

Studienreihe der Stiftung Kreditwirtschaft
an der Universität Hohenheim

Helena Kleinert

The International Diversification Puzzle

Home Bias in Countries' Investment Portfolios



Verlag Wissenschaft & Praxis



The International Diversification Puzzle: Home Bias in Countries' Investment Portfolios

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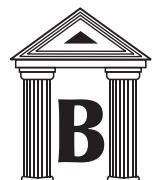
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Preface

Numerous theoretical and empirical studies document the substantial benefits through international portfolio diversification. In spite of this established state of knowledge, many analyses dealing with the actual behavior of investors find strong evidence for large unutilized benefits from a better diversification of investment portfolios. Thus, with regard to geographical portfolio allocation we find that investors largely prefer domestic assets in their investment portfolios over international positions. This overweighting of domestic assets is commonly known as home bias, and it is recently discussed in the light of the Single Supervisory Mechanism of the European Central Bank.

Topical financial research focuses on the structure of the home bias and thus gives better insights into the question which factors determine the decision of international portfolio allocation. Applying this approach on an aggregated country-level analysis provides an improved understanding on country-specific determinates of the home bias.

The work of Mrs. Kleinert contributes to this academic literature by combining traditional approaches with cultural dimensions in order to explain the home bias puzzle in international portfolio allocation. In addition, it puts the anomaly in a macroeconomic context and analyzes the preference for the domestic market in international portfolio allocation with regard to consumption risk. Overall, the study presents evidence that the growing fraction of foreign positions in international investment portfolios leads to increased income smoothing and thus improves international consumption risk sharing among economies.

This volume contributes to the study series of the Stiftung Kreditwirtschaft pursuing the goal to give interested expert readers insights on the latest academic research in banking and finance.

Hohenheim, December 2015

Prof. Dr. Hans-Peter Burghof

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Abbreviations

| | |
|------|--|
| ADR | American Depositary Receipt |
| BPM5 | 5 th Edition of the Balance of Payment by the International Monetary Fund |
| CAPM | Capital Asset Pricing Model |
| CPI | Consumer Price Index |
| CPIS | Coordinated Portfolio Investment Survey |
| CRRA | Constant Relative Risk Aversion |
| ECB | European Central Bank |
| EMU | European Monetary Union |
| EU | European Union |
| FSF | Financial Stability Forum |
| G7 | Group of the seven wealthiest countries: Canada, France, Germany, Italy, Japan, U.K., and U.S. |
| GDP | Gross National Product |
| GNI | Gross National Income |
| GNS | Gross National Savings |
| IBM | International Business Machines Corporation |
| IFCI | Industrial Finance Corporation of India |
| IMF | International Monetary Fund |
| km | Kilometer |
| M&A | Mergers and acquisition |
| MNC | Multinational company |
| OECD | Organization for Economic Co-operation and Development |
| OFC | Offshore financial centers |
| PHI | Permanent Income Hypothesis |
| PPP | Purchasing Power Parity |

| | |
|-----|--------------------------------------|
| S&P | Standard & Poor's |
| SDR | Special drawing rights |
| SOE | Small but financially open economies |
| SSM | Single Supervisory Mechanism |
| w/o | Without |

Country Abbreviations

| | | | |
|-----|-----------|------|----------------|
| AUS | Australia | JAP | Japan |
| AUT | Austria | KOR | South Korea |
| BEL | Belgium | MAL | Malaysia |
| BRA | Brazil | MEX | Mexico |
| CAN | Canada | NDL | Netherlands |
| CHL | Chile | NOR | Norway |
| DEN | Denmark | PHI | Philippines |
| FIN | Finland | POL | Poland |
| FRA | France | POR | Portugal |
| GER | Germany | SIN | Singapore |
| GRE | Greece | SOU | South Africa |
| HGK | Hong-Kong | SPA | Spain |
| HUN | Hungary | SWE | Sweden |
| IDA | India | SWI | Switzerland |
| IDO | Indonesia | THA | Thailand |
| IRE | Ireland | TUR | Turkey |
| ISR | Israel | U.K. | United Kingdom |
| ITA | Italy | U.S. | United States |

