cross-section heteroskedasticity. Values of the coefficients and standard errors (corrected for period heteroskedasticity and serial correlation) are reported. Significance of the coefficients is denoted by *** (at 1%), ** (at 5%) and * (at 10%).

| **Dependent Variable** | $\Delta logC_{it} - \Delta logC_t$ | | | | | |
|---|---|---|---|---|---|---|
| | **-1-** | **-2-** | **-3-** | **-4-** | **-5-** | **-6-** |
| No. Obs. | 343 | 334 | 329 | 321 | 224 | 224 |
| **HB I** | 0.10*** | 0.07** | 0.07* | 0.07* | 0.03 | 0.67** |
| (Std. Err.) | (0.03) | (0.04) | (0.04) | (0.04) | (0.04) | (0.31) |
| **HB I×SHLD PROT** | | | | | | -0.24** |
| (Std. Err.) | | | | | | (0.12) |
| **HB B** | 0.07*** | 0.05* | 0.05* | 0.05* | 0.00 | 0.40* |
| (Std. Err.) | (0.02) | (0.03) | (0.03) | (0.03) | (0.03) | (0.22) |
| **HB B×SHLD PROT** | | | | | | -0.15* |
| (Std. Err.) | | | | | | (0.08) |
| **HB D** | 0.01 | -0.00 | -0.00 | -0.00 | -0.00 | 0.39** |
| (Std. Err.) | (0.02) | (0.02) | (0.02) | (0.02) | (0.02) | (0.19) |
| **HB D×SHLD PROT** | | | | | | -0.15** |
| (Std. Err.) | | | | | | (0.06) |

Table 7: **Home Bias and International Risk Sharing: Consumption Smoothing**

This table presents estimates of international risk sharing based on the panel data regressions of the following consumption smoothing model proposed by Sørensen et al. (2007):

$$\Delta logC_{it} - \Delta logC_t = \alpha + \eta \left(\Delta logGDP_{it} - \Delta logGDP_t\right) + \varepsilon_{it},$$

where $\eta = \eta_0 + \eta_1 \left(t - \bar{t}\right) + \eta_2 \left(HB_{it} - \overline{HB}_t\right)$ . The reported estimates of risk sharing are computed as 100 times $1 - \eta_0$ (average risk sharing), $-\eta_1$ (trend) and $-\eta_2$, that corresponds to the amount gained in risk sharing if equity home bias would decrease from 1 (when home bias is complete) to 0 (no home bias). The results are obtained through feasible GLS, to control for cross-section heteroskedasticity. T-statistics (based on standard errors corrected for period heteroskedasticity and serial correlation) corresponding to the coefficients $\widehat{\eta}_0$, $\widehat{\eta}_1$ and $\widehat{\eta}_2$ are reported in brackets.

| **Consumption Smoothing** | | | **Interaction Terms** | |
|---|---|---|---|---|
| | Country Fixed Effects | Average Risk Sharing | Trend | **Home Bias** |
| | | (T-stat) | (T-stat) | (T-stat) |
| No. obs. | 373 | | | |
| | Yes | 10.34 | -0.36 | -9.71 |
| HB I | | (23.27) | (1.40) | (0.79) |
| | No | 40.71 | -1.15 | -79.74 |
| | | (6.71) | (1.99) | (2.57) |
| HB B | Yes | 10.36 | -0.37 | -5.12 |
| | | (23.35) | (1.43) | (0.65) |
| | No | 41.62 | -1.20 | -51.64 |
| | | (6.66) | (2.06) | (2.53) |
| HB D | Yes | 10.28 | 0.35 | -4.03 |
| | | (20.62) | (1.31) | (0.53) |
| | No | 40.85 | -1.11 | -47.41 |
| | | (6.36) | (1.81) | (2.44) |

Table 8: **Home Bias and International Risk Sharing: Income Smoothing**

This table presents estimates of international risk sharing based on the panel data regressions of the following income smoothing model proposed by Sørensen et al. (2007):

$$\Delta logGNI_{it} - \Delta logGNI_{t} = \alpha + \kappa \left(\Delta logGDP_{it} - \Delta logGDP_{t}\right) + \varepsilon_{it},$$

where $\kappa = \kappa_0 + \kappa_1 \left(t - \bar{t}\right) + \kappa_2 \left(HB_{it} - \overline{HB}_t\right)$. The reported estimates of risk sharing are computed as 100 times $1 - \kappa_0$ (average risk sharing), $-\kappa_1$ (trend) and $-\kappa_2$, that corresponds to the amount gained in risk sharing if equity home bias would decrease from 1 (when home bias is complete) to 0 (no home bias). The results are obtained through feasible GLS, to control for cross-section heteroskedasticity. T-statistics (based on standard errors corrected for period heteroskedasticity and serial correlation) corresponding to the coefficients $\widehat{\kappa}_0$, $\widehat{\kappa}_1$ and $\widehat{\kappa}_2$ are reported in brackets.

