What Determines Mutual Fund Trading in Foreign Stocks?

KALOK CHAN and VICENTIU COVRIG

Abstract

We examine the portfolio rebalancing, measured by the equity churn rate, of mutual funds from 29 countries based on annual stockholdings over the 1999-2004 period. Our evidence indicates that the information asymmetry and investor familiarity, the two explanations for the home bias, also affect the portfolio rebalancing of foreign equities. We find that funds more often trade the stocks of companies located in countries with higher degree of information asymmetry and are less familiar to fund managers, after we control for the effects of stock market development and investor protection. Consistent with the behavioral bias of limited attention, fund managers more often rebalance stocks in foreign markets that perform well. This bias is exacerbated when fund managers invest in emerging markets, and when they are less familiar with and less informed about those markets. Our findings contribute to a better understanding of how investors trade foreign shares, and shed light on the factors that help to explain cross-border trading activity.

Keywords: Home Bias, Churn Rate, Turnover, Mutual Funds, Emerging Markets.

JEL Classification Number: G11, G23

*Chan is from the Department of Finance, Hong Kong University of Science and Technology; Covrig is from the Department of Finance, Real Estate, and Insurance, California State University at Northridge. We thank Marcin Kacperczyk, Kai Li, Hernan Ortiz Molina, and seminar participants at HKUST, the University of Toronto, and UBC, for their useful comments. An earlier version of the paper is circulated under the title “Why Foreign Investors Trade More Frequently?”

There is a vast body of literature documenting disproportional allocation to domestic versus foreign equities by investors – a phenomenon known as home bias – as investors tend to put a relatively large fraction of their wealth into domestic markets, despite the benefit of international diversification. A number of papers show that home bias is related to information asymmetry between domestic and foreign investors (Kang and Stulz, 1997; Brennan and Cao, 1997; Coval and Moskowitz, 1999) and the familiarity of investors with foreign markets (Grinblatt and Keloharju, 2001; Chan, Covrig and Ng, 2005).[1]

In contrast, there is relatively little research into how often investors rebalance their domestic and foreign holdings and whether home bias affects the trading turnover of foreign holdings. Based on cross-border capital flows in five Organisation for Economic Co-operation and Development (OECD) countries, Tesar and Werner (1995) find that the turnover rate in foreign equities is 10 times greater than that in domestic equities. However, using data on gross transactions in foreign equities available from the United States and Canada, Warnock (2002) finds that investors turn over their foreign portfolios only slightly faster than their domestic portfolios. Nevertheless, both studies are confined to a few developed countries, and do not provide a cross-country comparison of trading in foreign equities.

In this paper, we employ a rich and interesting dataset that contains the equity holdings of mutual funds from 29 countries, with a breakdown of their annual portfolio composition across 48 countries from 1999 to 2004. Using stockholding data recorded on an annual basis, we compute the portfolio churn rates based on changes in equity holdings in consecutive years. For each mutual fund, we calculate a churn rate for each country in which the fund is invested. We find that the average churn rate of domestic equities is lower than that of foreign equities, which is consistent with previous findings that investors turn over foreign stocks more frequently than domestic ones.

[1] Some other explanations include the barriers to international investment (Errunza and Losq (1985)), departures from purchasing power parity (Cooper and Kaplanis (1994)), and hedging of human capital or other non-traded assets (Obstfeld and Rogoff (1998), and Wheatley (2001)), although there are little empirical support..

The major contribution of this paper is its explanation of the potential determinants of mutual fund churn rates across different foreign countries. While considering a number of country characteristics, we are particularly interested in examining whether information asymmetry and familiarity, the two effects that have been shown to affect the holdings of foreign equities in the global portfolio, will also affect the frequency of rebalancing foreign securities. As discussed before, information asymmetry and familiarity are two commonly cited obstacles that investors face when investing in foreign markets. In the case of information asymmetry, foreign investors are discouraged from investing abroad because they have less information than do locals about domestic securities,[2] whereas a lack of familiarity with a foreign market also discourages investors from investing in that market. Although familiarity is related to information asymmetry, evidence indicates that it is psychologically based, as investors are influenced by language and culture (Grinblatt and Keloharju, 2001), geographical proximity (Coval and Moskowtiz, 2001; Zhu, 2002; Ivkovich and Weisbenner, 2005), and immigrant origin (Bhattacharya and Groznik, 2008).

We use a number of country-level variables to examine the effects of information asymmetry and familiarity on the rebalancing of foreign securities. Regarding the information asymmetry effect, we hypothesize that the churn rate is negatively related to the quality of information disclosure of the foreign country. We posit that the lower the quality of information disclosure in a foreign country and the greater the information asymmetry that fund managers face, the more frequently fund managers will rebalance equity holdings in that country. Regarding the familiarity effect, we examine the closeness between a mutual fund's home country and the target country in which it invests by considering several factors: the existence of a common language, geographical proximity, and the amount of bilateral trade between the two countries. We posit that the closer two countries are to each another, meaning that fund managers are more familiar with the target country, the less frequently the fund managers will rebalance those foreign holdings. In addition to the variables associated with information asymmetry and familiarity, we include

[2]A few papers show that foreign investors earn lower trading profits than do domestic investors, thus providing direct evidence that domestic investors have an information advantage over foreign investors. See Hau (2001) for

other country-level variables to control for other effects, including stock market development, investor protection, market returns and volatility. This allows a comprehensive analysis of the factors that affect the propensity of mutual fund managers to rebalance their foreign holdings.

We observe that the churn rates are higher for the stocks of companies located in countries that have more asymmetric information and are less familiar to fund managers. The effect of familiarity is especially interesting because it extends previous U.S. studies that document that the length of time that investors hold stocks depends on how much they know about them. For example, Coval and Moskowitz (2001) report that U.S. fund managers trade far more frequently in their distant holdings than in their local holdings, and Huberman (2001) finds that investors buy the shares of the Regional Bell Operating Company of the area in which they reside (rather than those of other Bell companies) and hold them much longer. Similarly, we observe that when fund managers are more familiar with foreign securities, they adopt relatively longer term strategies, hold them for longer periods, and trade them less frequently.

As for the control variables, we find the mutual fund churning is higher in countries that are less developed and have weaker investor protection. There is also evidence of a positive relationship between the churning of foreign securities and foreign market returns. This is consistent with the previous evidence on positive relationship between trading activity and market returns (Griffin, Nardari and Stulz (2007)). We also find the relationship between the churn rate of a foreign market and foreign market returns is stronger if the foreign market has more information asymmetry or is less familiar to mutual fund managers. This indicates that when there is less information about the market, investors become uninformed and affected by behavioral biases so that their trading depends more on past returns.

The remainder of the paper is organized as follows. Section I describes the data and the construction of the portfolio churn rates of securities for mutual funds. Section II introduces the country-level characteristics that can explain mutual fund trading in foreign securities . Section III presents the empirical analyses, and Section IV concludes the paper.

Germany, Choe, Kho, and Stulz (2005) for Korea, and Dvorak (2005) for Indonesia.

I. Data and Churn Measures

We obtain data from the Thomson Financial Services (TFS) database, which is a record of the stockholdings of over 25,000 mutual funds located in 51 countries with worldwide holdings, for the 1999 to 2004 period. A sample for an earlier period was used by Chan, Covrig, and Ng (2005) in their investigation of the extent of home bias around the world, and a detailed description of the data is contained in their study. A group of 22 emerging markets (for example, China, Korea, and Hungary) has no consistent mutual fund holdings across the period; hence, the holdings and churning data come from funds located in 29 countries, 10 of them emerging markets, with holdings in 48 countries. The mutual fund holdings data are gathered from local authorities and directly from mutual funds, including both open- and closed-end funds. Briefly, the database contains three data files: (i) the Fund Master File, which contain the fund number, fund name, management company name, country code, and report date; (ii) the Security Master File, which contains the security number, security name, country code, security price, and shares outstanding; and (iii) the Portfolio Holdings File, which contains the fund number, security number, number of shares held by the fund, and net changes in shares held since prior report dates.

One problem associated with this dataset is that the country code refers to the country of incorporation (host country), rather than the country of residence of the mutual fund investors. This poses a problem as we need to differentiate between domestic and foreign holdings and to decide whether the market is a foreign market for the investors and fund managers. Although we acknowledge this data limitation, the failure to differentiate between domestic and foreign markets would bias us against finding a higher frequency of rebalancing for foreign equities than domestic equities. Furthermore, the main aim of the paper is to explain the cross-sectional variation in the trading of securities in different foreign countries, and therefore the misclassification of domestic versus foreign securities is not a major issue.

A key variable of interest in the study is the churn rate of equities held by mutual funds. Following Gasper, Massa, and Matos (2005), we measure how frequently mutual fund managers rotate the position of all of the stocks within a mutual fund (churn rate). Although some of the funds record

stockholdings on a biannual basis, we calculate the churn rate based on annual stockholdings so as to include as many mutual funds as possible. A fund is included in the calculation of the churn rate only if it has more than three stock positions. Within each mutual fund *i*, we calculate the churn rate of equities of country *j* from year *t-1* to year *t* as follows.

$$CHURN_t^{ij} = \frac{\sum_k | N_{k,t}^{ij} P_{k,t} - N_{k,t-1}^{ij} P_{k,t-1} - N_{k,t-1}^{ij} \Delta P_{k,t} |}{\sum_k \frac{N_{k,t}^{ij} P_{k,t} + N_{k,t-1}^{ij} P_{k,t-1}}{2}}, \tag{1}$$

where $N_{k,t}^{ij}$ is the number of shares of stock *k* held by fund *i* at year *t*, $P_{k,t}$ is the price of stock *k*, and $\Delta P_{k,t}$ is the change in price of stock *k* from year *t-1* to year *t*. Another way of expressing equation (1) is

$$CHURN_t^{ij} = \frac{\sum_k P_{k,t} | N_{k,t}^{ij} - N_{k,t-1}^{ij} |}{\sum_k \frac{N_{k,t}^{ij} P_{k,t} + N_{k,t-1}^{ij} P_{k,t-1}}{2}}. \tag{2}$$

In the extreme case that the mutual fund does not trade any stock during the period, then $N_{k,t}^{ij} = N_{k,t-1}^{ij}$ for all *k*, and $CHURN_t^{ij}$ is equal to zero.[3] However, the larger the portfolio adjustment for fund *i* is, the greater the divergence between $N_{k,t}^{ij}$ and $N_{k,t-1}^{ij}$ for most of the stocks is, and the higher $CHURN_t^{ij}$ is. By construction, the churn rate ranges from 0 to 2. For the rest of the paper, we refer to $CHURN_t^{ij}$ as the churn rate of domestic equities if the host country of fund *i* is the same as target country *j* (the country being invested in) and as the churn rate of foreign securities if the host country of fund *i* is different from target country *j*.

