



## Investing at home and abroad: Different costs, different people?

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### ABSTRACT

We investigate US households' direct investment in stocks, bonds and liquid accounts and their foreign counterparts, in order to identify the different participation hurdles affecting asset investment domestically and overseas. To this end, we estimate a trivariate probit model with three further selection equations that allows correlations among unobservables of all possible asset choices. Our results point to the existence of a second hurdle that stock owners need to overcome in order to invest in foreign stocks. On the other hand, we find little evidence for additional pecuniary or informational costs associated with investment in foreign bonds and liquid accounts.

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### 1. Introduction

The strong propensity of investors to concentrate their investments in domestic markets has been well documented (French and Poterba, 1991; Lewis, 1999)<sup>1</sup> and goes against the notion of diversification and the predictions of standard portfolio models like the International Capital Asset Pricing Model (Baele et al., 2007). In the case of stocks, the foregone benefits from international diversification can be substantial even after adjusting for exchange rate risk and border restrictions (Lewis, 1999).<sup>2</sup>

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<sup>1</sup> Baele et al. (2007), while noting that the extent of the home bias has been decreasing due to globalization and regional integration, still find a large home bias in several countries.

<sup>2</sup> Several explanations have been proposed for this phenomenon, including trading costs (Tesar and Werner, 1995; Amadi and Bergin, 2006), informational costs and asymmetries (Ahearn et al., 2004; Choe et al., 2005; Dvorak, 2005), poor investment protection and corporate governance (La Porta et al., 1999; Dahlquist et al., 2003; Leuz et al., 2005; Stulz, 2005), transparency in international markets (Gelos and Wei, 2005), real exchange rate volatility (Fidora et al., 2007) and behavioral biases (Grimblatt and Keloharju, 2000; Strong and Xu, 2003). In addition, lack of international diversification has been recently linked to investors' poor understanding about financial information and opportunities available to them (Graham et al., 2005).

When studying household portfolio choices it is important to distinguish the decision to invest in a foreign asset from the decision to invest in a domestic one, primarily because assets held domestically can be quite different in terms of participation costs, riskiness, informational, and management requirements from their foreign counterparts. As a result, households have to overcome different participation hurdles before investing in domestic and foreign markets.

With respect to stocks, fixed entry costs have been proposed as a leading explanation of the limited stock market participation by households (Mankiw and Zeldes, 1991; Haliassos and Bertaut, 1995; Vissing-Jorgensen, 2002). Such costs include not only brokerage and monetary fees but also non-tangible costs such as costs of time, costs of processing information as well as costs of picking and monitoring advisors and keeping up with market developments. Investor perceptions about non-tangible costs can be amplified by factors such as lack of familiarity with certain investment products, reducing the likelihood of participation.

It is likely that some of the factors that reflect participation costs and that have been suggested as causes of limited participation in the stock market do not affect in the same way participation in foreign stock markets, for a number of reasons: (i) ignorance about the existence of stocks can be quite common in the general

population (see Guiso and Jappelli, 2005, for the case of Italy), while we would expect that stockowners are normally aware of the existence of foreign stocks; (ii) directly held stocks are assets that are risky, information intensive, and demanding with respect to their management, and are held by a select group of households. These households are very different in terms of resources, investment experience, education, risk aversion, and financial sophistication from the rest of the population (Guiso et al., 2002; Campbell, 2006), and thus it is possible that their investment choices differ from those of the rest of the population; (iii) foreign stocks can be affected by additional costs related to the monitoring of foreign companies, trading costs (Amadi and Bergin, 2006) as well as the lack of information regarding foreign policies, institutions and accounting practices (Ammer et al., 2006; Covrig et al., 2007; Dvorak, 2005); (iv) investors are more prone to buy shares of companies that are geographically closely located (Huberman, 2001); hence such familiarity-related considerations are likely to further discourage investments in foreign owned companies; (v) having social interactions has been found to positively affect stock market participation (Hong et al., 2004), possibly because word of mouth information lowers informational costs. The same argument should imply a reverse effect for investments in foreign equity markets, given that only few households hold foreign stocks.

Home bias is not limited to stocks but extends to the case of bonds as well. Burger and Warnock (2006) document that US investors have very limited participation in foreign bond markets (especially those in emerging countries), while Fidora et al. (2007) extend this finding to several other industrialized economies, typically concluding that the bond home bias is even more pronounced than that for equities.