| **Income Smoothing** | | | **Interaction Terms** | |
|---|---|---|---|---|
| | Country Fixed Effects | Average Risk Sharing | Trend | **Home Bias** |
| No. obs. | 377 | | | |
| | Yes | 44.91 | 0.52 | -44.69 |
| HB I | | (7.97) | (-1.09) | (2.15) |
| | No | 33.45 | 0.49 | -47.48 |
| | | (10.19) | (-0.97) | (2.36) |
| HB B | Yes | 48.78 | 0.49 | -19.14 |
| | | (8.02) | (-1.02) | (1.43) |
| | No | 33.54 | -0.40 | -20.94 |
| | | (10.28) | (-0.81) | (1.65) |
| HB D | Yes | 48.89 | 0.47 | -15.85 |
| | | (7.45) | (-0.91) | (1.29) |
| | No | 34.35 | -0.35 | -18.71 |
| | | (9.57) | (-0.67) | (1.66) |

Table 9: **Home Bias and Income Inequality**

This table reports the results of (fixed effects) panel regressions of annual change in the GINI coefficient on the change in the home bias measures computed: (a) in the I-CAPM framework (HB I), (b) by applying the Multi-Prior correction to the Bayesian approach (HB B) and (c) by applying the Multi-Prior correction to the 'data-based' approach (HB D). The models 1 to 6 are the same as Tables 1, 2 and 3, and include a set of basic control variables: the previous year level of GDP, the previous year level of schooling, inflation (model 1) augmented with the following variables: investment ratio to GDP (model 2), population growth (model 3), private credit by deposit money banks as a share of GDP (model 4), as well as the Shareholder Protection Index (model 5) and an interaction term between the Shareholder Protection Index and the measure of home bias (model 6). Values of the coefficients and standard errors (corrected for period heteroskedasticity and serial correlation) are reported. Significance of the coefficients is denoted by *** (at 1%), ** (at 5%) and * (at 10%).

| **Dep Var** | | | $\Delta\,(GINI)$ | | | |
|---|---|---|---|---|---|---|
| | **-1-** | **-2-** | **-3-** | **-4-** | **-5-** | **-6-** |
| No Obs. | 170 | 170 | 170 | 162 | 135 | 135 |
| | | | | | | |
| **Δ(HB I)** | -7.26** | -7.31* | -7.46* | -5.86 | -5.53 | -22.49 |
| (Std. Err.) | (3.53) | (3.79) | (3.81) | (4.06) | (4.56) | (16.75) |
| **Δ(HB I)×SHLD PROT** | | | | | | 1.26 |
| (Std. Err.) | | | | | | (1.17) |
| **Δ(HB B)** | -5.33** | -5.38* | -5.49* | -4.49 | -4.49 | -19.97 |
| (Std. Err.) | (2.82) | (3.05) | (3.07) | (3.22) | (3.22) | (13.85) |
| **Δ(HB B)×SHLD PROT** | | | | | | 1.10 |
| (Std. Err.) | | | | | | (0.84) |
| **Δ(HB D)** | -3.93 | -3.93 | -4.05 | -3.57 | -3.70 | -23.48* |
| (Std. Err.) | (2.46) | (2.58) | (2.70) | (2.77) | (3.22) | (-13.38) |
| **Δ(HB D)×SHLD PROT** | | | | | | 1.34* |
| (Std. Err.) | | | | | | (0.77) |

Table 10: **Home Bias and GDP Growth: EU and Euro Effects**

This table reports the results of (fixed effects) panel regressions of annual growth rate of real GDP per capita on the home bias measures computed: (a) in the I-CAPM framework (HB I), (b) by applying the Multi-Prior correction to the Bayesian approach (HB B) and (c) by applying the Multi-Prior correction to the 'data-based' approach (HB D). Interaction terms between the home bias measures and EU/EMU dummy variables - I(EU/EMU) - are added to models 1 to 6 that have been presented in Tables 1, 2 and 3, and include a set of basic control variables: the previous year level of GDP, the previous year level of schooling, inflation (model 1) augmented with the following variables: investment ratio to GDP (model 2), population growth (model 3), private credit by deposit money banks as a share of GDP (model 4), as well as the Shareholder Protection Index (model 5) and an interaction term between the Shareholder Protection Index and the measure of home bias (model 6). The results are obtained through feasible GLS, to control for cross-section heteroskedasticity. Values of the coefficients and standard errors (corrected for period heteroskedasticity and serial correlation) are reported. Significance of the coefficients is denoted by *** (at 1%), ** (at 5%) and * (at 10%).

