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Do locals know better? A comparison of the performance of local and foreign institutional investors☆

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ABSTRACT

We compare the performance of local versus foreign institutional investors using a comprehensive data set of equity holdings in 32 countries during the 2000–2010 period. We find that foreign institutions perform as well as local institutions on average, but only domestic institutions show a trading pattern consistent with an information advantage. Our results suggest a smart-money effect of local institutions in countries subject to higher information asymmetry, non-English speaking countries, countries with less efficient stock markets, with poor investor protection, or high levels of corruption. The local advantage is more pronounced in periods of market turmoil and in illiquid stocks.

1. Introduction

Financial globalization and the substantial growth of the global mutual fund industry have expanded investment opportunities for global investors (Khorana et al., 2005). Investors seeking to allocate money to foreign assets face a choice between investing through an international, and perhaps sophisticated, money management company or investing through a local management company, located in the same country as the target securities, and perhaps with better information about these local securities. Our research aims to shed light on which of these two investment options is better.

A large literature investigates the effects of geographic distance on investors' portfolio decisions and investment performance. Empirical evidence shows that the information asymmetry that foreign investors face is a determinant of their investment decision (e.g., Gehrig, 1993; Chan et al., 2005; Leuz et al., 2009), which may help explain the home-bias phenomenon (French and Poterba, 1991; Lewis, 1999; Karolyi and Stulz, 2003). Home bias may also be the outcome of rational investor choice, whether because of incentives to hold portfolios similar to those of their neighbors (Cole et al., 2001; DeMarzo et al., 2004) or to make their information set as different as possible from other investors (Van Nieuwerburgh and Veldkamp, 2009). The preference of investors for local stocks takes place not only internationally, but also domestically. U.S. money managers and analysts who are geographically closer to the headquarters of a firm seem to have an information advantage (Coval and Moskowitz, 2001; Malloy, 2005; Baik et al., 2010).

Empirical evidence also indicates that local investors outperform foreigners on average: Shukla and Van Inwegen (1995) in the United States; Hau (2001) in Germany; Choe et al. (2005) in Korea; Dvorak (2005) in Indonesia; and Teo (2009) in Asia. Local analysts also seem to have an information advantage over foreign analysts (Bae et al., 2008).

Contrary to this local information advantage hypothesis, Albuquerque et al. (2009) develop a theory of equity trading in international markets that is consistent with the idea that foreign investors have private information that is valuable for trading in many countries simultaneously. Sophisticated U.S. investors may have a particular advantage in foreign markets over local investors through global private information that they have acquired in the U.S. market.

Consistent with this hypothesis, other authors find that foreign investors who participate in a market can actually be better informed than local investors: Grinblatt and Keloharju (2000) in Fin-

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land; Froot et al. (2001) in emerging markets; Huang and Shiu (2005) in Taiwan; Bailey et al. (2007) in Singapore and Thailand; and Froot and Ramadorai (2008) in closed-end funds of 25 countries.

Other authors find no difference between the performance of local and foreign investors: Kang and Stulz (1997) in Japan, and Seasholes and Zhu (2010) using portfolios of individual investors. In short, the evidence is mixed on whether local or foreign investors have an information advantage.

We compare the performance of institutional investors in stocks of their own country (domestic holdings) to the performance of money managers located in other countries (foreign holdings). While most of the research to date compares investor performance in a single country, we use a large sample of institutional money managers in 32 countries over the 2000–2010 period. Using a worldwide sample allows us to get more robust evidence and to provide a more complete picture of the performance of local and foreign investors around the world.

The results show that, on average, domestic and foreign investors perform equally well. The unconditional average return on domestic portfolios is statistically indistinguishable from the average return on portfolios of foreign investors. We find that the levels of both types of institutional ownership – domestic and foreign – have significant forecasting power for one-quarter-ahead stock returns. This is consistent with the results of Gompers and Metrick (2001), but extended to a worldwide sample. Furthermore, we find that this effect of both holding types on future returns comes mostly from a price-pressure effect, rather than from informed trading by institutional investors.