In this paper we investigate, using data from the Survey of Consumer Finances (SCF), US households' decision to directly invest in foreign stocks, bonds, and accounts. Our paper makes several methodological and empirical contributions. We document for the first time the existence of significant entry costs affecting household investment in foreign stocks, that are over and above any costs associated with entrance to the stock market in the first place. Evidence for these additional costs comes from the result that, for the select group of investors who hold stocks directly, characteristics that reflect the adequacy of resources and financial sophistication foster investments in foreign stocks. Such characteristics include large economic resources, willingness to assume extra risks, and use of the Internet to obtain financial information, and several empirical studies highlight their role in overcoming participation hurdles in the stock market (see e.g. the contributions in Guiso et al., 2002). Hence, the strong effects of these characteristics on foreign stock ownership, found in the pool of stockholders, point to the existence of separate participation hurdles for foreign stocks.

Second, we study not only stocks, but bonds and liquid accounts as well, and find that, in contrast to stocks, most of the aforementioned characteristics are not associated with investments in foreign bonds and foreign liquid accounts. This result suggests that any additional costs affecting those two foreign assets are not large enough to discourage investing in them.

Third, a key feature of our model is that it addresses the fact that investment in a foreign asset represents an option only for those who decide to invest in the asset irrespective of its provenance. This is consistent with the asset ownership patterns observed in the data, which strongly suggest that households consider the option to invest in a foreign asset type after they have already invested in the same asset in domestic markets. In other words, households engage in a two-stage decision process, which is potentially subject to selectivity. In addition, our model permits the estimation of all possible pair-wise correlations among the

unobservables of each investment decision, and we show that ignoring such correlations can lead to severely biased results.<sup>3</sup> The model fits the data quite well, given that its predictions of a variety of conditional and unconditional asset choices track closely the corresponding choices observed in the SCF sample.

While there have been numerous studies examining investments in foreign assets that use macro-level data or data on institutional investors, there have been only few that use household-level survey data.<sup>4</sup> Bailey et al. (2008), using administrative data from a brokerage firm find that investing experience, higher wealth, and some behavioral biases can lead to international diversification in investors' portfolios. For the purposes of studying investment choices, however, their sample is not representative of the US population because at least 70% of investors therein hold domestic stocks directly and at least 26% hold foreign stocks directly (as opposed to roughly 19% for any direct stockholding and 2% for direct foreign stockholding in the US population according to the SCF). Therefore, it is quite likely that choosing to open a brokerage account is correlated with the decision to directly invest in domestic and foreign stocks, which creates a selectivity problem, or even caused by this decision, in which case there is a simultaneity problem. In addition, the authors do not account for the two-stage decision process involved in foreign asset investment.

Karlssoon and Nordén (2007) study the foreign investments of a nationally representative sample of Swedish households through their pension accounts, and find that low job security, low economic resources, being male and less educated all lead to home-biased portfolios. They do not, however, model the aforementioned two-stage process involving foreign investment, and they do not distinguish between stocks, bonds and other more liquid investments. Finally, Kyrychenko and Shum (2006) use the SCF to look at determinants of households' decision to invest in foreign stocks and bonds. They model investments in foreign assets as a one step process, by means of standard probit and tobit models, and find that financial sophistication and pessimistic expectations about the domestic economy induce ownership of foreign stocks and bonds (they don't consider liquid accounts). However, by estimating the foreign stock and bond equations on the whole population, they treat the same way households that do not hold foreign assets but have invested in domestic ones and households that do not invest in those assets at all. The objective of our paper is clearly different. We focus on the participation hurdles that affect investments in foreign assets, over and above the hurdles hindering investment in the assets in any form. At the same time, we take into account the fact that households who invest in a given asset have a different configuration of characteristics and attitudes from their counterparts who have not invested in it.

The rest of the paper is organized as follows. Section 2 provides information on the data. Section 3 presents the model setup and discusses the estimation procedure. The empirical results and comparisons of the multivariate probit model with selection against simpler models are presented Section 4. Section 5 concludes.

<sup>3</sup> Most of the empirical literature on household portfolios is based on univariate models for a given asset without taking into account possible spillover effects to the other assets. Exceptions are provided by Perraudin and Sorensen (2000) who simultaneously model demands for money accounts, stocks and bonds, Alessie et al. (2004) who simultaneously study stocks and mutual funds, and Christelis et al. (2011) who study investments across different stockholding modes.

<sup>4</sup> For studies using macro data see Burger and Warnock (2006), Fidora et al. (2007). For studies that utilize information from institutional investors see Dahlquist et al. (2003), Strong and Xu (2003), Ahearne et al. (2004), Leuz et al. (2005), Ammer et al. (2006).

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