| **Dependent Variable** | Real per capita GDP Growth | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **-1-** | | **-2-** | | **-3-** | | **-4-** | | **-5-** | | **-6-** | |
| No Obs. | 338 | | 334 | | 334 | | 326 | | 224 | | 224 | |
| **HB I** | -0.13** | -0.12** | -0.16*** | -0.14*** | -0.18*** | -0.16*** | -0.16*** | -0.16*** | -0.12 | -0.10 | 2.38** | 2.47** |
| (Std. Err.) | (0.05) | (0.05) | (0.05) | (0.05) | (0.05) | (0.05) | (0.05) | (0.05) | (0.07) | (0.07) | (1.02) | (1.02) |
| **HB I×SHLD PROT** | | | | | | | | | | | -0.92** | -0.95** |
| (Std. Err.) | | | | | | | | | | | (0.38) | (0.38) |
| **HB I×I(EU)** | 0.06* | | 0.07** | | 0.07** | | 0.11*** | | 0.08** | | 0.10*** | |
| (Std. Err.) | (0.03) | | (0.03) | | (0.03) | | (0.03) | | (0.04) | | (0.04) | |
| **HB I×I(EMU)** | | -0.01 | | -0.01 | | -0.01 | | -0.01 | | -0.08** | | -0.09*** |
| (Std. Err.) | | (0.03) | | (0.03) | | (0.03) | | (0.03) | | (0.03) | | (0.03) |
| **HB B** | -0.09** | -0.07* | -0.09** | -0.07* | -0.10*** | -0.09** | -0.09** | -0.08** | -0.15*** | -0.11** | 1.61** | 1.59** |
| (Std. Err.) | (0.04) | (0.04) | (0.04) | (0.04) | (0.04) | (0.04) | (0.04) | (0.04) | (0.05) | (0.05) | (0.71) | (0.71) |
| **HB B×SHLD PROT** | | | | | | | | | | | -0.64** | -0.62** |
| (Std. Err.) | | | | | | | | | | | (0.27) | (0.26) |
| **HB B×I(EU)** | 0.07*** | | 0.07** | | 0.07** | | 0.07*** | | 0.09*** | | 0.11*** | |
| (Std. Err.) | (0.03) | | (0.03) | | (0.03) | | (0.03) | | (0.04) | | (0.04) | |
| **HB B×I(EMU)** | | -0.02 | | -0.02 | | -0.02 | | -0.02 | | -0.08** | | -0.09*** |
| (Std. Err.) | | (0.03) | | (0.03) | | (0.03) | | (0.03) | | (0.04) | | (0.03) |
| **HB D** | -0.13*** | -0.11*** | -0.13*** | -0.11*** | -0.14*** | -0.12*** | -0.13*** | -0.10*** | -0.12*** | -0.09** | 1.55*** | 1.35** |
| (Std. Err.) | (0.03) | (0.03) | (0.04) | (0.03) | (0.04) | (0.03) | (0.03) | (0.03) | (0.05) | (0.04) | (0.57) | (0.56) |
| **HB D×SHLD PROT** | | | | | | | | | | | -0.61*** | -0.52** |
| (Std. Err.) | | | | | | | | | | | (0.21) | (0.21) |
| **HB D×I(EU)** | 0.06* | | 0.06** | | 0.07** | | 0.11*** | | 0.09*** | | 0.12*** | |
| (Std. Err.) | (0.03) | | (0.03) | | (0.03) | | (0.03) | | (0.04) | | (0.04) | |
| **HB D×I(EMU)** | | -0.03 | | -0.03 | | -0.03 | | -0.02 | | -0.08** | | -0.08** |
| (Std. Err.) | | (0.03) | | (0.03) | | (0.03) | | (0.03) | | (0.04) | | (0.04) |