An issue with the portfolio churning measure is that it is affected by mutual fund objectives and characteristics. For example, an actively managed fund trades more frequently than does a passively managed fund, and a fund that invests in growth stocks will monitor the portfolio more closely than will a fund that invests in value stocks. To remove the effect of fund characteristics on portfolio churning, we use the adjusted churn rate in the regression analysis, calculated as follows.

$$ADJ\_CHURN_t^{ij} = \frac{CHURN_t^{ij} - CHURN_t^{i}}{CHURN_t^{i}}, \tag{3}$$

where $CHURN_t^{ij}$ is as defined as in Equation (2), and $CHURN_t^{i}$ is the mean churn rate for fund *i*, which is a simple average of $CHURN_t^{ij}$ across the equities of all countries held by fund *i*. The adjusted churn rate represents the deviation of the churn rate of country *j* for fund *i* from the mean churn rate for fund *i*, which allows us to examine how portfolio churning is affected by the characteristics of country *j* while controlling for mutual fund objectives. The focus of our analysis is not how one mutual fund differs from another in trading foreign securities, but rather how the churning of equities varies across different countries within the same mutual fund.

We note a few points about our churn measure. First, although the share prices ($P_{k,t}$) in Equation (2) are based on the last date of the year, the number of shares ($N_{k,t}^{ij}$) in the mutual fund dataset is not necessarily that at the year-end. We do not think that this mismatch between the dates of stock prices and number of shares constitutes a systematic bias for our empirical analysis. Also, later in the paper we perform a robust analysis in which we also use the share prices in the previous year ($P_{k,t-1}$) to examine whether the results are sensitive to the choice of share prices. We find that this is not the case.

Second, we use annual stockholding data, whereas U.S. studies use quarterly stockholding data (for example, Grinblatt and Titman, 1989; Chan, Jegadeesh and Wermers, 2000; Wermers, 2000). Therefore, our churn measure cannot be compared with the mutual fund quarterly trading measures in previous studies. In addition, our churn measure should not be equated with mutual fund turnover (aggregate trading volume divided by the size of the mutual fund portfolio). We do, however, want to emphasize that the goal of the paper is not to derive a turnover estimate for the mutual fund but to seek possible explanations for the cross-sectional variation in the churn rate of equities across foreign markets within the same mutual fund. As long as the mis-

[3] If fund *i* does not invest in country *j*, a missing value will be assigned to $CHURN_t^{ij}$.

measurement is random and does not have a systematic pattern with respect to the country characteristics that are used to explain the churn rate, it should not cause bias in the analysis.

Third, our churn measure is potentially sensitive to fund inflows and outflows. When there are fund inflows (outflows), the mutual fund needs to buy (sell) additional shares to ensure that the churn rate reflects passive trading that is due to redemption/subscription rather than active trading by fund managers. The more volatile the fund flow is, the higher the churn rate is. However, as noted, our intent is to explain the churn rate of equities across different markets within the same mutual fund; therefore, our results are not driven by fund inflows or outflows.

Panel A of Table 1 contains the summary statistics of the portfolio churning of the mutual funds from 29 host countries during the 1999-2004 period. Because we lose one year in calculating the change in portfolio holdings in successive years, we have only five years of churn rate data. For each country *j*, we compute $CHURN_t^{ij}$ for fund *i* at year *t*, take the five-year average, and then calculate the cross-sectional average across all funds. We divide the churn measure by two, and thus it ranges from 0 to 1 (100%). The cross-sectional average of the churn rate of domestic equities is presented in column 2 of Table 1. During the 2000-2004 period, the domestic churn rate ranges from 35.4% for Ireland to 67% for Brazil. As for the churn rate of foreign equities, for brevity, we present the grand average across all funds in all host countries for each target country *j*. Column 3 of Table 1 shows that the churn rate of foreign equities ranges from 43.4% for funds in Denmark to 69.8% for funds in Greece.

Table 1 shows that the churn rate of foreign equities is generally higher than that of domestic equities: the average churn rate of the former is 53.8%, whereas that of the latter is 48.6%. Furthermore, the difference is robust at the country level, with the churn rate of foreign equities being higher than that of domestic equities in 24 of the 29 countries. These resuts are consistent with those of Tesar and Wermers (1995) and Warnock (2001), who report that investors trade foreign equities more often than they do domestic equities.

Table 2 presents the summary statistics of the mutual funds of each country. The United States has the highest number of funds (4763), followed by Germany (4363) and Spain (2489); New Zealand has the lowest number of funds (14). This finding is similar to that of Ferreira and Matos (2008), who report that Germany and Spain have the second and third highest numbers of funds, respectively, after the United States. Funds in the United States are the most diversified, with the highest number of stock holdings (68.5), whereas those in Spain are the least diversified, with the lowest number of stock holdings (13.3). Funds in the United States are also the largest, with an average market value of $564.4M, followed by those in Italy ($255.4M); funds in Portugal are the smallest ($28.9M).

II. Hypotheses of the relationship between portfolio turnover and country characteristics|

In this section, we introduce country-level variables that might affect the mutual fund portfolio churning of foreign equities. Table III reports the variables for each country. As we are particularly interested in identifying those variables that proxy for information asymmetry and familiarity, we first start with these two groups of variables and then discuss the other control variables.

(A) Information Asymmetry

Extensive finance literature reports evidence of a positive relationship between trading volume and asymmetric information (Kim and Verrechia (1991 and 1994), He and Wang (1995)). Information asymmetry occurs when one or more investors possess private information about the firm's value while other uninformed investors only have access to public information. A higher degree of information asymmetry indicates stronger divergence of information received by market participants, resulting in more trading among them.

There are good theoretical reasons to suggest a negative relationship between the disclosure quality and information asymmetry. First, disclosure quality affects information asymmetry by altering the trading behavior of uninformed investors. According to the Investor Recognition Hypothesis (Merton (1987)), investors are more likely to invest and trade better known firms. If higher disclosure quality

increases a firm's visibility and/or reduces the costs of processing firm-specific public information, then higher disclosure quality will induce more trading in the firm's stock by uninformed investors. Second, disclosure quality affects information asymmetry by altering the incentives to search for private information. An environment encouraging a greater information disclosure creates incentives for investors to acquire private information (Verrecchia (1982) and Diamond (1985)). Recent empirical work by Brown and Hillegeist (2007) find a negative relationship between the overall quality of a firm's disclosures and the average level of information asymmetry.

We use two variables, *DMDISC* and *OPACITY*, to measure the information disclosure quality. The disclosure level (*DMDISC*) is a dummy variable that is equal to 1 if the country's disclosure score is greater than the median, and 0 otherwise. The disclosure score, which is also used by Jin and Myers (2006), is from Global Competitiveness Reports, and is based on surveys conducted in 1999 and 2000 about the level and effectiveness of financial disclosure in different countries. The measure of opacity (*OPACITY*), which is from Bhattacharya, Daouk, and Welker (2003), ranges from 0 to 5, with higher scores indicating greater opacity. Belgium, Canada, and the United States are the least opaque countries, whereas Japan, Chile, and Indonesia are the most. We predict that for countries with high *DMDISC* and low *OPACITY*, the level of information asymmetry is low leading to high mutual fund churn rates in these countries.

(B) Familiarity

Familiarity effect refers to the tendency of investors to invest in stocks with which they are more familiar because they are geographically closer or better recognized (Kang and Stulz, 1997; Coval and Moskowtiz, 1999). The familiarity effect is found to be related to the home bias exhibited in international portfolio holdings, as investors tend to hold the stocks of firms that share their language and cultural background (Grinblatt and Keloharju, 2001; Chan, Covrig and Ng, 2005).

There is, however, little theoretical reasoning on how familiarity affects the trading decisions of investors. Based on rational choice theory, familiarity alone should not affect the trading frequency of

investors. Suppose an investor is familiar with a particular stock because he or she has more information about it. Being better informed means spotting more buy and sell opportunities; however, the counterparty will not want to trade if he or she knows that he or she has less information. If we deviate from the rational choice model, then behavioral biases can link the trading decisions of investors to their familiarity with the stocks. The familiarity effect gives investors the illusion that they have superior information, thus leading them to become overconfident about the stocks. If investors make more trading decisions when they are overconfident (Odean 1998a), then they will trade more frequently in the stocks with which they are more familiar.

However, such an effect is not supported by empirical evidence. For example, Huberman (2001) finds that investors tend to buy shares of the Regional Bell Operating Company in the area in which they live, rather than those of other Bell companies, and are also inclined to own the company in a buy-and-hold fashion rather than trading the stock actively. Coval and Moskowitz (2001) report that fund managers trade far more frequently in their distant holdings than in their local holdings. Therefore, the familiarity effect does not appear to render any information advantage that would cause fund managers to trade these stocks more frequently. Rather, when investors are more familiar with the stocks, they feel more comfortable holding them for a longer period and do not trade them actively. Based on the empirical evidence, we predict that the churn rate of foreign equities will be lower if fund managers are more familiar with these markets.

Unlike the information asymmetry variables, the value of a familiarity variable is not fixed for a particular target country, but rather varies in accordance with the relationship between the host and target countries. Instead of reporting the familiarity variable for each pair of countries, we report the average of each familiarity variable across all pairs for a given country (Table 3). Following Chan, Covrig, and Ng (2005), we construct three familiarity variables. The first is a dummy variable for common language (*DUMLANG*) that is equal to 1 if country *i* and *j* share a major language, and 0 otherwise. The data are compiled from the World Factbook 1999, which contains the major or official languages of countries from all over the world. As indicated in Table 3, countries such as Singapore, Hong Kong, and Canada

share a common language, whereas countries such as Denmark, Greece, and Italy have their own languages. The second variable is geographical proximity. Geographical distance (*DISTANCE*) is the bilateral distance between the capital cities of two countries and is obtained from www.nber.org/~wei. The most remote countries are Australia and New Zealand, with an average geographical distance of 13102 km and 14300 km, respectively, from the other countries. As expected, European countries enjoy the greatest degree of proximity compared with other countries. Almost half of the countries in our sample are from Europe, with the average geographical distance ranging from 5563 km for Denmark to 5910 km for Ireland. The third variable is the amount of bilateral trade (*TRADEB*), with values ranging from 0 to 1. The raw trade data are up to 1998 and also taken from www.nber.org/~wei. For each country in our sample of 48, we sum up its dollar exports and imports and calculate its weighted trade with the other countries. For example, suppose the value of *TRADEB* between the United States (host country of the mutual fund) and the United Kingdom is 0.1; this means that 10% of total U.S. trade (imports plus exports) is with the United Kingdom. By construction, the mean of *TRADEB* must be equal to 1/47, as each country trades with the remaining 47 countries in the sample. Therefore, Table 3 presents the median of *TRADEB* instead.