It would be reasonable to expect, however, that domestic investors would have an information advantage in more opaque countries, in challenging market conditions, or in specific stocks in which information asymmetry is likely to be higher. To test these hypotheses, we use several country-level and stock-level proxies for the quality of a firm's information environment. We find indeed an advantage of local institutional investors in shares of firms located in more opaque countries. When we split the sample on U.S. versus other countries or on English-speaking countries versus other languages, we find that domestic investors show a more pronounced information advantage outside the United States and in countries where the official language is not English (where information asymmetry is likely to be higher). We also find a local advantage in countries with less efficient stock markets (i.e. stock markets with a lower share of firm-specific return variation), in countries with weaker investor protection, and in countries with more corruption. Finally, we find a local advantage during market downturns and periods of higher aggregate market uncertainty. There is also evidence of a local advantage in more illiquid stocks.

In summary, the results suggest that only domestic institutions show a trading pattern consistent with an information advantage. When there is high information asymmetry, domestic investors increase their holdings of a stock before its price goes up, while foreign investors do not.

2. Methodology

Our first research goal is to analyze the performance difference between domestic and foreign holdings of institutional investors. We begin with a simple comparison of returns denominated in U.S. dollars in excess of the U.S. risk-free rate (3-month Treasury Bill rate). We calculate monthly value-weighted portfolio excess returns on the local and foreign equity holdings in each market, and then compare the time-series averages of the domestic and foreign portfolio returns.

To adjust returns for risk using the four-factor Carhart (1997) model, we run a time-series regression of portfolio returns on either country-specific or global risk factors:

$$R_{i,t} = \alpha_i + \beta_{1,i}RM_t + \beta_{2,i}SMB_t + \beta_{3,i}HML_t + \beta_{4,i}MOM_t + \varepsilon_{i,t} \quad (1)$$

where $R_{i,t}$ is the excess return in U.S. dollars of portfolio i (either the domestic or foreign portfolio) in month t; RM_t is the excess return in U.S. dollars on the stock market; SMB_t (Small minus Big) is the return on the small capitalization minus the return on the large capitalization portfolios; HML_t (High minus Low) is the return on the high book-to-market minus the return on the low book-to-market portfolios; and MOM_t (Momentum) is the return of the past 12-month winners minus the return on the past 12-month losers portfolios. The global RM_t, SMB_t, HML_t, and MOM_t factors are constructed as value-weighted averages across countries.[1]

We first report the alpha from a simple regression on the market factor, and then the alpha from the full regression on the four factors. In both cases, we are interested in whether the alpha for the portfolio of domestic holdings is different from the alpha for the portfolio of foreign holdings.

Next, we study the difference in predictive power between domestic and foreign institutional ownership using multiple regressions. Following Gompers and Metrick (2001) and Baik et al. (2010), we run a regression of one-quarter-ahead stock returns ($R_{i,t+1}$) on the current levels of domestic and foreign institutional ownership:

$$R_{i,t+1} = \beta_1 IO_{i,t}^{Dom} + \beta_2 IO_{i,t}^{For} + \gamma_1 X_{i,t} + \gamma_2 Dummies_{i,t} + \varepsilon_{i,t} \quad (2)$$

where X includes several variables known to influence returns, and the dummies control for industry, country, and time patterns. A higher coefficient on IO for a type of investor suggests the flows of this group of investors predict stock returns better.

There are two explanations for why a group of investors' flows may predict stock returns. The first, which is known in the literature as the *price-pressure* explanation, is that investors can generate movements in equity returns that are unrelated to underlying fundamentals. In models such as Frankel and Froot (1987), DeLong et al. (1990), Barberis and Shleifer (2003), and Hong and Stein (2003), the similar, even if uninformed, trading pattern of a group of investors (e.g., positive feedback trading) temporarily soaks up the available liquidity for an asset. The asset price may move away from its fundamental value and this uninformed trading pattern persists until additional liquidity arrives. The second, which is known as the *information* explanation, is that one group of investors is more informed than other investors. This group of investors perceives relevant fundamentals better than other investors, and engages in purchases or sales when they anticipate movements in these fundamentals. When fundamentals are later revealed, equity prices adjust to their new level.