Table 11: **Home Bias and GDP Growth Variability: EU and Euro Effects**

This table presents the results of (fixed effects) panel regressions of GDP variability, defined as $\Delta logGDP_{it} - \Delta logGDP_t$ (Sørensen et al., 2007) on the home bias measures computed: (a) in the I-CAPM framework (HB I), (b) by applying the Multi-Prior correction to the Bayesian approach (HB B) and (c) by applying the Multi-Prior correction to the 'data-based' approach (HB D). Interaction terms between the home bias measures and EU/EMU dummy variables - I(EU/EMU) - are added to models 1 to 6 that have been presented in Tables 1, 2 and 3, and include a set of basic control variables: the previous year level of GDP, the previous year level of schooling, inflation (model 1) augmented with the following variables: investment ratio to GDP (model 2), population growth (model 3), private credit by deposit money banks as a share of GDP (model 4), as well as the Shareholder Protection Index (model 5) and an interaction term between the Shareholder Protection Index and the measure of home bias (model 6). The results are obtained through feasible GLS, to control for cross-section heteroskedasticity. Values of the coefficients and standard errors (corrected for period heteroskedasticity and serial correlation) are reported. Significance of the coefficients is denoted by *** (at 1%), ** (at 5%) and * (at 10%).

| **Dependent Variable** | $\Delta GDP_{it} - \Delta GDP_t$ | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **-1-** | | **-2-** | | **-3-** | | **-4-** | | **-5-** | | **-6-** | |
| No. Obs. | 348 | | 347 | | 329 | | 326 | | 224 | | 224 | |
| **HB I** | 0.11*** | 0.11*** | 0.09** | 0.08* | 0.09* | 0.08* | 0.08* | 0.08* | 0.03 | 0.05* | -0.03 | 0.22 |
| (Std. Err.) | (0.03) | (0.03) | (0.04) | (0.04) | (0.04) | (0.04) | (0.04) | (0.04) | (0.03) | (0.03) | (0.36) | (0.34) |
| **HB I×SHLD PROT** | | | | | | | | | | | 0.02 | -0.06 |
| (Std. Err.) | | | | | | | | | | | (0.14) | (0.13) |
| **HB I×I(EU)** | 0.03* | | 0.04** | | 0.04** | | 0.04** | | 0.03* | | 0.03* | |
| (Std. Err.) | (0.02) | | (0.02) | | (0.02) | | (0.02) | | (0.02) | | (0.02) | |
| **HB I×I(EMU)** | | -0.05** | | -0.06*** | | -0.06*** | | -0.05*** | | -0.06*** | | -0.06*** |
| (Std. Err.) | | (0.01) | | (0.01) | | (0.01) | | (0.01) | | (0.01) | | (0.01) |
| **HB B** | 0.08*** | 0.10*** | 0.06* | 0.08*** | 0.06* | 0.08*** | 0.06* | 0.08*** | -0.00 | 0.05** | -0.13 | -0.03 |
| (Std. Err.) | (0.03) | (0.02) | (0.03) | (0.03) | (0.03) | (0.02) | (0.03) | (0.03) | (0.03) | (0.02) | (0.25) | (0.25) |
| **HB B×SHLD PROT** | | | | | | | | | | | 0.05 | 0.03 |
| (Std. Err.) | | | | | | | | | | | (0.09) | (0.09) |
| **HB B×I(EU)** | 0.03 | | 0.04** | | 0.04** | | 0.04** | | 0.04** | | 0.03* | |
| (Std. Err.) | (0.02) | | (0.02) | | (0.02) | | (0.02) | | (0.02) | | (0.02) | |
| **HB B×I(EMU)** | | -0.06*** | | -0.07** | | -0.07*** | | -0.07*** | | -0.07*** | | -0.07*** |
| (Std. Err.) | | (0.01) | | (0.01) | | (0.01) | | (0.01) | | (0.01) | | (0.01) |
| **HB D** | 0.04* | 0.06*** | 0.01 | 0.04 | 0.01 | 0.04 | 0.01 | 0.03 | 0.01 | 0.06** | 0.10 | 0.06 |
| (Std. Err.) | (0.02) | (0.02) | (0.03) | (0.02) | (0.03) | (0.02) | (0.03) | (0.02) | (0.03) | (0.02) | (0.20) | (0.21) |
| **HB D×SHLD PROT** | | | | | | | | | | | -0.04 | 0.00 |
| (Std. Err.) | | | | | | | | | | | (0.08) | (0.07) |
| **HB D×I(EU)** | 0.03 | | 0.04** | | 0.04** | | 0.04** | | 0.04** | | 0.04** | |
| (Std. Err.) | (0.02) | | (0.02) | | (0.02) | | (0.02) | | (0.02) | | (0.02) | |
| **HB D×I(EMU)** | | -0.06*** | | -0.07*** | | -0.07 | | -0.06*** | | -0.06*** | | -0.06*** |
| (Std. Err.) | | (0.03) | | (0.01) | | (0.01)*** | | (0.01) | | (0.02) | | (0.02) |