We posit that *DUMLANG*, *DISTANCE*, and *TRADEB* are good indicators of how familiar the mutual fund managers in country *i* are with country *j*. If *DUMLANG* takes a value of 1, *DISTANCE* is smaller, and *TRADEB* is higher, then the fund managers in country *i* are more familiar with country *j*. We predict that for the mutual fund of host country *i*, the churn rate of equities of country *j* will decrease with *DUMLANG* and *TRADEB* and increase with *DISTANCE*.

(C) Control variables

Besides information asymmetry and familiarity variables, we expect that there are some other country characteristics that will also affect the mutual fund churning of equities in these countries. We group them under three categories: stock market development, investor protection, and others. Below are the variables and the expected effects on the portfolio rebalancing

C.1 Stock Market Development

There are two opposite effects of stock market development on the mutual fund rebalancing of securities from these countries. When a stock market is more developed, it has a higher degree of liquidity and lower transaction costs. The liquidity effect predicts a higher churn rate for the equities of more developed markets. In contrast, a less developed market experiences a higher degree of speculative activity, potentially leading to a negative relationship between foreign investor trading and market development (Scheinkman and Xiong, 2003). Therefore, the relationship between the stock market development and the mutual fund churning of foreign equities depends on whether the liquidity effect or speculative effect dominates.

We use three variables that are found to affect cross-border holdings and foreign investor trading behavior in Chan, Covrig, and Ng (20005) to proxy for stock market development. The first is the transaction cost estimate (*COST*). This variable, which is also investigated by Domowitz, Glen, and Madhavan (2001), comes from Elkins/McSherry Co. and reflects the trading costs incurred by institutional traders, including pension funds, investment managers, and brokerage firms. Estimates are based on commissions, fees, and market impact costs during the 1998-2002 period. We obtain data for 42 countries, with the cost estimates ranging from 19.6 basis points for Japan to 119.9 basis points for Venezuela.

The depth of the stock market (*DEPTH*), expressed as the ratio of total market capitalization to the country's GDP, is obtained from Standard and Poor's Emerging Stock Markets factbooks for 2001 to 2005 and ranges from 4.8% (Venezuela) to 363% (Hong Kong). *DEPTH* is an indication of market maturity. If the stock market is deep, then there is less speculation, and we would expect less trading; hence, we predict that the churn rate will be negatively related to *DEPTH*.

We also introduce a dummy variable (*DUMEMG*) that is equal to 1 for an emerging market and 0 otherwise, to control for any specific characteristics of emerging markets not accounted for by the two aforementioned variables. Domowitz, Glen, and Madhavan (2001) show that trading turnover is less

sensitive to transaction costs in emerging markets than it is in developed markets. One possible explanation is that smaller and less developed markets are prone to more noise and uninformed speculative trading, which forces traders to reduce their investment horizon and trade more.

C.2 Investor Protection

The existing literature shows that legal protection and corporate governance affect the level of investor participation. La Porta, Lopez-De Silanes, Shleifer, and Vishny (henceforth, LLSV) (1997) argue that legal rules that protect investors from expropriation from insiders increase the willingness of outside investors to participate in equity markets. Leuz, Lins, and Warnock (2008) find that firms whose ownership structures are more prone to governance problems or expropriation by controlling managers and families attract significantly less U.S. investment. However, some investors benefit from weak corporate governance.

There are opposite effects of investor protection on the mutual fund rebalancing of foreign equities. According to LLSV, countries with weak investor protection have narrow capital markets and concentrated inside ownership (i.e., less float) because of less participation by outside investors. A smaller equity float and narrower equity market leads to a higher cost of liquidity, thus resulting in less turnover. Eleswarapu and Venkataraman (2006) provide supporting evidence that trading costs are significantly lower for American Depository Receipts (ADRs) from countries with better measures of legal protection. On the other hand, weak investor protection implies that the market is more information sensitive, which means that investors will monitor the securities of the market more closely, thus leading to more frequent portfolio rebalancing. The relationship between the investor protection and the churn rate of foreign equities depends on which effect dominates.

We use three measures of investor protection. The first is a corporate governance measure (*DGOV*), which is based on the governance ratings of Credit Lyonnais Securities Asia (CLSA) and has been used in Doidge, Karolyi, and Stulz (2007). We define *DGOV* to be equal to 1 if the governance measure is greater than the median, and 0 otherwise. The second governance measure is *LEGAL*, which is

the product of anti-director and rule of law indices and has been used in Durnve and Kim (2005). The values of anti-director rights and the rule of law are obtained from LLSV (1998) for all of the countries, except for Luxembourg, China, the Czech Republic, Egypt, Hungary, Poland, and Russia. The *LEGAL* variable ranges from 0 (Belgium, Italy, and Mexico) to 5 (United States). The third is the risk of expropriation index (*EXPROP*) constructed by the International Country Risk Agency, although this index is not available for China, the Czech Republic, Hungary, Poland, or Russia. Expropriation risk is measured on a scale that ranges from 0 to 10, with lower scores indicating greater risk. The Netherlands, Switzerland, and the United Kingdom have the lowest expropriation risk, with a score of 9.98, whereas the Philippines has the highest, with a score of 5.52.

C.3 Other control variables

In addition, there are a few other control variables that have the potential to explain the churn rate of mutual funds.

(i) Home Bias

Home bias refers to the phenomenon that investors tend to put a relatively large fraction of their wealth into domestic markets, despite the benefit of international diversification. A few papers develop theoretical models to explain the co-existence of home bias and turnover rate of foreign securities (Brennan and Cao (1997), Guidolin (2005). and Hnatkovska (2005)). Therefore, we also include a home bias measure to explain the churn rate of foreign securities. Following Chan, Covrig, and Ng (2005), we define the home bias variables (*BIAS*) as the log ratio of the country's share in the mutual fund holdings to the world market capitalization weight of that country. If the fund investments are in the domestic market, then *BIAS* will measure home bias; if they are in a foreign market, then *BIAS* will measure foreign bias. Table 3 reports the *BIAS* of different countries from the perspective of foreign investors. We notice that the values are uniformly negative for all countries, which indicates that the investors tend to underweight foreign markets. On a relative basis, Venezuela is the most underweighted by foreign investors, whereas the United Kingdom is the least.

(ii) Contemporaneous market returns

We include contemporaneous market returns (*RET1*) that are calculated using local currency country indices retrieved from Datastream. A positive relationship is hypothesized between stock market volume and contemporaneous market returns (Karpoff (1987). In a study of 46 markets, based on daily and weekly data, Griffin, Nardari, and Stulz (2007) find that a positive relation between turnover and past returns holds for most of the countries, although there is substantial cross-sectional variation across the countries, with the relation being much stronger for developing markets, more opaque countries, and more volatile economies. They also find that the relation is stronger for individual investors and weaker for foreign investors, who tend to be institutional investors.

One explanation for the foregoing findings is the disposition effect (Shefrin and Statman, 1985; Odean, 1998b), whereby investors tend to sell stocks for the realization of profits after those stocks have appreciated, but to hold stocks after they have declined in price. Another explanation is that investors gain confidence after the market experiences high returns (Odean, 1998a; Gervais and Odean, 2001). Although the returns are market-wide, because of biased self-attribution, investors mistakenly attribute gains in stock trading to their ability to pick stocks. As a result, overconfident investors trade more frequently after the market performs well. Statman, Thorley, and Vorkink (2006) provide strong supporting evidence of this. Based on a sample of U.S. common stocks, they find a statistically and economically significant positive relationship between market-wide turnover and lagged market-wide returns. Because our analysis is confined to annual data, we include only contemporaneous market returns, not lagged market returns. We expect to find a positive relation between the churn rate of foreign equities and contemporaneous foreign market returns.

(iii) Market volatility

Market volatility (*VAR*) is measured as the variance in the 12-month contemporaneous stock market return, using country index return data from Datastream. Many researchers find a positive relation

between the absolute value of market returns and trading volume, because investors have more information when return movement is large. Empirical research supports this relationship (see, for example, Gallant, Rossi and Tauchen, 1992). We therefore predict a positive relation between the churn rate of foreign equities and foreign market volatility.

III. Empirical analysis

In this section, we investigate the categories of country-level variables that can explain the portfolio churning of equities in different foreign countries within the mutual funds. The key variable of analysis is the adjusted churn rate ($ADJ\_CHURN_t^{ij}$), as defined in Equation (3). This variable is removed from the effect of fund objectives, which allows us to focus on how the churn rate of the equities of foreign country *j* in fund *i*is affected by the characteristics of country *j*. All of the empirical analyses are conducted using the churn rate aggregated at the country level. For each pair of host country *k* and target country *j*, we calculate an equal-weighted average of $ADJ\_CHURN_t^{ij}$ by averaging across all funds *i* in host country *k* that invest in foreign country *j* in year *t.* The country-level churn rate is used as the dependent variable in the regression analysis. The final sample consists of 3,777 country-level churn rate observations over the five-year period. In all tests, all t-statistics, reported in parentheses, are calculated from the standard Newey-West heteroskedasticity and autocorelation corrected standard errors.

Caution should be exercised in interpreting the statistical significance of our results, as we have a large number of explanatory variables. In assessing the significance of our results, rather than relying only on the standard level of statistical significance, we also form our conclusions based on the consistency of the effects of the variables within the same category of variables. Evidence of consistent signs for the explanatory variables within the same category is much more important in this regard than evidence of statistical significance for the explanatory variables with inconsistent signs.

A. Determinants of foreign turnover

Table 4 presents the estimates of several regression specifications to explain the churn rate of foreign equities. The first five specifications include only one set of explanatory variables, whereas the last full specification includes all of them.

The first regression specification shows that mutual funds rebalance securities less frequently if these securities come from countries with greater information disclosure. When a market has less than average disclosure (the dummy variable *DMDISC* is equal to 0 rather than 1) or is more opaque (higher *OPACITY*), fund managers rebalance securities in these markets more frequently. This is consistent with the information hypothesis that the fund managers will more often rebalance foreign equities of greater degree of information asymmetry.