To understand the source of the local or foreign advantage, we employ the methodology of Gompers and Metrick (2001) and Baik et al. (2010). Specifically, we decompose total institutional ownership ($IO_{i,t}$) into last period's level ($IO_{i,t-1}$) plus the change from last period to this period ($\Delta IO_{i,t}$). We then regress future returns on these variables:

$$R_{i,t+1} = \beta_1 IO_{i,t-1}^{Dom} + \beta_2 \Delta IO_{i,t}^{Dom} + \beta_3 IO_{i,t-1}^{For} + \beta_4 \Delta IO_{i,t}^{For} + \gamma_1 Controls_{i,t} + \gamma_2 Dummies_{i,t} + \varepsilon_{i,t} \quad (3)$$

According to Gompers and Metrick (2001), if the relation between institutional ownership and returns is driven by a demand-shock or price-pressure explanation, the lagged level of institutional ownership ($IO_{i,t-1}$) should forecast returns better than the change ($\Delta IO_{i,t}$) does. The assumption is that the lagged level of

[1] The four factors are generated using stock market data from DataStream and WorldScope employing a methodology similar to that used by Schmidt et al. (2015).

institutional ownership ($IO_{i,t-1}$) is a good predictor of future institutional demand because institutional demand patterns are relatively stable over time. On the other hand, if the relation between *IO* and returns is driven instead by an information or smart-institutions explanation, the recent shift in institutional holdings, captured by $\Delta IO_{i,t}$, should forecast returns better than $IO_{i,t-1}$ does. In summary, Gompers and Metrick (2001) argument is that a positive coefficient on the lagged level suggests a price-pressure explanation, while a positive coefficient on the first difference suggests an information explanation.

Given the literature, it is not clear whether we should expect any unconditional aggregate performance difference between domestic and foreign investors. Nevertheless, we expect domestic investors to perform better in countries, market conditions, and stocks in which information asymmetry is likely to be higher. To test this hypothesis, we split the sample using several country-level and stock-level proxies for the quality of the firm's information environment. We then run the same regression for each separate subsample and check whether the domestic holdings have stronger predictive ability in high information asymmetry environments.

3. Data and variable construction

3.1. Sample

Our sample combines several data sources. We first collect a list of all firms covered in the Datastream/WorldScope database for 32 countries. We also collect a set of characteristics for each firm and for its stock market from Datastream/WorldScope.

Institutions defined as professional money managers with discretionary control over assets (such as mutual funds, pension funds, bank trusts, and insurance companies) are frequently required to disclose their holdings publicly. We obtain historical filings from the FactSet/LionShares database from January 2000 through December 2010 on a quarterly basis.

FactSet/LionShares is a leading source for institutional equity holdings worldwide. The data sources are public filings by investors, such as Securities and Exchange Commission (SEC) 13-F filings (fund family level) and N-SAR (individual fund level) in the United States. For equities traded outside the United States, FactSet/LionShares collects ownership data directly from sources such as national regulatory agencies or stock exchange announcements, mutual fund industry directories, and company proxies and annual reports. Ferreira and Matos (2008) use this data set to study the role of institutional investors in corporations around the world. Following Gompers and Metrick (2001), we set institutional ownership variables to zero if a stock is not held by any institution in FactSet/LionShares.

We extract the number of analysts following a stock from the IBES database. The list of MSCI components is obtained from the Bloomberg Financial Services database. Country-level variables are obtained from the World Bank collection of development indicators database. The Chicago Board Options Exchange (CBOE) volatility index (VXO series) is obtained from the CBOE website. Our final sample covers 632,505 firm-quarters. Table A1 in the Appendix provides variable definitions and data sources.

3.2. Classifying domestic versus foreign holdings

We first define total institutional ownership (*IO*) as the sum of the holdings of all institutions in a firm's stock divided by market capitalization at the end of each calendar quarter. We sum institutional positions in both local and American Depositary Receipts (ADR) shares.

Table 1
Domestic and foreign institutional ownership.

Country	*IO*	*IO_DOM*	*IO_FOR*	Number of firms
Australia	0.156	0.022	0.134	821
Austria	0.179	0.018	0.162	69
Belgium	0.160	0.013	0.147	96
Brazil	0.252	0.047	0.205	153
Canada	0.498	0.272	0.227	675
China	0.184	0.022	0.162	442
Denmark	0.260	0.055	0.205	98
Finland	0.297	0.086	0.211	97
France	0.221	0.052	0.170	453
Germany	0.234	0.048	0.186	389
Hong Kong	0.144	0.027	0.117	853
India	0.137	0.040	0.097	1340
Ireland	0.394	0.007	0.387	45
Israel	0.329	0.009	0.320	92
Italy	0.155	0.013	0.142	219
Japan	0.137	0.041	0.097	1747
Korea (South)	0.149	0.001	0.148	779
Luxembourg	0.278	0.002	0.276	21
Malaysia	0.080	0.008	0.072	569
Netherlands	0.334	0.034	0.299	98
Norway	0.233	0.101	0.132	120
Poland	0.212	0.134	0.079	135
Portugal	0.115	0.010	0.105	37
Singapore	0.134	0.023	0.110	415
South Africa	0.213	0.046	0.166	180
Spain	0.168	0.014	0.154	119
Sweden	0.363	0.234	0.129	185
Switzerland	0.282	0.048	0.235	207
Taiwan	0.176	0.017	0.159	596
Thailand	0.121	0.019	0.102	324
U.K.	0.299	0.121	0.178	1067
U.S.	0.728	0.649	0.079	3916
Total	0.398	0.269	0.129	16,357

