



# The home bias of the poor: Foreign asset portfolios across the wealth distribution



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## ABSTRACT

This paper documents how the share of foreign stocks in US household portfolios rises with the ratio of financial wealth to non-financial income. This is both because wealthier households are more likely to participate in foreign asset markets, and because portfolio shares of participants increase with financial wealth but decrease with non-financial income. A simple, standard two-country general equilibrium model shows that hedging of terms of trade movements and non-financial income risk produces non-trivial heterogeneity in portfolios across the wealth and income distribution within countries that is qualitatively in line with this evidence.

## 1. Introduction

Despite the process of financial globalisation since the early 1980s, investors around the globe still seem to hold a disproportionate share of local equities in their portfolios. For example, in 2006 the average US investor had a portfolio share of foreign equities three times smaller than the relative market capitalisation of non-US listed companies.<sup>1</sup> This contrasts with the prediction from basic models of investor diversification that homogeneous investors should simply hold the market portfolio. The vast literature that followed French and Poterba (1991), who first drew attention to this puzzling “home bias” in international equity portfolios, has mainly focused on two mechanisms: higher (fixed or variable) costs of investing in foreign assets (due to, for example, tax disadvantages or more costly information acquisition), and their possibly inferior ability to hedge risks faced by domestic investors (such as fluctuations in their non-financial income or exchange rates).

Virtually all models of home bias in country portfolios rely on the assumption of a single representative agent in each country. This convenient simplification, however, prevents the models from studying any distributional issues, including the distribution of portfolios within countries. The current paper, in contrast, starts from the simple observation that the standard explanations of home bias in the international macro literature imply strong variation in portfolios across households with different wealth and income levels. This is first because, trivially, fixed costs are relatively more costly for individuals with low financial wealth and low income. But even for participants in foreign asset markets, the prominent role that theory gives to the ratio of non-financial income to financial wealth, which determines the importance of hedging fluctuations in non-diversifiable income, implies potentially strong variation in portfolio shares across households that differ in income and financial wealth. The paper then shows, in a simplified framework, that the general equilibrium terms of trade effects emphasised by the home bias literature alone imply portfolio

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<sup>1</sup> See Coeurdacier and Rey (2013).

heterogeneity that is qualitatively in line with that observed in US data. It thus takes a first step both towards a new test of the theory using an additional dimension of the data, and towards explaining a previously unappreciated investment pattern in US microdata.

The paper starts by analysing the patterns of foreign asset investment in US micro data. In contrast to previous studies of individual foreign asset holdings, such as [Christelis and Georgarakos \(2013\)](#) or [Kyrchenko and Shum \(2009\)](#), I consider both direct and indirect holdings of foreign assets (by combining data from the Survey of Consumer Finances (SCF) on individual mutual fund investments with information on the portfolios of more than 4700 US mutual funds provided by Morningstar).<sup>2</sup> Also, I estimate jointly the participation decision in the market for foreign assets and their share in the portfolios of participants. The results show how the portfolio share of participants in foreign stock markets rises significantly as the ratio of financial wealth to non-financial income increases, and that the likelihood of participation rises strongly along the wealth distribution.

As a first step to understand the observed investment patterns, the second part of this paper builds on studies of “home bias” in country portfolios.<sup>3</sup> These have pointed out that general equilibrium responses of exchange rates and terms of trade can cause comovement of real asset returns and other sources of income that makes optimal portfolios depart significantly from the naive benchmark of full diversification. I use a version of the two-country environment in [Cole and Obstfeld \(1991\)](#) with trade in bonds (as in [Coeurdacier and Gourinchas, 2011](#)) where non-tradable income risk (as in [Baxter and Jermann, 1997](#)) introduces country-specific hedging terms in optimal portfolios. While [Bottazzi et al. \(1996\)](#) show that the implied portfolio depends on the covariance of returns to labour and capital, this paper points out that the hedging motive becomes less important as the financial wealth-to-income ratio increases. Together with short-selling constraints on foreign assets, this naturally implies variation in individual portfolios along both the extensive and intensive margin that captures some key patterns identified in US micro-data. Specifically, there is a threshold level of the financial wealth-to-income ratio beyond which investors start holding foreign equity, whose portfolio share increases as financial wealth rises relative to income. Foreign bond holdings, on the other hand, are zero for most parameter combinations in the model, again approximately in line with US evidence.