The second regression specification shows that the churn rate is higher for those securities coming from countries with which fund managers are less familiar. The three familiarity variables (*DIST*, *DMLANG*, *TRADEB*) have the correct signs, with the coefficients for *DIST* and *DLANG* remaining statistically significant in the full specification. This indicates that mutual funds rebalance foreign securities more frequently if the host country is more remote from the foreign country or the host country has a language different from that of the foreign country. These results are consistent with the conjecture that fund managers rebalance foreign securities that are less familiar to them.

The third through fifth regression specifications are for the control variables. The third regression specification shows that fund managers rotate equities more frequently in emerging markets (*DEMG* = 1) and in countries with less market depth (*DEPTH*) and lower transaction costs (*COST*). As we have discussed previously, a less developed market could indicate lower liquidity or more speculation, which have opposite effects on the mutual fund churning of equities. The evidence from the third regression specification is contrary to the liquidity cost hypothesis, but consistent with the hypothesis that there is more speculative trading in a country with less market depth.

The fourth regression specification shows that investor protection affects the frequency of foreign security rebalancing. When a foreign market has poorer corporate governance standards (lower *GOV*),

less legal protection (lower *LEGAL*), and a higher expropriation risk (lower *EXPROP*), fund managers rebalance securities in that market more frequently. This is consistent with the hypothesis that investors will protect themselves against poor corporate governance by more actively rebalancing in foreign markets when there is any kind of information.

The other control variables are introduced in the fifth regression specification. Of particular interest is that market returns (*RET1*) have a statistically positive impact on the churn rate of foreign equities. This is consistent with the hypothesis that fund managers pay more attention to the foreign market and trade more actively after that market demonstrates good performance.

In the full specification, some of the variables lose the statistically significance. Nevertheless, we find that the information disclosure variables (*DMDISC* and *OPACITY*) and two out of the three familiarity variables (*DIST* and *TRADEB*) are still statistically significant and of the expected signs. Therefore, even after including the control variables, there remains the robust evidence that mutual fund managers will more often rebalance equities in the countries with more information asymmetry or that they are less are familiar.

B. Analysis based on the standardized variables

The regression analyses so far are based on raw explanatory variables that differ in magnitude, which makes it difficult to compare the economic significance of the regression coefficients. Therefore, we transform the raw variables (except for the dummy variables) into standardized variables that have means of zero and standard deviations of one; then, the regression coefficients can be compared.

We perform regression analysis based on the standardized variables for a number of specifications, with the results presented in Table 5. We will discuss only the full specification results. In terms of economic magnitude, the largest effect comes from the local market return variable (*RET1*), whereby a market that moves one standard deviation away from the average return will affect the adjusted churn rate by 12%. Certainly, because the adjusted churn rate and market return are computed on the contemporaneous year, it is difficult to ascertain the causality from the market movement to the mutual

fund rebalancing of securities. The variable geographical distance (*DIST*) has the second largest effect on the churn rate, whereby a country with one standard deviation away from the average *DIST* will affect the adjusted churn rate by 6%. This is then followed by information disclosure (*DMDISC*) and market depth (*DEPTH*) , both of which have an impact of 4% on the churn rate. Therefore, the evidence shows that the information asymmetry and familiarity effect have both statistically and economically significant impacts on the frequency of rebalancing of foreign securities.

C. Alternative measure of turnover based on lagged stock prices

As we have discussed previously, the construction of the churn rate in Equation (2) so far is based on the share prices ($P_{k,t}$) on the last date of the year, even though the number of shares ($N_{k,t}^{ij}$) in the mutual fund dataset is not necessarily that at the year-end. While this mismatch between the dates of stock prices and number of shares would not constitute a systematic bias for our empirical analysis, the choice of the share prices at year t can explain the positive relationship between the churn rate and foreign market returns (*RET1*). It can easily be seen that if $P_{k,t}$ is higher than $P_{k,t-1}$ for most of the stocks in a country, then this will have the effect of increasing the churn rate, so that it is positively correlated with market returns.

To circumvent this problem, we replace $P_{k,t}$ with $P_{k,t-1}$ in the numerator in Equation (2):

$$CHURN_{t}^{ij} = \frac{\sum_{k} P_{k,t-1} \mid N_{k,t}^{ij} - N_{k,t-1}^{ij} \mid}{\sum_{k} \frac{N_{k,t}^{ij} P_{k,t} + N_{k,t-1}^{ij} P_{k,t-1}}{2}} . \tag{4}$$

If we still find a positive relationship between foreign market returns and the churn rate of foreign securities, then this cannot be attributed to the way that we construct our churn rate.

We estimate the regression equations as presented in Panel A of Table 4, except that we construct $CHURN_{t}^{ij}$ based on Equation (4). The results, which are reported in Table 6, are generally similar to those in Table 4, albeit with some minor differences. For example, for investor protection variables, the

coefficient of *GOV* switches sign while the coefficient of *LEGAL* is no longer statistically significant. But despite that we compute the churn rate using lagged stock prices, the positive relationship found between the churn rate of foreign equities and the corresponding market returns remains robust.

Furthermore, most of the information asymmetry and familiarity variables retain the same expected signs. The only exceptions are the coefficient of *DLANG* which becomes statistically insignificant and the coefficient of *TRADEB* which become statistically significant.

D. Analysis based on individual fund-level churning measure

All the results obtained so far are based on the churn rate aggregated across all funds within each country. In this section we examine the robustness of our finding by using the churn rate at the individual fund level. In other words, we use $ADJ\_CHURN_t^{ij}$, rather than using the equal-weighted average of $ADJ\_CHURN_t^{ij}$ across all funds *i* within a particular country *k*, as the dependent variable. As a result, we substantially increase the number of observations in our regression analysis, from 3,777 (country level) to 225,212 (fund level). All t-statistics, reported in parentheses, are calculated based on clustered standard errors which adjust for the clustering at the fund level (Peterson (2005)).

Table 7 reports the regression analysis based on individual fund-level churning measure. The regression specifications are the same as those reported in Table 4, except that we use fund level churn rate instead of country-level churn aggregates. Although there are some minor differences, overall the results are qualitatively similar to those in Table 4.

In the first regression based on the information asymmetry variables, coefficients of *DMDISC* and *OPACITY* are all statistically significant with the expected signs. In the second regression based on the familiarity variables, coefficients of *DIST* and *TRADEB* are also significant. In the third and fourth regression specifications, coefficients of stock market development variables and investor protection variables are also statistically significant. In the full specification whereby we include all variables, including control variables, we do find some of the coefficients become insignificant. Nevertheless, the

effect of information disclosure variables (*DMDISC* and *OPACITY*) and familiarity variables (*DIST* and *DLANG*) on the churn rate in foreign equities remain robust.

E. Principal component analysis of the explanatory variables

Because we use a number of explanatory variables in the regression analysis, it is sometimes difficult to interpret the sign and significance of the estimates from the full regression specifications, as some of the variables are highly correlated with one another. There is also difficulty in interpreting some of the conflicting results for the different variables within the same category. To help us better assess the results, we extract the first principal component from each category of the explanatory variables, and estimate the regression results based on these principal components.

Table 8 reports the principal component analysis results. The first principal component from the respective category accounts for 66% of the common variation of the two information asymmetry variables (*DMDISC*, *OPACITY*), 52% of the common variation of the three familiarity variables (*DIST*, *DMLANG*, *TRADE*), 66% of the common variation of the three stock market development variables (*DMEMG*, *DEPTH*, *COST*), and 65% of the common variation of the three investor protection variables (*GOV*, *LEGAL*, *EXPROP*). The first principal component for the information asymmetry category is denoted *PC_INFO*, that for the familiarity category is denoted *PC_FAM*., that for the stock market development category is denoted *PC_STOCKDEV*, and that for the investor protection category is denoted *PC_INVESTPROT*.

The values of the principal components are reported for each country. A higher value indicates a higher composite score for the country in that category. Therefore, a higher value of *PC_INFO* indicates better information environment (lower information asymmetry), a higher value of *PC_FAM* indicates more familiarity, a higher value of *PC_STOCKDEV* indicates better stock market development, and a higher value of *PC_INVESTPROT* indicates better investor protection.

Table 9 reports the results of the regression analysis of the churn rate of foreign equities using these principal component measures as the explanatory variables. Panel A reports the basic specifications,

which show that the churn rate of foreign equities is affected by the principal components. In the first four specifications, the coefficient associated with each principal component is negative and statistically significant. This suggests that fund managers trade more frequently in a foreign market if it has more information asymmetry, is less familiar, is less developed and has less investor protection. These principal components remain statistically significant in the full specification, when all principal components and control variables are included.

It is interesting to examine the statistical significance of contemporaneous foreign market returns (*RET1*). Again, the evidence is consistent with the attention hypothesis (Barber and Odean, 2008), whereby less informed investors pay more attention to the foreign market and trade more actively after that market demonstrates good performance. In the present study, fund managers pay less attention to the foreign market, which means that increased attention matters more after the foreign market performs well.

Panel B of Table 9 reports the augmented analysis, which includes the interaction between *PC_INFO* and *PC_FAM*, after controlling for the direct effect of *PC_INFO* and *PC_FAM*, to determine whether there is any additional effect on the churn rate of foreign securities as a result of the interaction between information asymmetry and familiarity. The coefficient of the interaction term is negative and statistically significant, thus indicating that mutual funds are prone to trading most actively in countries with which they are less familiar and about which they are less informed.

E. Effect of market returns

One explanation for the positive relationship between the churn rate of foreign equities and market returns is that investors face information constraints, paying less attention to most securities, but increasing their attention after the market performs well. Griffin, Nardari, and Stulz (2007) find that while the positive relationship between turnover and past returns hold for most of the countries, the relation is much stronger for the developing markets and more opaque countries. An explanation is when there is less information about the market, investors become uninformed and affected by behavioral biases so that their trading depends more on past returns.

Based on the previous empirical evidence, we hypothesize that the positive relationship between the churn rate of foreign equities and foreign market returns is stronger if the foreign country is less transparent or is less familiar to fund managers. This motivates us to estimate a set of regression specifications to examine how information asymmetry and familiarity affect the churn rate-market return relationship. In addition to those principal components associated with different categories of country characteristics, we include two interaction terms, *PC_INFO*RET1* and *PC_FAM*RET1*, as explanatory variables. We estimate the regression equations using churn measures based on either Equation (2) or Equation (4). The results are similar, and, for brevity, Table 10 reports the regression results using the churn rate based on Equation (2). We find that, whereas the coefficient estimate of *RET1* remains statistically positive, the coefficient estimates of the two interaction terms are significantly negative. This indicates that the positive relation between the churn rate of foreign equities and market returns is stronger if investors know less about the foreign markets. In other words, the behavioral bias that affects the rebalancing of foreign equities is larger if mutual fund managers have less information or are less familiar with the foreign market.