Variables and Indices

| | |
|-----------|--|
| α | regression coefficient indicating the intercept |
| ACT_i | actual portfolio allocation of country i |
| β_C | risk shared through the consumption channel |
| β_I | risk shared through the income channel |
| β_U | unshared consumption risk |
| C^W | world consumption |
| C^i | per capita consumption in country i |
| CCONTROL | capital control |
| CD | cultural distance between home and target country |
| CORR | correlation between the returns in the holder and the target country |
| CULT | culture |
| db_i | domestic bias in country i . |
| d_h | dividends of a risky project in the gravity model approach |
| db_i | domestic bias in country i 's investment portfolio |
| DCREDIT | domestic credit provided by the banking sector |
| DIST | geographic distance in kilometer between the capitals in the holder and the target country. |
| DLANG | dummy variable for the common language between holder and target country. It takes the value of 1 if they share a common language and 0 otherwise. |
| \$ | dollar |
| E | disturbance term |
| EHB_i | index of the equity home bias in the portfolio allocation of country i |
| ECD | economic development |

| | |
|------------|---|
| EFREEDOM | index of the economic freedom |
| EQINDEX | growth rate of the S&P Equity Index |
| fb_i | foreign bias in country i 's investment portfolio |
| FE_i | foreign equity holdings of country i |
| FL_i | total domestic equity stocks held by foreign investors |
| FAM | familiarity |
| γ | parameter for the relative risk aversion |
| GDPCAP | gross domestic product per capita |
| GDPG | real gross domestic product growth rate |
| HB_i | index of the home bias in the portfolio allocation of country i |
| h_i | risk-averse immobile agent in country i in the gravity model approach |
| IDV | amount of individualism |
| INC | income |
| INTERNET | number of internet users per 100 people |
| IPROT | strength of investor protection |
| κ_0 | idiosyncratic output growth including the equity home bias |
| κ_1 | year-by-year amount of income smoothing including the equity home bias |
| κ_2 | impact of the equity home bias on income smoothing |
| κ_I | average co-movement of the idiosyncratic NFI growth with idiosyncratic GDP growth |
| λ | share of foreign assets in the wealth portfolio |
| μ | expected returns |
| MAS | country's masculinity |
| $MCap_i$ | market capitalization of country i |
| η_0 | idiosyncratic output growth including foreign equity holdings to GDP |

| | |
|----------------|---|
| η_1 | year-by-year amount of income smoothing including foreign equity holdings to GDP |
| η_2 | impact of the foreign equity holdings to GDP on income smoothing |
| N | number of assets available |
| NFI | net factor income from abroad, i.e. the net claims on flows of foreign output |
| OPT_i | optimal portfolio allocation of country i |
| OTHERVARIABLES | other variables |
| PD | country's power distance |
| r_d | real return of the domestic market portfolio |
| r_f | risk free rate |
| r_F | rate of return of foreign assets owned by foreign investors |
| r_H | rate of return of foreign assets owned by domestic investors |
| r_ω | return of the world market portfolio |
| R^2 | coefficient of determination |
| adj. R^2 | adjusted coefficient of determination |
| RATING | country's rating score |
| σ | degree of mistrust in the international CAPM; Variable used in the Bayesian Approach for calculating of optimal portfolio weights |
| Σ | variance-covariance matrix |
| S_F | stock of foreign assets owned by foreign investors |
| S_H | stock of foreign assets owned by domestic investors |
| S | exogenously determined states of nature in the gravity model approach |
| SIZE | market capitalization of listed companies |
| SMD | stock market development |

| | |
|-------------|---|
| T | total number of projects in the world in the gravity model approach |
| θ | elasticity of substitution |
| ϑ | country specific effects in the risk sharing analysis |
| UAI | country's uncertainty avoidance |
| VALUE | total value of stocks traded to GDP |
| ω | portfolio weight |
| ω^* | optimal portfolio weight |
| x_{h_i} | risky project of agents h_i in the gravity model approach |
| x_h | risky project of agent h_i |
| Q | units of a freely traded good in the gravity model approach |
| Y | output |

Introduction

Increasing opportunities for investors to diversify their portfolios internationally is one of the effects of the globalization in financial markets (Chan et al. 2005, p. 1495). Despite a wide range of theoretical and empirical approaches that documented substantial benefits through international portfolio diversification (among others Grubel, 1968 and Solnik, 1974a), many studies show that investors do not take advantage of these potential gains. On the contrary, they show that investors largely prefer domestic assets in their investment portfolios over international positions. This overweighting is commonly known as home bias and represents one of the major puzzles in financial economics (Lewis, 1999).

„Several decades of international financial liberalization have shown that simply declaring the global capital market an open field does not suffice to achieve full integration.”

(Flandreau, 2006, p. 634).

Economists from the nineteenth-century were already familiar with this phenomenon and called it “the disinclination of capital to migrate” (Flandreau, 2006, p. 634). Putting this home bias puzzle into historical context Bayoumi (1990) shows that correlations between domestic savings and investments across countries were lower in the late nineteenth century than nowadays, indicating less integration today. But why does home bias in international portfolio allocation still persist? What drives this puzzle?

Recently, home bias is discussed in light of the Single Supervisory Mechanism (SSM) of the European Central Bank (ECB) by the Deutsche Bundesbank. “The direct link between public finances and bank balance sheets prompted calls for a banking union in the euro-area and posed the danger of a ‘home bias’ among national supervisors” (Deutsche Bundesbank, Monthly Report 07/2013, p. 14).