This table reports, for each country in the sample, the average across all firms of total institutional ownership (*IO*), domestic institutional ownership (*IO_DOM*), and foreign institutional ownership (*IO_FOR*) as a fraction of market capitalization as of December 2010.

For each stock, we compute the holdings of investors based on the country of the institution that holds a position in the stock. We classify an institutional holding as *domestic* when the stock's country equals the institution's country. We classify an institutional holding as *foreign* when the stock's country does not equal the institution's country. We consider as a stock's country the country where the company is domiciled according to the Datastream/Worldscope database. We consider as an institution's country the country where the investment company is domiciled according to the FactSet/LionShares database.

We also explore alternative classifications of institutional holdings. First, we divide each institution's portfolio into a *same region* and *different region* portion, using the geographic region (Africa, Asia, Eastern Europe, Japan, Latin America, North America, Oceania, and Western Europe) of the institution and of the stock. We classify an institutional holding as same region when an institution is located in the same region where the stock is domiciled. We classify an institutional holding as different region when an institution is located in a different region from the one where the stock is domiciled.

Finally, we divide each institution's portfolio into a *local* and *distant* portion, using the distance between the institution and the stock as in Coval and Moskowitz (2001). More specifically, we classify an institutional holding as local when an institution's country is less than 1000 km away from the stock's country (distance measured as the distance between capital cities). We classify an institutional holding as distant when an institution's country is more than 1000 km away from the stock's country.

Table 1 presents domestic versus foreign institutional holdings as a percentage of market capitalization in each country as of