IV. Conclusion

Using a comprehensive dataset of mutual fund holdings across 29 countries, we examine the scope and determinants of cross-country variations in the churn rates of holdings in foreign stocks.

Consistent with previous findings, we find that mutual fund trading in foreign stocks is greater than that in domestic stocks in 24 out of the 29 countries. The cross-sectional variation of the churn rate of foreign equities can be explained by more than some country characteristics. The churn rate of foreign equities is higher if the foreign country has more asymmetric information or is less familiar to mutual fund managers. These results are observed even after controlling for the stock market development and investor protection, as well as other control variables. Also, the churn rate of foreign securities is higher if the foreign market performs well, and this relation is stronger for foreign markets that have less information disclosure or are less familiar to mutual fund managers.

The positive relation between the churn rate of foreign securities and information asymmetry or familiarity is important. Our finding is consistent with that of Coval and Moskowitz (2001) who find that fund managers trade far more frequently in their distant holdings than in their local holdings. It is also consistent with Merton's finding (1987) that investors tend to hold securities that are better known. We observe that mutual fund managers hold foreign securities longer if they have more information about or are more familiar with them, which suggests that foreign securities that are less known to fund managers are more closely monitored and actively traded.

Our findings contribute to a better understanding of how investors trade foreign shares and shed light on the factors that can explain cross-border portfolio flows. There are many theories with regard to trading motives, but, to the best of our knowledge, there is no theoretical work that models the interaction between the trading activity of investors and the characteristics of the securities or markets in which they invest. We hope that this paper will lead to the development of theoretical models that help us to better understand the propensity of investors to trade in the presence (or absence) of information about securities. Although this is a complex task, the payoff could be great.

REFFERENCES

Barber, Brad, and Terrence Odean, 2008, All that glitters: The effect of attention and news on the buying behavior of individual and institutional investors, *Review of Financial Studies* 21(2), 785-818.

Bhattacharya, Utpal, Daouk Hazem and Michael Welker, 2003, The world price of earnings opacity, *Journal of Accounting Research* 78, 641-678.

Bhattacharya, Utpal, and Peter Groznik, 2008, Melting pot or salad bowl: Some evidence from U.S. investments abroad, *Journal of Financial Markets* 11, 228-258.

Brennan, Michael, and Henry Cao, 1997, International portfolio investment flows, *Journal of Finance* 52, 1851-1880.

Brown, Stephen, and Stephen Hillegeist, 2007, "How Disclosure Quality Affects the Level of Information Asymmetry," working paper. Emory University and Insead.

Chan, Kalok, Vicentiu Covrig and Lilian Ng, 2005, What determines the domestic bias and foreign bias? Evidence from mutual fund equity allocations worldwide, *Journal of Finance* 60, 1495-1534.

Chen, Hsiu-lang, Narasimhan Jegadeesh and Russell Wermers, 2000, The value of active mutual fund management: An examination of stockholdings and trades of fund managers, *Journal of Financial and Quantitative Analysis* 35, 343-368.

Choe, Hyuk, Bong-Chan Kho and René M. Stulz, 2005, Do domestic investors have an edge? The trading experience of foreign investors in Korea, *Review of Financial Studies* 18, 795-829.

Cooper, Ian, and Evi Kaplanis, 1994, Home bias in equity portfolios, inflation hedging, and international capital market equilibrium, *Review of Financial Studies* 7, 45-60.

Coval, Joshua, and Tobias J. Moskowitz, 1999, Home bias at home: Local equity preference in domestic portfolios, *Journal of Finance* 54, 2045-2073.

Coval, Joshua, and Tobias J. Moskowitz, 2001, The geography of investment: Informed trading and asset prices, *Journal of Political Economy* 109, 811-841.

Diamond, Douglas, 1985, Optimal Release of Information by Firms, *Journal of Finance* 40, 828-862.

Doidge, Craig, Andrew Karolyi and Rene Stulz, 2007, Why do countries matter so much for corporate governance? *Journal of Financial Economics* 86, 1-39.

Dorn, Daniel, and Gur Huberman, 2005, Talk and action: What individual investors say and what they do, *Review of Finance* 4, 437-458.

Durnev, A., and E. H. Kim, 2005, To steal or not to steal: Firm attributes, legal environment, and valuation, *Journal of Finance* 60, 1461-1493.

Dvorak, T., 2005, Do domestic investors have an information advantage? Evidence from Indonesia, *Journal of Finance* 60, 817-839.

Eleswarapu, V., and K. Venkataraman, 2006, The impact of legal and political institutions on equity trading costs: A cross-country analysis, *Review of Financial Studies* 19, 1081-1111.

Epstein, L., and J. Miao, 2003, A two-person dynamic equilibrium under ambiguity, *Journal of Economic Dynamics & Control* 27, 1253-1288.

Errunza, Vihang, and Etienne Losq, 1985, International asset pricing and mild segmentation: Theory and test, *Journal of Finance* 40, 105-124.

Ferreira, M., and P. Matos, 2008, The colors of investors' money: Which firms attract institutional investors from around the world, *Journal of Financial Economics* 83(3), 499-533.

Gallant, R., P. Rossi and G. Tauchen, 1992, Stock prices and volume, *Review of Financial Studies* 5, 199-242.

Gasper, J., M. Massa and P. Matos, 2008, Shareholder investment horizons and the market for corporate control, *Journal of Financial Economics* 76, 135-165.

Gelos, R. G., and S. J. Wei, 2005, Transparency and international investor behavior, *Journal of Finance* 60, 2987-3020.

Gervais, S., and T. Odean, 2001, Learning to be overconfident, *Review of Financial Studies* 14, 1-27.

Giannetti, Mariassunta, and Andrei Simonov, 2006, Which investors fear expropriation? Evidence from investors' portfolio choices, *Journal of Finance* 61, 1507-1547.

Glaser, M., and M. Weber, 2007, Overconfidence and trading volume, *Geneva Risk and Insurance Review* 32(1), 1-36.

Graham, J., C. Harvey and H. Huang, 2006, Investor competence, trading frequency, and home bias, Working paper, Duke University, Durham, NC.

Griffin, J., F. Nardari and R. Stulz, 2007, Do investors trade more when stocks have performed well? Evidence from 46 countries, *Review of Financial Studies* 20(3), 905-951.

Grinblatt, Mark, and Matti Keloharju, 2001, How distance, language, and culture influence stockholdings and trades, *Journal of Finance* 56, 1053-1073.

Grinblatt, Mark, and Sheridan D. Titman, 1989, Mutual fund performance: An analysis of quarterly portfolio holdings, *Journal of Business* 62, 394-415.

Guidolin, Massimo, 2005, Home bias and high turnover in an overlapping-generations model with learning, *Review of International Economics* 13, 725-756.

Harris, M., and A. Raviv, 1993, Differences of opinion make a horse race, *Review of Financial Studies* 6, 473-506.

Hau, H., 2001, Location matters: An examination of trading profits, *Journal of Finance* 56, 1959-1983.

He and Wang, 1995, "Differential informational and dynamic behavior of stock trading

volume" *Review of Financial Studies*, Vol. 8, pp. 919-972

Hnatkovska, V., 2005, Home bias and high turnover, dynamic portfolio choice with incomplete markets, Working paper, University of British Columbia.

Huberman, G., 2001, Familiarity breeds investment, *Review of Financial Studies* 14, 659-680.

Ivkovich, Z, and S. Weisbenner, 2005, Local does as local is: Information content of the geography of individual investors' common stock investments, *Journal of Finance* 60, 267-306.

Jin, L., and S. Myers, 2006, R^2 around the world: New theory and tests, *Journal of Financial Economics* 79, 257-292.

Kandel, Eugene, and Neil Pearson, 1995, Differential interpretation of information and trade in speculative markets, *Journal of Political Economy* 103(4), 831-872.

Kang, Jun-koo, and Rene Stulz, 1997, Why is there a home bias? An analysis of foreign portfolio equity ownership in Japan, *Journal of Financial Economics* 46, 3-28.

Karpoff, Jonathan, 1987, The relation between price changes and trading volume: A survey, *Journal of Financial and Quantitative Analysis* 22, 109-126.

Kim, Oliver, and Robert E. Verecchia, 1991, "Trading Volume and prices reactions to public announcement", *Journal of Accounting Research*, Vol. 29, pp.302-321

Kim, Oliver and Robert E. Verrecchia, 1994. "Market liquidity and volume around earnings announcements", *Journal of Accounting and Economics*, Vol. 17, pp. 41-68.

La Porta, Rafael, Robert Vishny, F. Lopez-De-Silanes and Andrei Shleifer, 1997, Legal determinants of external finance, *Journal of Finance* 52, 1131-1150.

La Porta, Rafael, Robert Vishny, F. Lopez-De-Silanes and Andrei Shleifer, 1998, Law and finance, *Journal of Political Economy* 106, 1113-1155.

Leuz, C., K. Lins and F. Warnock, 2008, Do foreigners invest less in poorly governed firms? *Review of Financial Studies* (forthcoming).

Massa, M., and A. Simonov, 2006, Hedging, familiarity and portfolio choice, *Review of Financial Studies* 19, 633-685.

McKinsey & Company, 2003a, Global investor opinion survey: Key findings, available at http://www.mckinsey.com/practices/corporategovernacne/PDF/GlobalInvestorOpinionSurvey2002.pdf.

McKinsey & Company, 2003b, McKinsey/KIOD survey on corporate governance, available at http://www.mckinsey.com/practices/corporategovernacne/PDF/cg_survey.pdf.

Merton, R., 1987, A simple model of capital market equilibrium with incomplete information, *Journal of Finance* 43, 483-510.

Milgrom, P., and N. Stokey, 1982, Information, trade, and common knowledge, *Journal of Economic Theory* 26, 17-27.

Obstfeld, Maurice, and Kenneth Rogoff, 1998, *Foundations of international macroeconomics*, MIT Press, Cambridge, MA.

Odean, T., 1998a, Volume, volatility, price, and profit when all traders are above average, *Journal of Finance* 53, 1887-1934.

