Journal of Empirical Finance xxx (2015) xxx–xxx

Contents lists available at ScienceDirect

Journal of Empirical Finance

journal homepage: www.elsevier.com/locate/jempfin

Measures of equity home bias puzzle

Anil V. Mishra *

University of Western Sydney, School of Business, Australia

ARTICLE INFO

Article history:
Received 17 December 2014
Received in revised form 22 July 2015
Accepted 2 August 2015
Available online xxxx

JEL classification:
G11
G15

Keywords:
Home bias
Bayesian
Multi-prior
Bayes–Stein
Minimum variance
ICAPM

ABSTRACT

The paper develops measures of home bias for 42 countries over the period 2001 to 2011 by employing various models: international capital asset pricing model (ICAPM), classical mean-variance, minimum-variance, Bayes–Stein, Bayesian, and multi-prior correction to Bayesian. ICAPM country portfolio weights are computed relative to world market capitalization. Bayesian model allows for various degrees of mis-trust in the ICAPM and multi-prior model's investors' ambiguity aversion. Mean-variance computes optimal weights by sample estimates of mean and covariance matrix of sample return and Bayes–Stein improves precision associated with estimating the expected return of each asset. The paper finds that, for few countries, there is not much change in home bias measures using various models. Foreign listing, idiosyncratic risk, beta, natural resources rents, size, global financial crisis and institutional quality have significant impact on home bias. There are policy implications associated with home bias.

1. Introduction

There is a large literature on equity home bias,[1] that is, the fact that investors are found to hold a disproportionately larger share of their wealth in domestic portfolios as compared to predictions of standard portfolio theory. In the home bias studies, the actual portfolio holdings are compared to a benchmark. Depending upon the benchmark weights, there are two main approaches to home bias studies: the model-based approach and the return-based approach. In the model based, the International Capital Asset Pricing Model (ICAPM) benchmark is characterized by the weight of a country in world market capitalization. The ICAPM approach does not explicitly model returns; it just trusts that investors have already done that. The data-based approach uses a time series of returns and computes benchmark weights from a mean-variance optimization.[2] Sample estimates of mean and a covariance matrix of asset returns are used to estimate optimal weights in a mean-variance framework. The estimated optimal weights lead to extreme positions and fluctuate substantially over time.[3] These two approaches give different benchmark weights and, accordingly, home bias measures are quite different. A Bayesian framework considers both the ICAPM asset-pricing approach and the mean-variance data-based approach. It is based on investors' degree of confidence in the ICAPM based approach. As the degree of scepticism about the model grows, the portfolio weights move away from those implied by the ICAPM portfolio theory to those obtained from the data-based approach.

* Tel.: +61 9685 9230.
E-mail address: a.mishra@uws.edu.au.

[1] See Cooper et al. (2012) for a review of home bias literature.

[2] Hasan and Simaan (2000) show that home bias can be consistent with rational mean-variance portfolio choices.

[3] See Best and Grauer (1991) and Litterman (2003) for problems in mean-variance optimal portfolios. Chopra and Ziemba (1993) state that errors in estimating returns are over 10 times as costly as errors in estimating variances, and over 20 times as costly as errors in estimating covariances.

http://dx.doi.org/10.1016/j.jempfin.2015.08.001

Please cite this article as: Mishra, A.V., Measures of equity home bias puzzle, J. Empir. Finance (2015), http://dx.doi.org/10.1016/j.jempfin.2015.08.001

This paper develops measures of home bias for a sample of 42 countries[4] by employing various models including ICAPM, mean-variance, minimum-variance, Bayes–Stein, Bayesian and multi-prior. First, the paper develops measures of home bias that take into account the scepticism of investors in the ICAPM model. Pastor (2000) approaches portfolio selection using a Bayesian framework that incorporates a prior belief in an asset pricing model. Pastor and Stambaugh (2000) investigate the portfolio choices of mean-variance-optimizing investors who use sample evidence to update prior beliefs concerning either risk-based or characteristic-based pricing models. Jeske (2001) raises awareness of a number of empirical and theoretical issues concerning home bias in equity holdings. In his view, the US has the lowest home bias of all industrialized nations, contrary to people's belief that home bias in US is more severe than in other countries. Li (2004) examines the role of investors' perception of foreign investment risk on their portfolio choices. Asgharian and Hansson (2006) determine to what extent the estimated expected returns on European equity indices will be affected by different degrees of prior confidence in the ICAPM. They find a strong home bias in most countries, which cannot be explained by any degree of disbelief in the ICAPM.

