



## Access to information and international portfolio allocation

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### ABSTRACT

We examine whether foreign equity holdings of portfolio investors depend on the level of information accessibility between the investors' home and host countries. Using a comprehensive data set, alternative measures of information accessibility and robust analytical techniques, we show that differences in access to cross-country information significantly influence investors' portfolio allocation decisions. Furthermore, the results suggest that for a given level of access to information, investors prefer to invest more in countries with a higher quality of legal/macro-institutions. Finally, the findings also confirm that the implications of information accessibility are more pronounced when markets are turbulent.

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### 1. Introduction

Extant literature shows that, relative to the theoretical suggestions of the International Capital Asset Pricing Model (ICAPM), portfolio investors do not optimally allocate funds across foreign securities (Chan et al., 2005). This drawback in asset allocation is often conjectured due to the presence of the deadweight costs of holding foreign securities arising from different barriers to international investments, including the costs of accessing information about foreign markets and securities (see Cooper and Kaplanis, 1986, 1994; Solnik and McLeavey, 2009; Lau et al., 2010). Such arguments imply that if access to information on the investment environment of a particular foreign market is lower (higher), then the deadweight costs resulting from information accessibility should be higher (lower) for that market. Consequently, investors should invest less in a foreign country where the access to information is lower and vice versa. We examine this prediction by analysing the implications of cross-country information accessibility on the foreign equity holdings of portfolio investors across a large number of countries. Primarily, this paper contributes to the following three major fronts of portfolio allocation and information accessibility issues.

First, we investigate whether the temporal and cross-country variations in foreign equity allocations can be explained by the level of information accessibility, by focusing on the role of factors that represent access to information between investors' home and foreign (host) markets. Although Chan et al. (2005)<sup>3</sup> also examine this issue using cross section data; we extend the analysis by using a substantially large panel data set of foreign equity holdings of investors based in 33 home countries and investing in 36 host countries, and covering a long time period of 9 years (2001–2009). The use of long time series data in our panel set up allows us to investigate the possible implications of cross-country differences in access to information during periods of tranquil and turbulent economic conditions, especially in the context of the 2007–2009 financial crises. Moreover, Chan et al. (2005) use cross-sectional estimation methods while we employ more efficient and robust panel data techniques that can exploit the cross-sectional as well as the temporal variations in the foreign portfolio allocations of portfolio investors.

Second, it is possible that the value of information depends on the quality of legal and macro-institutions in host countries.<sup>4</sup>

<sup>3</sup> Gelos and Wei (2005) examine a similar issue on a sample of emerging markets as host countries and focus on the issue of country-specific transparency measures.

<sup>4</sup> For example, earlier studies show that a strong legal/macro-framework leads to higher firm valuation (Claessens et al., 2000), higher dividend pay-outs (La Porta et al., 2000), reduced level of underpricing in IPOs (Engelen and van Essen, 2010) and managerial private benefits (Zingales, 1994; Nenova, 2003). Similarly, Fernandes and Ferreira (2008) demonstrate that the enforcement of insider trading laws enhances stock price informativeness mostly in developed countries and the positive effect of enforcement on price informativeness becomes significantly weaker in countries with poor macro institutions.

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Therefore, we examine how the quality of macro-institutions in host countries interacts with the cross-country differences in access to information to shape the composition of the foreign equities in the portfolios of international investors. To the best of our knowledge, this is the first study to examine this effect. If the cross-country differences in information accessibility interact with legal/macro-institutions, then the efforts to improve the bilateral information environment alone may not be enough to attract foreign investors, unless matching actions are undertaken to enhance the quality of the country's legal and macro-institutions. Therefore, the findings of this paper should be important for policy makers as well.

Finally, the information environment is also likely to interact with the market condition, affecting investors' exposure to risk. In an uncertain environment, investors are likely to rebalance their portfolio in favour of markets of which they possess or could seek higher levels of information. For instance, using fund level international country portfolio flow data, Gelos and Wei (2005) show that during the contagion effect of the 1997 East Asian crisis, foreign investors reversed their investment flows more from opaque markets (i.e. markets with lower levels of corporate and macro-information) compared with transparent markets. This suggests that the implication of cross-country differentials in access to information on investors' choice is also likely to be dependent on market conditions. Since our sample covers periods of both tranquil and turbulent market conditions, it offers an excellent opportunity to test the implications of the financial crisis that started in 2007 on the portfolio choice of international investors. As such, we extend our analysis to examine whether investors allocate relatively less in countries with lower levels of access to information when the market is turbulent. Furthermore, understanding the relationship between market conditions (tranquil vs. turbulent), information accessibility and the country allocation of international investors, should help policy makers to manage their stock market conditions, particularly the information environment, to make them attractive to foreign investors.