Odean, T., 1998b, Are investors reluctant to realize losses? *Journal of Finance* 53, 1775-1798.

Odean, T., 1999, Do investors trade too much? *American Economic Review* 89, 1279-1298.

Petersen, Mitchell, 2009. Estimating standard errors in finance panel data sets: Comparing approaches, *Review of Financial Studies* 22(1), 435-480.

Scheinkman, J., and W. Xiong, 2003, Overconfidence and speculative bubbles, *Journal of Political Economy* 111, 642-685.

Shefrin H., and M. Statman, 1985, The disposition to sell winners too early and ride losers too long: Theory and evidence, *Journal of Finance* 40, 777-791.

Stateman, Meir, Steven Thorley and Keith Vorkink, 2006, Investor overconfidence and trading, *Review of Financial Studies* 19, 1531-1565.

Tesar, Linda, and Ingrid Werner, 1995, Home bias and high turnover, *Journal of International Money and Finance* 14, 467-492.

Verrecchia, Robert, 1982, The Use of Mathematical Models in Financial Accounting/Discussions, *Journal of Accounting Research* 20, 1-46.

Warnock, F., 2002, Home bias and high turnover reconsidered, *Journal of International Money and Finance* 21, 795-805.

Wermers, Russell, 2000, Mutual fund performance: An empirical decomposition into stock-picking talent, style, transaction costs, and expenses, *Journal of Finance* 55, 1655-1695.

Zhu, N., 2002, The local bias of individual investors, Working paper, Yale University, New Haven, CT.

Table 1: Fund turnover and stock market turnover

Panel A of this table contains the summary of 29 host countries' average mutual fund churn rates of the equities of 48 countries for the period from 1999 to 2004. For each country *j*, we compute $CHURN_t^{ij}$ (see Equation [2] for details) for fund *i* at year *t*, take a five-year average, and then calculate the cross-sectional average across all funds. For simplicity, we divide the churn measure by two, so it ranges from 0 to 1 (100%). We calculate the churn rate for the domestic (foreign) fund separately, as that when the host country of fund *i* is the same as (different from) country *j* being invested in.

	Average domestic fund churn rate (%)	Average foreign fund churn rate (%)
ARGENTINA	43.4	56.2
AUSTRALIA	46.7	55.9
AUSTRIA	52.5	57.1
BELGIUM	46.8	47.9
BRAZIL	67.0	54.7
CANADA	46.3	48.2
DENMARK	40.5	43.4
IRELAND	35.4	49.6
FINLAND	54.5	57.9
FRANCE	46.3	52.0
GERMANY	45.7	47.2
GREECE	47.3	69.8
HONG KONG	50.1	62.4
INDIA	57.7	53.3
ITALY	57.9	56.6
JAPAN	51.2	50.5
LUXEMBOURG	46.0	50.8
MEXICO	56.8	58.1
NETHERLANDS	48.1	51.2
NORWAY	48.5	58.0
NEW ZEALAND	45.3	65.7
PORTUGAL	39.6	45.9
SOUTH AFRICA	48.6	47.3
SINGAPORE	58.4	61.1
SPAIN	44.8	53.9
SWEDEN	47.5	49.0
SWITZERLAND	43.7	47.3
UK	47.8	55.2
USA	46.3	54.1
Average	**48.6**	**53.8**

Table 2: Summary statistics of the funds

This table shows the descriptive statistics of the mutual fund variables, with averages for the 1999-2004 period. The second column contains the average number of mutual funds, the third column, the average number of stock holdings of a fund, and the fourth column, the average market value of the stock holdings of a fund.

	Number of funds	Number of stock holdings	Market value of equity holdings ($million)
ARGENTINA	20	19.6	54.3
AUSTRALIA	192	31.9	112.3
AUSTRIA	149	19.1	32.9
BELGIUM	323	23.6	69.6
BRAZIL	351	20.3	44.8
CANADA	1175	36.5	174.5
DENMARK	117	20.5	53.6
IRELAND	64	20.1	124.7
FINLAND	91	17.1	40.3
FRANCE	818	24.3	107.7
GERMANY	4363	14.3	68.1
GREECE	57	32.1	41.6
HONG KONG	223	15.7	93.6
INDIA	142	36.8	60.1
ITALY	375	25.7	255.4
JAPAN	461	58.9	119.6
LUXEMBOURG	484	18.7	53.9
MEXICO	58	15.2	64.1
NETHERLANDS	154	16.1	184.1
NEW ZEALAND	14	25.7	44.9
NORWAY	151	23.0	99.4
PORTUGAL	93	19.2	28.9
SOUTH AFRICA	141	25.6	40.7
SINGAPORE	217	15.4	55.6
SPAIN	2489	13.3	25.6
SWEDEN	351	27.9	128.4
SWITZERLAND	420	24.9	127.4
UK	1772	40.6	185.8
USA	4763	68.5	564.4

Table 3: Summary statistics of the predetermined variables

This table shows the averages for the 1999-2004 period of the country-level predetermined variables. DMDISC is a dummy equal to 1 if the disclosure score is above the median, and 0 otherwise; OPACITY is constructed by Bhattacharya, Daouk, and Welker (2003), with lower values implying less financial opacity; DIST (in km) is the geographic distance between the capitals of two countries; DLANG is a dummy of 1 if the host and target countries share a common language, and 0 otherwise; TRADEB, between 0 and 1 (100%), is the share of trade between the two countries of the host country total trade; DEMG is a dummy equal to 1 if the country is an emerging market, and 0 otherwise; DEPTH is the stock market capitalization as a percentage of GDP; COST measures transaction costs; DGOV is a dummy equal to 1 if the governance score (Doidge, Karolyi and Stulz, 2005) is above the median, and 0 otherwise; LEGAL is the product of the anti-director and rule of law indices; EXPROP represents the risk of expropriation index; BIAS is a home bias measure to reflect the underweight of foreign investors in the target country; RET1 is the one-year contemporaneous local market return; and VAR is the 12-month variance in the monthly stock market returns in that year. DIST, DLANG, TRADEB, and BIAS are calculated across the funds of different host countries.

Country	Information Disclosure		Familiarity			Stock Market Development			Investor Protection			Other control variables		
	DMDISC	OPACITY	DIST	DLANG	TRADEB	DEMG	DEPTH	COST	DGOV	LEGAL	EXPROP	BIAS	RET1	VAR
ARGENTINA	0	NA	12,059	0.15	0.0024	1	60.1	65.71	0	2.14	5.91	-3.99	0.38	0.61
AUSTRALIA	1	2	13,102	0.21	0.0045	0	119.1	38.34	1	4.00	9.27	-1.54	0.07	0.06
AUSTRIA	1	3	5,528	0.04	0.0049	0	20.1	36.16	0	2.00	9.69	-1.88	0.22	0.04
BELGIUM	1	1	5,614	0.06	0.0037	0	69.9	27.89	0	0.00	9.63	-1.72	0.03	0.04
BRAZIL	0	1	10,489	0.02	0.0045	1	39.0	47.47	0	1.90	7.62	-1.69	0.28	1.21
CANADA	1	1	8,562	0.25	0.0023	0	111.6	34.38	1	4.00	9.67	-2.64	0.07	0.10
DENMARK	1	2	5,563	0	0.0047	0	65.8	36.36	0	3.00	9.67	-1.72	0.09	0.13
IRELAND	1	3	5,910	0.21	0.0028	0	85.0	60.34	1	3.12	9.67	-1.50	0.10	0.31
FINLAND	1	3	5,712	0	0.0064	0	156.0	41.37	1	2.00	9.67	-1.09	-0.07	0.65
FRANCE	1	2	5,688	0.06	0.0058	0	93.6	29.48	1	1.80	9.65	-1.23	-0.02	0.35
GERMANY	1	3	5,547	0.04	0.0073	0	55.2	31.80	1	0.92	9.9	-1.39	0.01	0.41
GREECE	0	5	5,848	0	0.0053	1	79.3	71.99	1	0.62	7.12	-2.18	0.00	0.61
HONG KONG	0	3	8,812	0.26	0.0049	0	363.4	46.44	0	3.29	8.29	-1.56	0.07	0.38
INDIA	0	5	7,236	0.21	0.0035	1	39.0	68.04	0	0.83	7.75	-2.33	0.25	0.71
ITALY	1	4	5,636	0	0.0061	0	54.8	34.26	1	0.00	9.35	-1.37	-0.01	0.33
JAPAN	1	5	8,574	0	0.0072	0	61.6	19.60	0	1.80	9.67	-1.55	-0.01	0.51
LUXEMBOURG	1	NA	5,586	0.06	0.0037	0	178.3	29.18	0	NA	NA	-4.80	0.04	0.32
MEXICO	0	1	10,100	0.15	0.0034	1	20.20	40.09	0	0.00	6.07	NA	0.19	0.56
NETHERLANDS	1	3	5,610	0	0.0045	0	132.6	27.90	1	2.00	9.98	-1.10	-0.09	0.32
NORWAY	1	1	5,688	0	0.0047	0	45.04	34.30	1	3.00	9.88	-1.75	0.16	0.39
NEW ZEALAND	1	NA	14,300	0.21	0.0054	0	47.96	42.52	1	4.00	9.69	-2.00	0.07	0.18
PORTUGAL	0	1	6,386	0.02	0.0028	1	49.07	32.19	1	1.56	8.9	-1.71	-0.02	0.29
SOUTH AFRICA	1	4	9,610	0.21	0.0046	1	184.2	52.12	1	1.77	6.88	-2.24	0.10	0.36
SINGAPORE	1	4	9,498	0.28	0.0047	0	151.5	41.29	1	2.57	9.3	-1.38	0.04	0.40
SPAIN	1	2	6,129	0.15	0.0055	0	98.0	33.90	0	1.56	9.52	-1.19	0.03	0.34
SWEDEN	1	2	5,650	0	0.0051	0	114.0	31.67	1	2.00	9.4	-1.33	0.03	0.41