Second, the paper develops home bias measures based on the Multi-Prior volatility correction technique introduced by Garlappi et al. (2007). The Bayesian decision maker is neutral to uncertainty (Knight, 1921). The Bayesian portfolio weights are more stable than those of the data-based approach; however, there may still be extreme and volatile weights. Garlappi et al. (2007) restricts the expected return for each asset to lie within a specified confidence interval around its estimated value.

Third, the paper develops home bias measures based on the Bayes–Stein shrinkage estimator that minimizes the impact of estimation error by shrinking the sample mean towards minimum variance portfolio. Stein (1955) and Berger (1974) develop the idea of shrinking the sample mean towards a common value and state that shrinkage estimators achieve uniformly lower risk than the MLE estimator. The sample-based Markowitz mean-variance approach tends to perform poorly out-of-sample. The Bayes–Stein shrinkage estimators improve out-of-sample performance as compared to Markowitz mean-variance optimization. Shrinking each asset's historical mean return towards the return of the minimum variance portfolio improves the precision associated with estimating the expected return of each asset. The improved estimation of expected returns results in improved out-of-sample performance.[5] Zellner (2010) states that shrinkage estimators can improve the estimation of individual parameters and the forecasts of individual future outcomes.

Fourth, the paper identifies plausible sources of home bias. In a dynamic panel setting over the period 2001–2011, the measure of home bias is related to a set of control variables (trade, beta, idiosyncratic risk, inflation, natural resources rents, size, institutional quality and global financial crisis). The empirical estimation employs Arellano–Bover/Blundell–Bond linear dynamic panel-data methods to control for endogenous variables and to test the robustness of results. Baele et al. (2007), who investigate to what extent ongoing integration has eroded the equity home bias, measure home bias by comparing the observed foreign asset holdings of 25 markets with optimal weights obtained from five benchmark models. They find that for many countries home bias decreased sharply at the end of the 1990s, a development they link to time-varying globalization and regional integration.

Fifth, the paper takes into account the period of global financial crisis during which cross-border equity holdings fell significantly in 2008 and recovered only partly in 2009. It is found that foreign listing, beta, natural resources rents, institutional quality and global financial crisis have a negative and significant effect on measure of home bias. Idiosyncratic risk and size have a positive impact, and trade exhibits mixed results.

The next section discusses the literature review. Section 3 discusses various home bias and optimal portfolio weight models. Section 4 describes data, variables and summary statistics. Section 5 discusses validity of ICAPM and home bias measures. Section 6 discusses methodology and empirical results and Section 7 concludes.

2. Literature review

The literature on home bias revolves around the different motives of investors, including information asymmetries, behavioural bias, motives for hedging, and explicit barriers to international investment. Several studies have considered the effect of indirect barriers such as information asymmetries on equity investment and home bias. Cooper and Kaplanis (1994) develop a model of international portfolio choice and equity market equilibrium that integrates inflation risk and deadweight costs, and use it to estimate the levels of cost required to generate the observed home bias in portfolios consistent with different levels of risk aversion. French and Poterba (1991) use a simple model of investor preferences and behaviour and show that current portfolio patterns imply that, for choices to be mean-variance rational, investors in each nation must expect returns in their domestic equity market to be several hundred basis points higher than returns in other markets. Tesar and Werner (1995) state first, that there is strong evidence of home bias in national investment portfolios despite the potential gains from international diversification; second, that the composition of the portfolio of foreign securities seems to reflect factors other than diversification of risk; and third, that the high volume of cross-border capital flows and the high turnover rate on foreign equity investments relative to turnover on domestic equity markets suggest that variable transaction costs are an unlikely explanation for home bias. Coval and Moskowitz (1999) state that portfolios of domestic stocks exhibit a preference for investing close to home. Huberman (2001) observes that shareholders of a Regional Bell Operating Company (RBOC) tend to live in the area which it serves, and RBOC's customers tend to hold its shares rather than other

[4] Sampled countries are Argentina, Australia, Austria, Belgium, Brazil, Canada, Colombia, Czech Republic, Denmark, Egypt, Finland, France, Germany, Greece, Hong Kong, Hungary, India, Indonesia, Israel, Italy, Japan, Korea, Malaysia, Mexico, Netherlands, New Zealand, Norway, Pakistan, Philippines, Poland, Portugal, Russia, Singapore, South Africa, Spain, Sweden, Switzerland, Thailand, Turkey, UK, US, Venezuela.

[5] See Gorman and Jorgensen (2002), Herold and Maurer (2003), Ledoit and Wolf (2003) and Wang (2005) for the shrinkage approach.

Please cite this article as: Mishra, A.V., Measures of equity home bias puzzle, J. Empir. Finance (2015), http://dx.doi.org/10.1016/j.jempfin.2015.08.001