Table 12: **Home Bias and Consumption Growth Variability: EU and Euro Effects**

This table presents the results of (fixed effects) panel regressions of consumption growth variability, defined as $\Delta logC_{it} - \Delta logC_t$ (Sørensen et al., 2007) on the home bias measures computed: (a) in the I-CAPM framework (HB I), (b) by applying the Multi-Prior correction to the Bayesian approach (HB B) and (c) by applying the Multi-Prior correction to the 'data-based' approach (HB D). Interaction terms between the home bias measures and EU/EMU dummy variables - I(EU/EMU) - are added to models 1 to 6 that have been presented in Tables 1, 2 and 3, and include a set of basic control variables: the previous year level of GDP, the previous year level of schooling, inflation (model 1) augmented with the following variables: investment ratio to GDP (model 2), population growth (model 3), private credit by deposit money banks as a share of GDP (model 4), as well as the Shareholder Protection Index (model 5) and an interaction term between the Shareholder Protection Index and the measure of home bias (model 6). The results are obtained through feasible GLS, to control for cross-section heteroskedasticity. Values of the coefficients and standard errors (corrected for period heteroskedasticity and serial correlation) are reported. Significance of the coefficients is denoted by *** (at 1%), ** (at 5%) and * (at 10%).

| **Dependent Variable** | $\Delta logC_{it} - \Delta logC_t$ | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **-1-** | | **-2-** | | **-3-** | | **-4-** | | **-5-** | | **-6-** | |
| No. Obs. | 348 | | 347 | | 329 | | 326 | | 224 | | 224 | |
| **HB I** | 0.10*** | 0.10*** | 0.07* | 0.07* | 0.07* | 0.07* | 0.07* | 0.07* | 0.04 | 0.03 | 0.74** | 0.80** |
| (Std. Err.) | (0.03) | (0.03) | (0.04) | (0.04) | (0.04) | (0.04) | (0.04) | (0.04) | (0.04) | (0.03) | (0.33) | (0.33) |
| **HB I×SHLD PROT** | | | | | | | | | | | -0.27** | -0.29** |
| (Std. Err.) | | | | | | | | | | | (0.12) | (0.12) |
| **HB I×I(EU)** | -0.01 | | 0.00 | | 0.00 | | 0.01 | | -0.00 | | 0.01 | |
| (Std. Err.) | (0.02) | | (0.02) | | (0.02) | | (0.02) | | (0.02) | | (0.02) | |
| **HB I×I(EMU)** | | -0.00 | | -0.02 | | -0.01 | | 0.00 | | -0.02 | | -0.02* |
| (Std. Err.) | | (0.01) | | (0.01) | | (0.01) | | (0.01) | | (0.01) | | (0.01) |
| **HB B** | 0.08*** | 0.08*** | 0.05* | 0.05* | 0.05* | 0.05* | 0.05 | 0.05* | -0.00 | 0.01 | 0.43* | 0.45* |
| (Std. Err.) | (0.03) | (0.02) | (0.03) | (0.03) | (0.03) | (0.03) | (0.03) | (0.03) | (0.03) | (0.03) | (0.23) | (0.23) |
| **HB B×SHLD PROT** | | | | | | | | | | | -0.17* | -0.17* |
| (Std. Err.) | | | | | | | | | | | (0.09) | (0.08) |
| **HB B×I(EU)** | -0.02 | | -0.00 | | -0.00 | | 0.01 | | 0.00 | | 0.01 | |
| (Std. Err.) | (0.02) | | (0.02) | | (0.02) | | (0.02) | | (0.02) | | (0.02) | |
| **HB B×I(EMU)** | | -0.02 | | -0.03** | | -0.02* | | -0.02 | | -0.02 | | -0.03 |
| (Std. Err.) | | (0.01) | | (0.01) | | (0.01) | | (0.01) | | (0.02) | | (0.02) |
| **HB D** | 0.02 | 0.02 | -0.01 | -0.00 | -0.01 | -0.01 | -0.02 | -0.01 | -0.01 | 0.00 | 0.42 | 0.38** |
| (Std. Err.) | (0.02) | (0.02) | (0.03) | (0.02) | (0.03) | (0.02) | (0.03) | (0.02) | (0.03) | (0.03) | (0.20) | (0.19) |
| **HB D×SHLD PROT** | | | | | | | | | | | -0.04 | -0.14** |
| (Std. Err.) | | | | | | | | | | | (0.08) | (0.07) |
| **HB D×I(EU)** | -0.01 | | 0.00 | | 0.01 | | 0.02 | | 0.00 | | 0.04** | |
| (Std. Err.) | (0.02) | | (0.02) | | (0.02) | | (0.02) | | (0.02) | | (0.02) | |
| **HB D×I(EMU)** | | -0.02 | | -0.03** | | -0.03* | | -0.02 | | -0.03* | | -0.03 |
| (Std. Err.) | | (0.01) | | (0.01) | | (0.01) | | (0.01) | | (0.02) | | (0.02) |