Several interesting findings emerge from our analysis which uses an extensive data set, alternative proxies of information accessibility, and a spectrum of regression specifications. First, we find that the differences in access to cross-country information significantly influence investors' foreign portfolio allocation decisions. Investors tend to allocate more funds to countries that have the same working language as in the investors' home country, are geographically closer, and have higher bilateral trade. Second, the results further suggest that, for a given level of access to information, investors prefer to invest more in countries that have a higher quality of legal and macro-institutions. Finally, the findings also confirm that the implications of information accessibility are more pronounced when markets are turbulent.

The rest of the paper is structured as follows: Section 2 describes the data; Section 3 discusses the methodology and provides a brief description of the features of the sample; empirical results are presented in Section 4; and, Section 5 concludes the paper.

## 2. Data

This study uses three sets of data. First, the data for the main (dependent) variable of interest (i.e. the foreign equity portfolio holdings of investors) is obtained from the Co-ordinated Portfolio Investment Survey (CPIS) of the International Monetary Fund (IMF). This database provides detailed annual cross-country international equity portfolio holdings in US\$ million. It covers 33 source (home) and 36 host (foreign) countries for a period of 9 years from 2001 to 2009. Overall, we have over 7000 usable observations.

Second, the key explanatory variables of interest are three proxy measures of information accessibility which capture the degree of accessibility and flow of information between the home (source) country of investors and the foreign (host) country. They are: (i) *Geographic proximity* (i.e. the distance between capital cities of the host and source countries), (ii) *Common language*, and (iii) *Trade based information*, i.e. the degree of bilateral trade (as a proportion of total trade of the source country) between the pair countries. The first two measures (*Geographic proximity* and *Common language*) are obtained from [www.nber.org/~wei/data.html](http://www.nber.org/~wei/data.html) (as used by Subramanian and Wei (2005)). The proportionate bilateral trade variable is based on bilateral trade (import plus export) data obtained from the IMF's periodic publication, International Financial Statistics (IFS).

The final set of data includes control variables that are known to affect international investors' foreign portfolio choices, such as stock market development, market microstructure, capital control, host market volatility, exchange rate risk, historical return, minority shareholder protection and cross-country correlation of equity returns. In the paragraphs below we describe data on foreign equity portfolio holdings, followed by a brief description of the proxy measures of the cross-country information environment and the control variables respectively.

### 2.1. Measure of foreign equity portfolio holdings

Following the work of Cooper and Kaplanis (1986), we use the dependent variable (proportion of risky assets allocated to a foreign country,  $w_{i,j,t}$ ) as the logarithmic value of the proportion of equity from country  $j$  in the portfolio of investors based in country  $i$  at time  $t$ , whereby  $w_{i,j,t}$  is defined as in Eq. (1)<sup>5</sup>:

$$w_{i,j,t} = \left( \frac{FPH_{i,j,t}}{\sum_{j=1}^{36} FPH_{i,j,t}} \right), \quad i \neq j \quad (1)$$

where  $FPH_{i,j,t}$  is the stock of foreign equity portfolio holdings in US\$ million. The sample includes bilateral data on the portfolio investments of investors based in 33 countries (source) in the equities of 36 foreign (host) countries (Appendix A provides the list of the countries). The analysis of the experience of 33 source and 36 host countries in this paper is dictated by the availability of data on the dependent, explanatory and control variables. For instance, estimates of trading cost (a proxy measure of market microstructure condition) are manually hand collected from S&P's *Global Stock Market Factbook* and data for the year 2001 are reported for 40 countries of which 36 are included in this study. The remaining four countries are either off-shore financial centres or not enough data points are available for other control variables.<sup>6</sup>

In the coverage of the CPIS, most participants are the primary end-investors (e.g. banks, security dealers, pension funds, insurance companies, mutual funds, non-financial corporations, households) and primary custodians. However, investments below US\$ 500,000 are not reported. Furthermore, some investments are not reported by countries for reasons of confidentiality.

### 2.2. Measures of access to information (AI)

As in earlier studies, motivated by the use of gravity models in the field of international trade in goods, services and financial

<sup>5</sup> Since the purpose of the analysis is to assess the distribution of only the foreign portfolio, not domestic allocation, the variable ( $w_{i,j,t}$ ) does not include domestic investments (i.e.  $w_{i,i}$  is not included).

<sup>6</sup> As in previous studies (e.g. Fidora et al., 2007) on international equity investment, we do not include Luxembourg in our sample. Luxembourg is perceived as an off-shore financial centre and is associated with the issue of third-country holdings and round-tripping. For example, in 2003 the total equity holdings reported by German investors alone in Luxembourg was US\$ 152 billion, whereas Luxembourg's total market capitalization for that year was less than US\$ 40 billion.

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