The report states that the cross-border supervisions of banking groups should be effective and transparent. Furthermore, it should be able to identify risks to the financial system already in an early stage and counter national preferences of supervisors, i.e. to be more lenient with banks just because they are from the supervisors’ home countries. In order to achieve further integration among national banking sectors and to complete the monetary union in the European Union (EU), the European Commission initiated the project of a banking union, which is not faced to the home bias phenomena.

New approaches in finance literature focused on the structure of the home bias and thus gave better insights, which factors determine the decision of international portfolio allocation. They added significant value to research on the anomaly. Putting this approach for equity holdings on an aggregated country-level and being therefore able to analyze determinants of the home bias with country-specific variables, is one of the major contributions of my thesis.¹ Previous studies on a country-level predominantly employ only traditional approaches to explain the overweighting of national positions and/or the over- and underweighting of foreign markets in national portfolios. But the question, whether an investor puts less of his wealth in a foreign country, because it is culturally very distant to his home country, is largely neglected by academic literature on an aggregated country-level. Furthermore, this study contributes to academic literature by combining traditional approaches with cultural dimensions in order to explain the home bias puzzle in international portfolio allocation. This allows me to combine economic and stock market variables with dimensions, which capture the individualism of an economy and the cultural distance between home and target country.

Going a step further and analyzing the discussed preferences for the domestic market in international portfolio allocation in the context of consumption risk, raises an interesting question: Does increasing financial integration lead to improved international risk sharing, i.e. do better diversified investment portfolios smooth countries' consumption flows? My thesis tries to shed light on this question, composed by both finance and macroeconomic aspects. Thus, the study is able to discuss the importance of diversification of portfolio investments from another perspective.

My work is composed of three main parts. Part one gives an overview of selected studies and presents the stand of literature. In a first step, I introduce analyses which discuss benefits from international portfolio diversification and give insight to research that document the home bias puzzle as an anomaly that is neither limited to special countries or country groups nor to a special type of investor (individual and institutional). In order to calculate the index of the home bias for a country, optimal portfolio weights are needed. Therefore, I introduce, evaluate, and discuss alternative approaches to calculate benchmark weights. Searching for an explanation for the home bias puzzle in international portfolio allocation economic and finance literature offers very different approaches. They reach from the institutional to the behavioral perspective. The institutional stream of explanations includes transaction costs, hedging of domestic risks, information asymmetries between national and foreign investors, as well as corporate governance aspects. Behavioral approaches discuss relative

¹ As my thesis only focuses on equity holdings and does not consider bond or other asset classes, the results presented and discussed in part two and three are always referred to equity holdings.

optimism with regard to the development of national positions, overconfidence, and familiarity as source of the overweighting of domestic positions in international portfolio allocation.

The empirical analyses are conducted in part two and three of my thesis. Part two employs a geographical breakdown of cross-border portfolio investments and examines institutional and behavioral approaches to explain home bias. Therefore, I analyze the portfolio holdings of 26 holder countries in the time period between 2001 and 2011. This macroeconomic view allows me to examine the impact of the variables on the home bias by abstracting from special types of investors. As previous literature is predominantly focused on institutional or individual investors, this work enlarges research in this branch. Furthermore, this data set enables me to investigate on the structure of the home bias by distinguishing between a domestic and a foreign component. This idea goes back to Chan et al. (2005). The domestic component of the home bias (domestic bias) captures the extent to which a country overweightes the domestic market. The foreign component of the anomaly (foreign bias) provides an answer to the question, how a foreign market is over- or underweighted in a national investment portfolio compared to the benchmark weight. The results of my sample countries indicate in a significant domestic overweighting and substantial underweighting of the respective target countries. To explain these phenomena I add cultural dimensions to the traditional explanatory variables. To my knowledge, there is no other study that combines those two – traditional and cultural – aspects by abstracting from special types of investors. In addition, this study applies these approaches to the domestic and foreign component of the home bias puzzle. I offer a large body of tests, by building numerous sub-samples to give evidence to the robustness of the results and add weight on the conclusions.

In summary, this part of my thesis documents a substantial amount of both domestic and foreign bias in international portfolio allocation. I examine cross-country differences in investment behavior by analyzing economic and stock market development factors, capital control, investor protection as well as information availability and cultural aspects. As barriers towards international investment increase deadweight costs for foreign investors, I expect that if these costs are higher for foreign investors than for domestic investors, then foreign investors will hold less of that country's equity than theoretically predicted. Furthermore, including cultural aspects in the empirical analysis may enable me to detect their impact on the international portfolio allocations around the world. Thus, this indicates that the cultural difference between home and target country seem to have impact on the investment decision. Hence, if a target country has a very different culture form that of the home country and the home country does not feel familiar with this target country, then investors will invest less,