Table 13: **Home Bias and International Risk Sharing (Consumption Smoothing): EU Member States**

This table presents estimates of international risk sharing on a sample restricted to the EU Member States, based on the panel data regressions of the following consumption smoothing model proposed by Sørensen et al. (2007):

$$\Delta logC_{it} - \Delta logC_t = \alpha + \eta \left(\Delta logGDP_{it} - \Delta logGDP_t\right) + \varepsilon_{it},$$

where $\eta = \eta_0 + \eta_1 (t - \bar{t}) + \eta_2 \left(HB_{it} - \overline{HB}_t\right)$ . The reported estimates of risk sharing are computed as 100 times $1 - \eta_0$ (average risk sharing), $-\eta_1$ (trend) and $-\eta_2$, that corresponds to the amount gained in risk sharing if equity home bias would decrease from 1 (when home bias is complete) to 0 (no home bias). The results are obtained through feasible GLS, to control for cross-section heteroskedasticity. T-statistics (based on standard errors corrected for period heteroskedasticity and serial correlation) corresponding to the coefficients $\widehat{\eta}_0$, $\widehat{\eta}_1$ and $\widehat{\eta}_2$ are reported in brackets.

| **Consumption Smoothing** | | | **Interaction Terms** | |
|---|---|---|---|---|
| | Country Fixed Effects | Average Risk Sharing | Trend | **Home Bias** |
| No. obs. | 262 | | | |
| | Yes | 6.29 | 0.10 | -25.11 |
| HB I | | (16.97) | (-0.21) | (1.46) |
| | No | 34.45 | -0.23 | -107.70 |
| | | (7.22) | (0.32) | (3.48) |
| HB B | Yes | 5.57 | 0.16 | -19.90 |
| | | (16.83) | (-0.34) | (1.66) |
| | No | 32.85 | -0.09 | -81.87 |
| | | (7.66) | (0.12) | (3.85) |
| HB D | Yes | 5.30 | 0.21 | -16.97 |
| | | (15.02) | (-0.39) | (1.59) |
| | No | 31.08 | 0.02 | -72.94 |
| | | (7.35) | (-0.03) | (3.59) |

Table 14: **Home Bias and International Risk Sharing (Consumption Smoothing): EMU Member States**

This table presents estimates of international risk sharing on a sample restricted to the EMU Member States, based on the panel data regressions of the following consumption smoothing model proposed by Sørensen et al. (2007):

$$\Delta logC_{it} - \Delta logC_t = \alpha + \eta\left(\Delta logGDP_{it} - \Delta logGDP_t\right) + \varepsilon_{it},$$

where $\eta = \eta_0 + \eta_1\left(t - \bar{t}\right) + \eta_2\left(HB_{it} - \overline{HB}_t\right)$ . The reported estimates of risk sharing are computed as 100 times $1 - \eta_0$ (average risk sharing), $-\eta_1$ (trend) and $-\eta_2$, that corresponds to the amount gained in risk sharing if equity home bias would decrease from 1 (when home bias is complete) to 0 (no home bias). The results are obtained through feasible GLS, to control for cross-section heteroskedasticity. T-statistics (based on standard errors corrected for period heteroskedasticity and serial correlation) corresponding to the coefficients $\widehat{\eta}_0$, $\widehat{\eta}_1$ and $\widehat{\eta}_2$ are reported in brackets.

| **Consumption Smoothing** | | | **Interaction Terms** | |
|---|---|---|---|---|
| | Country Fixed Effects | Average Risk Sharing | Trend | **Home Bias** |
| No. obs. | 190 | | | |
| | Yes | 9.55 | -0.33 | -25.89 |
| HB I | | (14.52) | (0.57) | (1.40) |
| | No | 40.44 | -0.30 | -119.32 |
| | | (6.03) | (0.37) | (3.89) |
| HB B | Yes | 8.67 | -0.27 | -18.54 |
| | | (14.04) | (0.46) | (1.49) |
| | No | 37.11 | -0.14 | -82.01 |
| | | (6.38) | (0.17) | (3.88) |
| HB D | Yes | 9.45 | 0.28 | -20.62 |
| | | (12.77) | (0.42) | (1.79) |
| | No | 37.72 | -0.14 | -79.92 |
| | | (6.32) | (0.17) | (4.17) |

Table 15: **Home Bias and International Risk Sharing (Income Smoothing): EU Member States**