Country	Information Disclosure		Familiarity			Stock Market Development			Investor Protection			Other control variables		
	DMDISC	OPACITY	DIST	DLANG	TRADEB	DEMG	DEPTH	COST	DGOV	LEGAL	EXPROP	BIAS	RET1	VAR
SWITZERLAND	1	2	5,591	0.11	0.0059	0	257.8	27.83	0	2.00	9.98	-1.24	-0.01	0.31
UK	1	2	5,727	0.21	0.0077	0	154.3	33.65	1	3.43	9.98	-0.99	-0.02	0.26
USA	1	1	8,535	0.21	0.0079	0	134.9	29.67	1	5.00	9.71	-1.38	0.02	0.31
CHILE	1	5	12,405	0.15	0.0032	1	100.4	85.40	0	NA	NA	-4.23	0.19	0.46
CHINA	0	NA	8,130	0.06	0.0044	1	48.8	NA	0	0.62	6.95	-5.06	0.06	0.46
COLOMBIA	0	NA	10,267	0.15	0.0019	1	15.1	113.2	0	NA	NA	-5.28	0.47	0.50
CZECH REPUBLIC	0	NA	4,187	0	0.0032	1	25.9	57.48	0	NA	6.3	-4.90	0.24	0.38
EGYPT	0	NA	5,452	0	0.0017	1	26.8	NA	0	NA	NA	-5.18	0.55	1.08
HUNGARY	0	NA	4,332	0	0.0028	1	25.9	60.26	0	0.80	7.16	-4.83	0.18	0.32
INDONESIA	0	5	9,917	0	0.0026	1	25.5	80.46	0	1.45	8.25	-1.84	0.27	0.56
ISRAEL	0	NA	5,456	0	0.0029	1	62.0	NA	0	0.54	8.31	-5.03	0.15	0.58
KOREA	0	5	8,020	0	0.0041	1	55.7	64.81	0	2.03	7.95	-1.54	0.06	0.56
MALAYSIA	0	4	9,083	0.02	0.0032	1	161.9	66.51	0	1.21	5.62	-2.04	0.07	0.31
PAKISTAN	0	4	6,495	0	N.A	1	19.6	NA	0	0.75	5.54	-4.15	0.37	0.74
PERU	0	NA	11,462	0.15	0.0014	1	26.0	59.88	0	1.09	5.22	-4.97	0.22	0.55
PHILIPPINES	0	NA	9,102	0.21	0.0028	1	44.4	101.2	0	NA	NA	-2.32	0.10	0.39
POLAND	0	NA	4,289	0	0.0024	1	18.4	NA	0	NA	NA	-4.90	0.15	0.46
RUSSIA	0	NA	4,993	0	0.0031	1	46.2	NA	0	2.56	9.12	-5.02	0.39	0.66
TAIWAN	1	4	8,780	0.06	0.0038	1	100.0	58.66	0	1.88	7.42	-1.81	0.01	0.51
THAILAND	0	3	8,405	0	0.0026	1	56.4	60.59	0	1.04	7	-1.63	0.31	0.63
TURKEY	0	4	4,966	0	0.0024	1	32.0	53.81	0	0.64	6.89	-4.96	0.26	0.77
VENEZUELA	0	NA	9,527	0.15	0.0016	1	4.8	119.9				-5.30	0.66	0.66

Table 4: Regression analysis of the country-level churn rate of foreign equities

The dependent variable is the equal-weighted average of the adjusted churn rate of host fund *i* in equities from foreign country *j* in year *t*. There are five sets of explanatory variables associated with country *j* to explain the country-level adjusted churn rate. The first two sets are : (1) Information Asymmetry variables, including disclosure standard (DMDISC) and financial opacity (OPACITY); (2) Familiarity variables, including geographic distance between capital cities in log form (DIST), a dummy equal to 1 if the host and target counties share a common language (DLANG), and the share of bilateral trade of the host country total trade (TRADEB); while the last 3 sets are control variables: (3) Stock Market Development variables, including an emerging market dummy (DEMG), stock market capitalization as a percentage of GDP (DEPTH), and transaction costs (COST); (4) Investor Protection variables, including a dummy variable measuring corporate governance (DGOV), the product of anti-director and rule of law indices (LEGAL), and the risk of expropriation index (EXPROP); and (5) Other control variables, including home bias (BIAS), the one-year contemporaneous local market return (RET1), and stock market return variance (VAR). The t-statistics are based on clustered standard errors. All models include unreported year effects. The number of country observations is 3,777.

	Pre-dicted sign	Information Asymmetry		Familiarity		Stock Market Development		Investor Protection		Other control variables		All variables	
		Coeff	t-stat	Coeff	t-stat	Coeff	t-stat	Coeff	t-stat	Coeff	t-stat	Coeff.	t-stat
DMDISC	-	-0.09	-6.99									-0.04	-2.05
OPACITY	+	0.02	2.11									0.01	1.75
DIST	+			0.06	5.02							0.07	3.87
DLANG	-			-0.11	-8.23							-0.09	-5.60
TRADEB	-			-0.04	-1.80							0.05	0.31
DEMG	??					0.12	6.54					-0.01	-0.34
DEPTH	??					-0.07	-1.82					-0.02	-2.23
COST	??					-0.25	-4.77					-0.04	-1.56
GOV	??							-0.04	-3.32			-0.03	-1.84
LEGAL	??							-0.01	-3.17			-0.02	-1.47
EXPROP	??							-0.00	-1.47			-0.04	-2.21
BIAS	-									-0.02	-1.97	-0.01	-1.97
RET1	+									0.15	6.06	0.19	6.00
VAR	+									0.04	3.82	0.02	1.85
Adjusted R^2		0.057		0.053		0.049		0.040		0.048		0.095	

Table 5: Regression analysis of the country-level churn rate of foreign equities based on the standardized variables

The dependent variable is the standardized equal-weighted average of the adjusted churn rate of host fund *i* in equities from foreign country *j* in year *t*. There are five sets of explanatory variables associated with country *j* to explain the country-level adjusted churn rate. The first two sets are : (1) Information Asymmetry variables, including disclosure standard (DMDISC) and financial opacity (OPACITY); (2) Familiarity variables, including geographic distance between capital cities in log form (DIST), a dummy equal to 1 if the host and target counties share a common language (DLANG), and the share of bilateral trade of the host country total trade (TRADEB); while the last 3 sets are control variables: (3) Stock Market Development variables, including an emerging market dummy (DEMG), stock market capitalization as a percentage of GDP (DEPTH), and transaction costs (COST); (4) Investor Protection variables, including a dummy variable measuring corporate governance (DGOV), the product of anti-director and rule of law indices (LEGAL), and the risk of expropriation index (EXPROP); and (5) Other control variables, including home bias (BIAS), the one-year contemporaneous local market return (RET1), and stock market return variance (VAR). The t-statistics are based on clustered standard errors. All models include unreported year effects. The number of country observations is 3,777.

	Pre-dicted sign	Information Asymmetry		Familiarity		Stock Market Development		Investor Protection		Other control variables		All variables	
		Coeff	t-stat	Coeff	t-stat	Coeff	t-stat	Coeff	t-stat	Coeff	t-stat	Coeff.	t-stat
DMDISC	-	-0.10	-6.99									-0.04	-2.05
OPACITY	+	0.01	2.11									0.01	1.75
DIST	+			0.09	5.02							0.06	3.87
DLANG	-			-0.06	-8.23							-0.04	-5.60
TRADEB	-			-0.04	-1.80							0.01	0.31
												-0.01	
DEMG	??					0.11	6.54						-0.34
DEPTH	??					-0.02	-1.82					-0.04	-2.23
COST	??					-0.09	-4.77					-0.01	-1.56
GOV	??							-0.07	-3.32			-0.03	-1.84
LEGAL	??							-0.07	-3.17			-0.02	-1.47
EXPROP	??							-0.01	-1.47			-0.03	-2.21
BIAS	-									-0.01	-1.97	-0.01	-1.97
RET1	+									0.10	6.06	0.12	6.00
VAR	+									0.03	3.82	0.02	1.85
Adjusted R^2		0.057		0.053		0.049		0.040		0.048		0.095	

Table 6: Regression analysis of the country-level churn rate of foreign equities churn measure calculated based on lagged stock prices

The dependent variable is the equal-weighted average of the adjusted churn rate of host fund *i* in equities from foreign country *j* in year *t*, $ADJ\_CHURN_{ij} = (CHURN_{ij}\text{-}CHURN_i/)CHURN_i$, where $CHURN_{ij}$ is constructed based on lagged stock prices (prices in year *t-1*) as shown in Equation (4). There are five sets of explanatory variables associated with country *j* to explain the country-level adjusted churn rate. The first two sets are : (1) Information Asymmetry variables, including disclosure standard (DMDISC) and financial opacity (OPACITY); (2) Familiarity variables, including geographic distance between capital cities in log form (DIST), a dummy equal to 1 if the host and target counties share a common language (DLANG), and the share of bilateral trade of the host country total trade (TRADEB); while the last 3 sets are control variables: (3) Stock Market Development variables, including an emerging market dummy (DEMG), stock market capitalization as a percentage of GDP (DEPTH), and transaction costs (COST); (4) Investor Protection variables, including a dummy variable measuring corporate governance (DGOV), the product of anti-director and rule of law indices (LEGAL), and the risk of expropriation index (EXPROP); and (5) Other control variables, including home bias (BIAS), the one-year contemporaneous local market return (RET1), and stock market return variance (VAR). The t-statistics are based on clustered standard errors. All models include unreported year effects. The number of country observations is 3,777.

	Pre-dicted sign	Information Asymmetry		Familiarity		Stock Market Development		Investor Protection		Other control variables		All variables	
		Coeff	t-stat	Coeff	t-stat	Coeff	t-stat	Coeff	t-stat	Coeff	t-stat	Coeff.	t-stat
DMDISC	-	-0.08	-5.68									-0.10	-2.55
OPACITY	+	0.01	1.98									0.02	3.37
DIST	+			0.11	7.75							0.04	2.22
DLANG	-			-0.04	-2.42							-0.00	-0.16
TRADEB	-			0.52	4.65							0.28	2.39
DEMG	??					0.13	6.44					0.01	0.13
DEPTH	??					-0.01	-1.85					-0.05	-4.57
COST	??					-0.35	-6.28					-0.34	-4.67
GOV	??							0.00	0.23			0.03	1.77
LEGAL	??							-0.00	-0.77			0.01	1.86
EXPROP	??							-0.02	-3.33			-0.02	-1.49
BIAS	-									-0.01	-2.62	-0.02	-4.06
RET1	+									0.08	3.35	0.04	2.15
VAR	+									0.13	11.20	0.09	7.60
Adjusted R^2		0.097		0.094		0.092		0.082		0.110		0.158	

Table 7: Regression analysis of firm-level churn rate in foreign equities

The dependent variable is the adjusted churn rate of host fund *i* in equities from foreign country *j* in year *t* , ADJ_CHURN_{ij} =($CHURN_{ij}$-$CHURN_i$/)$CHURN_i$. There are five sets of explanatory variables associated with country *j* to explain ADJ_CHURN_{ij} : (1) Stock Market Development variables, including the emerging market dummy (DEMG), stock market capitalization as a percentage of GDP (DEPTH), and transaction costs (COST); (2) Investor Protection variables, including a dummy variable measuring corporate governance (DGOV), the product of anti-director index and rule of law index (LEGAL), and the risk of expropriation index (EXPROP); (3) Information Disclosure variables, including disclosure standard (DMDISC) and financial opacity (OPACITY); (4) Familiarity variables, including geographic distance between capital cities in log form (DIST), a dummy equal to 1 if the host and target counties share a common language (DLANG), share of bilateral trade in the host country total trade (TRADEB); (5) Other control variables, including the home bias (BIAS), one-year contemporaneous local market return (RET1), and stock market return variance (VAR). The t-statistics are based on clustered standard errors. All models include unreported year effects. The number of country observations is 225,212.