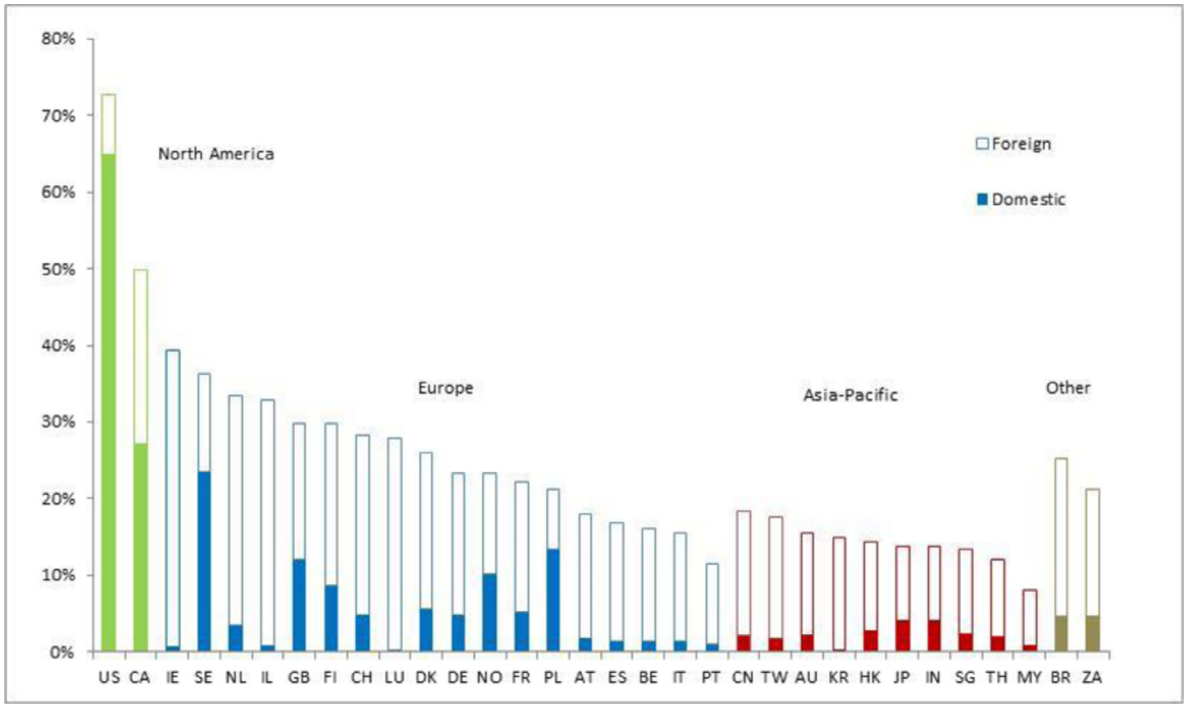

Fig. 1. Domestic and foreign institutional ownership.
This figure shows the average institutional ownership by foreign and domestic institutions by country at the end of 2010. Domestic (foreign) institutional ownership is the sum of the holdings of all institutions domiciled in the same country (in a different country) in which the stock is listed, as a fraction of its year-end market capitalization.

December 2010. Fig. 1 shows that the prevalence of foreign and domestic institutional money managers varies considerably across countries. Domestic investors hold large fractions of the market in the United States, Canada, and Sweden, but foreign institutions actually hold the largest fraction of local market capitalization in countries like Australia, France, Germany, Netherlands, and Switzerland.

3.3. Proxies for information asymmetry

We investigate whether the relation between stock returns and institutional holdings depends on the level of information asymmetry between investors. We use several proxies for information asymmetry commonly employed in the academic literature.

We start by examining information asymmetry at the country level. We split countries according to the levels of the following variables: stock market efficiency (using the R^2 of Morck et al., 2000); a corruption index (La Porta et al., 1998); an index of financial disclosure (Jin and Myers, 2006); and an index of anti-director rights or shareholder protection (La Porta et al., 1998). Additionally, we also split countries by geographic region (U.S. vs. other countries) and language (English speaking vs. non-English speaking countries). Table A1 in the appendix provides details on the construction and interpretation of each variable.

Next, we consider information asymmetry due to different market conditions. Consistent with the idea that information asymmetry is greater during worse economic conditions, we split the sample according to different market cycles. The periods 2000: Q1-2002: Q2 and 2008: Q1-2009: Q1 are classified as bear market periods, while other periods are classified as bull market periods. Additionally, we also split the sample into periods of high or low market uncertainty. We define a period of high market uncertainty, or stress, when the VIX is above its 75th percentile.

Last, we focus on stock-specific characteristics that may proxy for information opaqueness at the firm level. Our first proxy is the number of analysts covering the stock. Coverage by analysts can significantly reduce any information gap between local and foreign institutions. Second, we split the sample according to the volatility of the stock. In stocks with higher volatility there is more room for exploitable trading opportunities due to information asymmetry. Third, we include stock illiquidity, measuring illiquidity by the percentage of days with zero stock returns, as illiquidity is positively related to information asymmetry.

We also analyze how performance changes with the ownership structure of the firm. In firms with high insider ownership and high Herfindahl index of ownership concentration, there are more private benefits of control, and managers will have fewer incentives to seek transparency. We also include other firm-level proxies. One of these proxies is firm size, measured by the firm's market capitalization in U.S. dollars, as larger firms are usually considered to have lower information asymmetry than smaller firms. We also include the book-to-market ratio (B/M) since previous empirical literature documents that high-uncertainty firms are more likely to be growth firms (Zhang, 2006).

3.4. Descriptive statistics

Table 2 provides summary statistics on stock returns, institutional ownership variables, and firm-level control variables. Table A1 in the Appendix provides variable definitions and data sources. Stock returns, volatility, turnover, share prices, and financial ratios are winsorized at the bottom and top 1%.

We find that the mean institutional ownership is 20.6%, with a median of 7.2%. The mean foreign ownership is small compared to the mean local ownership, 3.6% versus 17%. The mean one-quarter-ahead stock return is 3.2%. The mean book-to-market ratio is 0.87. The mean (median) market capitalization is $2.03 billion ($188.6 million). Stock return volatility is 14.5%, and turnover is 1.1, on average. The MSCI membership dummy shows that about 12% of our sample firms are included in the MSCI All Country World Index. Mean and median dividend yields are close to 2% and 1%, respectively. The ADR dummy shows that about 7% of our sample firms

Table 2
Summary statistics.