The reason for this investment pattern lies in the terms of trade movements pointed out by representative agent models of portfolio home bias. To see this, note that in local currency, home labour income is perfectly correlated with home equity returns, both driven by the same productivity shocks, but uncorrelated with foreign asset returns.<sup>4</sup> In the absence of relative price movements, this would make foreign assets very attractive for hedging labour market risk. The general equilibrium response of the terms of trade, however, makes home goods cheap when home productivity and home labour income are high. This introduces a positive correlation of home labour income with real returns to foreign assets (which are *high* when high home productivity makes home goods relatively cheap). At the same time, these terms of trade movements imply a negative correlation of home labour income with home bond returns (which are *low* when high home productivity makes home goods relatively cheap). This makes home bonds an attractive hedge against labour income risk. And this hedge is relatively more attractive for investors with low financial wealth. High-wealth investors, on the other hand, invest in a diversified portfolio of home assets and foreign equity. General equilibrium terms of trade movements therefore naturally imply variation of portfolios across investors that differ in their composition of lifetime wealth across financial and human capital.

The contribution of this paper to the literature on household finances and to that on international portfolio choice is thus three-fold. First, it points out how the importance of the wealth-to-income ratio in standard international portfolio theory very naturally leads to heterogeneity in portfolios once the assumption of a representative household is replaced by a distribution of income and wealth levels within countries. Second, it establishes, in its empirical part, new stylised facts that provide additional evidence against which we can test models. Finally, in its theoretical section, the paper takes a first step to illustrating how standard general equilibrium models of the international macroeconomy augmented by wealth heterogeneity and short-sale constraints on foreign assets have the potential to pass such a test by predicting portfolio heterogeneity that is at least qualitatively in line with the data.

[Section 2](#) analyses portfolio shares of foreign assets across the wealth distribution in the SCF. [Section 3](#) presents a simple two country two good economy, defines the competitive equilibrium and derives the equilibrium terms of trade movements. [Section 4](#) contains the results on optimal portfolios and how they vary across the wealth distribution. [Section 5](#) illustrates these results through a quantitative example.

## 2. Portfolios across the wealth distribution: evidence from the SCF

Standard theory gives an important role to the ratio of financial wealth to non-financial income in the determination of optimal household portfolios. To illustrate the relationship between the portfolio share of foreign assets and this financial wealth-to-income ratio among US households, I analyse data from the survey of consumer finances (SCF), which includes information on the US dollar

<sup>2</sup> [Christelis and Georgarakos \(2013\)](#) consider survey of consumer finances (SCF) data on direct holdings of foreign assets only, while [Karlsson and Nordén \(2007\)](#) focus on indirect holdings of foreign assets by Swedish Individuals via pension funds. [Nechio \(2010\)](#) reports some descriptive evidence on indirect ownership of foreign stocks through investment funds from the Investment Company Institute. [Hau and Rey \(2008a\)](#) and [Hau and Rey \(2008b\)](#) look directly at mutual fund portfolios.

<sup>3</sup> See [Lewis \(1999\)](#) and [Coeurdacier and Rey \(2013\)](#) for surveys of the home bias literature.

<sup>4</sup> Note that this paper abstracts from capital. [Heathcote and Perri \(2013\)](#) show that in models with capital, the positive correlation of investment with productivity shocks introduces negative comovement of dividends and labour income, which may help explain the large observed portfolio share of domestic equities. [Coeurdacier and Gourinchas \(2011\)](#) have pointed out the importance of bonds for hedging real exchange rate movements, which can potentially explain the observed home bias in bond portfolios ([Tesar and Werner, 1995](#); [Burger and Warnock, 2007](#)) as well as a larger share of home equities than in portfolios without bonds. Similarly, [Engel and Matsumoto \(2009\)](#) show how, with sticky nominal prices and forward positions in nominal exchange rates, complete risk-sharing can be achieved with low equity diversification.

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