	Pre-dicted sign	Information Asymmetry		Familiarity		Stock Market Development		Investor Protection		Other control variables		All variables	
		Coeff	t-stat	Coeff	t-stat	Coeff	t-stat	Coeff	t-stat	Coeff	t-stat	Coeff.	t-stat
DMDISC	-	-0.09	-5.19									-0.04	-2.24
OPACITY	+	0.02	10.85									0.00	1.84
DIST	+			0.04	6.97							0.04	5.10
DLANG	-			-0.01	-1.68							0.01	1.02
TRADEB	-			-0.07	-4.92							-0.06	-3.47
DEMG	??					0.08	4.59					-0.02	-1.00
DEPTH	??					-0.05	-18.74					-0.04	-10.00
COST	??					0.09	3.85					0.00	0.11
GOV	??							0.02	5.90			0.01	1.93
LEGAL	??							-0.02	-13.12			-0.02	-8.58
EXPROP	??							-0.06	-5.90			-0.02	-2.33
BIAS	-									-0.01	-7.50	-0.01	-1.97
RET1	+									0.14	5.09	0.18	4.69
VAR	+									-0.05	1.95	0.01	0.63

Table 8: Principal components of the country-level variables

This table summarizes the results of the principal component analysis used to extract the factors that maximize the explanatory power of the variation in each group of variables. The second row presents the variation in the group variables that can be explained by the first principal component (PC).The following rows reports the country values of the first principal component (PC) from each group, values used in subsequent regressions. PC_INFO is the first PC for the information asymmetry category, and PC_FAM is the first PC for the familiarity category, PC_STOCKDEV is the first PC for the stock market development category and PC_INVESTPROT is the first PC for the investor protection category,.

	PC_INFO	PC_FAM	PC_STOCKDEV	PC_INVESTPROT
% of variation explained by the first principal component	65.90	52.27	65.66	64.48
% of variation explained by the second principal component	34.10	33.91	24.87	20.28
% of variation explained by the third principal component		13.82	9.47	15.24
ARGENTINA	NA	1.38	-1.27	-1.43
AUSTRALIA	1.037	1.97	1.04	2.04
AUSTRIA	0.54	-0.87	0.50	0.11
BELGIUM	1.53	-0.49	1.13	-0.83
BRAZIL	0.11	0.11	-1.08	-0.80
CANADA	1.53	1.66	1.12	2.21
DENMARK	1.03	-1.22	0.74	0.56
IRELAND	0.54	0.80	0.32	1.80
FINLAND	0.54	-1.17	1.13	1.29
FRANCE	1.03	-0.74	1.24	1.18
GERMANY	0.53	-0.97	0.85	0.89
GREECE	-1.87	-1.25	-1.39	-0.41
HONG KONG	-0.88	2.20	2.23	0.11
INDIA	-1.88	0.82	-1.53	-1.24
ITALY	0.04	-1.26	0.77	0.23
JAPAN	-0.46	-0.47	1.59	0.01
LUXEMBOURG	NA	-0.49	2.32	NA
MEXICO	0.11	1.14	-0.95	-2.33
NETHERLANDS	0.53	-1.07	1.52	1.42
NORWAY	1.53	-1.19	0.71	1.84
NEW ZEALAND	NA	2.34	0.33	2.22
PORTUGAL	0.11	-0.77	-0.46	-0.42
SOUTH AFRICA	-1.38	1.41	-0.33	-1.18
SINGAPORE	0.04	2.66	1.10	1.39
SPAIN	1.03	0.05	1.04	-0.16
SWEDEN	1.03	-1.17	1.25	1.17
SWITZERLAND	1.03	-0.39	2.37	0.23
UK	1.03	0.56	1.41	1.98
USA	1.53	0.98	1.47	2.77
CHILE	-0.45	1.56	-1.54	-0.74
CHINA	NA	-0.03	NA	NA
COLOMBIA	NA	1.10	-2.13	-1.63
CZECH REPUBLIC	NA	-1.68	-1.42	NA
EGYPT	NA	-1.34	NA	NA
HUNGARY	NA	-1.62	-1.50	NA
INDONESIA	NA	NA	-1.87	-1.50
ISRAEL	NA	-1.26	NA	-0.75
KOREA	-1.88	-0.40	-1.42	-1.14
MALAYSIA	-1.38	0.37	-0.77	-0.60
PAKISTAN	-1.36	NA	NA	-1.88
PERU	NA	1.34	-1.29	-2.16
PHILIPPINES	NA	1.57	-2.07	-2.19
POLAND	NA	-1.82	NA	NA
RUSSIA	NA	-1.49	NA	NA
TAIWAN	-1.38	0.29	-1.02	0.12

	PC_INFO	PC_FAM	PC_STOCKDEV	PC_INVESTPROT
THAILAND	-0.88	-0.25	-1.33	-0.89
TURKEY	-1.38	-1.52	-1.34	-1.46
VENEZUELA	NA	0.94	-2.56	-1.71

Table 9: Regression analysis of the country-level churn rate of foreign equities based on the principal components of country-level variables

The dependent variable is the equal-weighted average of the adjusted churn rate of host fund *i* in equities from foreign country *j* in year *t*, $ADJ\_CHURN_{ij} = (CHURN_{ij}\text{-}CHURN_i/)CHURN_i$. The explanatory variables are country-level characteristics associated with country *j*: PC_INFO is the first principal component extracted from the Information Disclosure group of variables; and PC_FAM is the first principal component extracted from the Familiarity group of variables, PC_STOCKDEV is the first principal component extracted from the Stock Market Development group of variables; PC_INVESTPROT is the first principal component extracted from the Investor Protection group of variables;. We also include other control variables, including home bias (BIAS), the one-year contemporaneous local market return (RET1), and stock market return variance (VAR). The t-statistics are obtained from the standard Newey-West heteroskedasticity and autocorelation corrected standard errors. All models include unreported year effects.

Panel A

	Pre-dicted sign	Information Asymmetry		Familiarity		Market Development		Investor Protection		All variables	
		Coeff	t-stat	Coeff	t-stat	Coeff	t-stat	Coeff	t-stat	Coeff	t-stat
PC_INFO	-	-0.02	-4.36							-0.01	-2.18
PC_FAM				-0.01	-3.26					-0.02	-4.52
PC_STOCKDEV	-					-0.01	-2.49			-0.01	-1.94
PC_INVESTPROT	-							-0.02	-4.40	-0.02	-2.59
BIAS	-	-0.00	-0.62	-0.01	-1.25	-0.01	-2.36	-0.00	-0.19	-0.00	-0.49
RET1	+	0.23	8.24	0.15	5.97	0.18	6.29	0.17	6.00	0.21	7.14
VAR	+	0.03	2.93	0.04	3.56	0.05	4.25	0.03	3.30	0.02	1.75
Adjusted R^2		0.087		0.059		0.066		0.071		0.100	

Panel B

	Predicted sign	Interaction between Information Asymmetry and Familiarity		All variables	
		Coeff	t-stat	Coeff	t-stat
PC_INFO	-	-0.02	-4.14	-0.02	-3.41
PC_FAM	-	-0.02	-4.94	-0.02	-3.66
PC_INFO*PC_FAM	?	-0.02	-3.48	-0.02	-3.84
PC_STOCKDEV	-			-0.03	-3.28
PC_INVESTPROT	-			-0.01	-1.09
BIAS	-	-0.01	-1.37	-0.01	-1.26
RET1	+	0.25	8.77	0.21	6.93
VAR	+	0.03	2.56	0.03	2.63
Adjusted R^2		0.102		0.116	

Table 10: Regression analysis of the churn rate of foreign equities by introducing interaction terms involving market returns and the Information Disclosure or Familiarity variables

The dependent variable is the equal-weighted average of the adjusted churn rate of host fund *i* in equities of foreign country *j* in year *t*, $ADJ\_CHURN_{ij} = (CHURN_{ij}\text{-}CHURN_i/)CHURN_i$. The explanatory variables are country-level characteristics associated with country *j*: PC_INFO is the first principal component extracted from the Information Asymmetry group of variables; PC_FAM is the first principal component extracted from the Familiarity group of variables; PC_STOCKDEV is the first principal component extracted from the Stock Market Development group of variables; and PC_INVESTPROT is the first principal component extracted from the Investor Protection group of variables; We also include other control variables, including home bias (BIAS), the one-year contemporaneous local market return (RET1), and stock market return variance (VAR). The independent variables include two interaction terms, interacting RET1 with PC_INFO and PC_FAM. The t-statistics are obtained from the standard Newey-West heteroskedasticity and autocorelation corrected standard errors. All models include unreported year effects.

	Predicted sign	Interaction between Information Asymmetry and Market returns		Interaction between Familiarity and Market returns		All variables	
		Coeff	t-stat	Coeff	t-stat	Coeff	t-stat
PC_INFO	-	-0.02	-2.31			-0.02	-2.14
PC_INFO*RET1	-	-0.04	-2.46			-0.04	-2.27
PC_FAM	-			-0.03	-5.95	-0.02	-4.53
PC_FAM*RET1	-			-0.05	-3.09	-0.05	-2.98
PC_STOCKDEV	-	-0.02	-2.78	-0.01	-1.75	-0.01	-2.15
PC_INVESTPROT	-	-0.02	-3.58	-0.01	-1.78	-0.01	-2.54
BIAS	-	-0.00	-0.38	-0.00	-0.37	-0.00	-0.72
RET1	+	0.15	4.28	0.18	6.14	0.19	5.32
VAR	+	0.03	2.63	0.02	2.09	0.02	1.79
Adjusted R^2		0.096		0.083		0.102	