This table presents estimates of international risk sharing on a sample restricted to the EU Member States, based on the panel data regressions of the following income smoothing model proposed by Sørensen et al. (2007):

$$\Delta logGNI_{it} - \Delta logGNI_t = \alpha + \kappa \left(\Delta logGDP_{it} - \Delta logGDP_t\right) + \varepsilon_{it},$$

where $\kappa = \kappa_0 + \kappa_1 \left(t - \bar{t}\right) + \kappa_2 \left(HB_{it} - \overline{HB_t}\right)$ . The reported estimates of risk sharing are computed as 100 times $1 - \kappa_0$ (average risk sharing), $-\kappa_1$ (trend) and $-\kappa_2$, that corresponds to the amount gained in risk sharing if equity home bias would decrease from 1 (when home bias is complete) to 0 (no home bias). The results are obtained through feasible GLS, to control for cross-section heteroskedasticity. T-statistics (based on standard errors corrected for period heteroskedasticity and serial correlation) corresponding to the coefficients $\widehat{\kappa}_0$, $\widehat{\kappa}_1$ and $\widehat{\kappa}_2$ are reported in brackets.

| **Income Smoothing** | | | **Interaction Terms** | |
|---|---|---|---|---|
| | Country Fixed Effects | Average Risk Sharing | Trend | **Home Bias** |
| No. obs. | 262 | | | |
| | Yes | 46.90 | 0.98 | -12.09 |
| HB I | | (7.25) | (-1.67) | (0.53) |
| | No | 31.04 | 1.09 | 19.48 |
| | | (10.40) | (-2.01) | (-0.89) |
| HB B | Yes | 46.90 | 0.95 | -1.89 |
| | | (7.21) | (-1.60) | (0.12) |
| | No | 31.87 | 1.01 | 18.47 |
| | | (10.03) | (-1.83) | (-1.27) |
| HB D | Yes | 46.65 | 0.95 | -2.03 |
| | | (6.70) | (-1.47) | (0.14) |
| | No | 32.29 | 0.97 | -18.11 |
| | | (9.10) | (-1.61) | (-1.40) |

Table 16: **Home Bias and International Risk Sharing (Income Smoothing): EMU Member States**

This table presents estimates of international risk sharing on a sample restricted to the EMU Member States, based on the panel data regressions of the following income smoothing model proposed by Sørensen et al. (2007):

$$\Delta logGNI_{it} - \Delta logGNI_t = \alpha + \kappa \left(\Delta logGDP_{it} - \Delta logGDP_t\right) + \varepsilon_{it},$$

where $\kappa = \kappa_0 + \kappa_1 \left(t - \bar{t}\right) + \kappa_2 \left(HB_{it} - \overline{HB}_t\right)$. The reported estimates of risk sharing are computed as 100 times $1 - \kappa_0$ (average risk sharing), $-\kappa_1$ (trend) and $-\kappa_2$, that corresponds to the amount gained in risk sharing if equity home bias would decrease from 1 (when home bias is complete) to 0 (no home bias). The results are obtained through feasible GLS, to control for cross-section heteroskedasticity. T-statistics (based on standard errors corrected for period heteroskedasticity and serial correlation) corresponding to the coefficients $\widehat{\kappa}_0$, $\widehat{\kappa}_1$ and $\widehat{\kappa}_2$ are reported in brackets.

| **Income Smoothing** | | | **Interaction Terms** | |
|---|---|---|---|---|
| | Country Fixed Effects | Average Risk Sharing | Trend | **Home Bias** |
| No. obs. | 190 | | | |
| | Yes | 43.75 | 1.28 | -4.73 |
| HB I | | (6.53) | (-1.77) | (0.17) |
| | No | 28.71 | 1.27 | -28.97 |
| | | (9.51) | (-1.98) | (1.22) |
| HB B | Yes | 43.73 | 1.27 | -1.82 |
| | | (6.41) | (-1.73) | (0.10) |
| | No | 29.48 | -1.23 | 19.72 |
| | | (9.13) | (-1.89) | (-1.26) |
| HB D | Yes | 42.50 | 1.34 | -2.29 |
| | | (6.27) | (-1.70) | (0.14) |
| | No | 28.84 | 1.28 | 18.05 |
| | | (8.37) | (-1.80) | (-1.33) |

Table 17: **Home Bias and Income Inequality: EU and Euro Effects**

This table reports the results of (fixed effects) panel regressions of annual change in the GINI coefficient on the change in the home bias measures computed: (a) in the I-CAPM framework (HB I), (b) by applying the Multi-Prior correction to the Bayesian approach (HB B) and (c) by applying the Multi-Prior correction to the 'data-based' approach (HB D). Interaction terms between the home bias measures and EU/EMU dummy variables - I(EU/EMU) - are added to models 1 to 6 that have been presented in Tables 1, 2 and 3, and include a set of basic control variables: the previous year level of GDP, the previous year level of schooling, inflation (model 1) augmented with the following variables: investment ratio to GDP (model 2), population growth (model 3), private credit by deposit money banks as a share of GDP (model 4), as well as the Shareholder Protection Index (model 5) and an interaction term between the Shareholder Protection Index and the measure of home bias (model 6). Values of the coefficients and standard errors (corrected for period heteroskedasticity and serial correlation) are reported. Significance of the coefficients is denoted by *** (at 1%), ** (at 5%) and * (at 10%).

| **Dependent Variable** | $\Delta\,(GINI)$ | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **-1-** | | **-2-** | | **-3-** | | **-4-** | | **-5-** | | **-6-** | |
| No. Obs. | 170 | | 170 | | 170 | | 162 | | 135 | | 135 | |
| **Δ(HB I)** | -7.38 | -8.18** | -7.46 | -8.26* | -7.94 | -8.54* | -7.50 | -8.13 | -9.67 | -10.04 | -57.08 | -33.36 |
| (Std. Err.) | (4.84) | (3.91) | (5.55) | (4.82) | (5.61) | (4.86) | (5.90) | (5.05) | (7.99) | (6.31) | (48.83) | (47.49) |
| **Δ(HB I)×SHLD PROT** | | | | | | | | | | | 20.73 | 9.77 |
| (Std. Err.) | | | | | | | | | | | (20.13) | (18.83) |
| **Δ(HB I)×I(EU)** | 0.18 | | 0.22 | | 0.68 | | 2.44 | | 5.72 | | -2.36 | |
| (Std. Err.) | (6.07) | | (6.67) | | (6.71) | | (6.99) | | (8.93) | | (11.56) | |
| **Δ(HB I)×I(EMU)** | | 1.94 | | 1.96 | | 2.22 | | 5.19 | | 9.76 | | 5.91 |
| (Std. Err.) | | (5.18) | | (5.57) | | (5.59) | | (5.80) | | (7.71) | | (9.29) |
| **D(HB B)** | -5.45 | -5.82* | -5.53 | -5.88 | -5.93 | -6.08 | -5.49 | -5.88 | -8.06 | -7.57 | -53.86 | -46.26 |
| (Std. Err.) | (4.20) | (3.21) | (4.72) | (3.88) | (4.76) | (3.91) | (4.98) | (4.06) | (7.42) | (5.27) | (37.56) | (37.59) |
| **Δ(HB B)×SHLD PROT** | | | | | | | | | | | 20.10 | 15.98 |
| (Std. Err.) | | | | | | | | | | | (15.36) | (14.50) |
| **Δ(HB B)×I(EU)** | 0.18 | | 0.21 | | 0.59 | | 1.38 | | 4.52 | | -3.71 | |
| (Std. Err.) | (5.03) | | (5.41) | | (5.44) | | (5.67) | | (7.77) | | (9.85) | |
| **Δ(HB B)×I(EMU)** | | 1.02 | | 1.03 | | 1.20 | | 3.08 | | 6.40 | | 0.37 |
| (Std. Err.) | | (4.07) | | (4.16) | | (4.18) | | (4.26) | | (5.64) | | (6.59) |
| **Δ(HB D)** | -4.41 | -5.19 | -4.42 | -5.19 | -4.83 | -5.41 | -4.42 | -5.55 | -7.23 | -7.25 | -64.93* | -60.33* |
| (Std. Err.) | (4.03) | (3.05) | (4.44) | (3.66) | (4.49) | (-3.70) | (4.63) | (3.82) | (7.29) | (4.93) | (33.55) | (-35.39) |
| **Δ(HB D)×SHLD PROT** | | | | | | | | | | | -24.92* | 21.55 |
| (Std. Err.) | | | | | | | | | | | (13.45) | (13.40) |
| **Δ(HB D)×I(EU)** | 0.63 | | 0.64 | | 1.02 | | 1.11 | | 4.33 | | -5.88 | |
| (Std. Err.) | (4.68) | | (4.93) | | (4.95) | | (5.16) | | (7.46) | | (9.10) | |
| **Δ(HB D)×I(EMU)** | | 2.46 | | 2.46 | | 2.63 | | 4.01 | | 6.79 | | -1.08 |
| **(Std. Err.)** | | (3.60) | | (3.71) | | (3.73) | | (3.80) | | (4.93) | | (5.85) |