	Mean	Median	Standard deviation	Minimum	Maximum	Observations
RET	0.032	0.012	0.277	−0.667	1.333	632,505
IO	0.206	0.072	0.282	0.000	1.000	632,505
IO_DOM	0.170	0.026	0.274	0.000	1.000	632,505
IO_FOR	0.036	0.006	0.073	0.000	1.000	632,505
BM	0.868	0.647	0.785	0.029	4.733	632,505
SIZE (million $)	2029	188.6	10,600	10.00	571,197	632,505
VOL	0.145	0.115	0.123	0.009	1.467	632,505
TURN	1.117	0.540	1.679	0.001	12.605	632,505
PRICE	2.719	2.547	2.658	−3.297	11.419	632,505
MSCI	0.121	0.000	0.326	0.000	1.000	632,505
MOM	0.225	0.072	0.804	−0.894	5.044	632,505
DY	0.020	0.009	0.031	0.000	0.179	632,505
ADR	0.068	0.000	0.252	0.000	1.000	632,505
ANALYSTS	1.043	0.693	0.995	0.000	4.007	632,505
FXSALES	0.183	0.000	0.287	0.000	0.975	632,505
CLOSE	0.394	0.379	0.251	0.001	0.980	632,505

This table reports mean, median, standard deviation, minimum, maximum, and number of observations for firm-level variables. Refer to Table A1 in the Appendix for variable definitions. The sample period is from 2000 to 2010.

are cross-listed on a U.S. exchange. On average, our sample firms have one analyst following the stock. Finally, foreign sales are 18% of total sales, and closely held shares are 39% of shares outstanding.

4. Empirical results

4.1. Average performance of domestic and foreign portfolios

Table 3 presents the time-series average of monthly excess returns of domestic and foreign institutional portfolios for each country in the sample. For example, in the row for Australia, the domestic return represents the value-weighted average return of all Australian shares held by Australian investors, while the foreign return represents the value-weighted average return of all Australian shares held by investors located outside Australia. Our focus is on the difference between the returns of these two groups.

As the average excess returns of domestic and foreign holdings are similar, we cannot reject the hypothesis of equality of average excess returns at conventional significance levels in almost every country. Computing a global average excess return across all domestic and all foreign holdings, we find that domestic holdings earn an average return of 0.09% per month, while foreign holdings earn an average return of 0.18% per month. Overall, the difference in average returns is not statistically significant.

This lack of statistical difference is confirmed when we use risk-adjusted returns. The alphas from a country-specific market model and the alphas from a country-specific four-factor model consistently show that the average performance of domestic investors is statistically similar to the performance of foreign investors.[2]

To verify that these results do not depend on our domestic and foreign institution classifications, the last two rows of the table show global average returns according to alternative classifications of holdings from the same versus different geographic region and from close versus distant investors.[3] Once again, we find that the performance of the two groups of investors is not significantly different.

We find overall that domestic and foreign holdings of institutional investors earn similar average stock returns. However, this unconditional average may mask significant differences in specific stocks or market conditions. We explore this possibility in the following sections.

4.2. Predictive power of domestic and foreign institutions

In this section, we examine how future stock returns are related to total, local, and foreign institutional ownership using a multiple regression framework. We expand Gompers and Metrick (2001) analysis of U.S. stocks to a worldwide panel with firms from 32 countries. Table 4 presents the results of regressing future quarterly stock returns on institutional ownership, as well as several control variables.

First, we find that the level of total institutional ownership predicts one-quarter-ahead stock returns (column (1)). To further analyze this result, we follow Gompers and Metrick (2001) and Baik et al. (2010), and use the level of lagged institutional ownership as a measure of future institutional demand and the change in institutional ownership as a measure of institutional information advantage. The results in column (2) show that the coefficient on lagged institutional ownership is significantly positive, while the change in institutional ownership is not statistically significant. This suggests that institutional flows predict future stock returns due to a demand shock explanation, rather than an information advantage, which is in line with the results in Gompers and Metrick (2001).[4]

Next, we compare how domestic and foreign holdings of institutional investors forecast stock returns. The holdings are classified into domestic or foreign according to the nationality of the domicile of the institution and of the stock. The results in columns (3) and (5) in Table 4 show that domestic and foreign holdings independently have a positive relation with future stock returns. When we include both holdings in the same regression (column 7), the coefficients show that a 10 percentage point increase in domestic institutional ownership increases one-quarter-ahead returns by 0.4%, while the effect is only slightly lower for foreign institutional ownership at 0.3%. To compare both coefficients, we run an F-test for the equality of coefficients on local and foreign institu-

[2] We find qualitatively similar results if we (1) use global factors, (2) exclude U.S. investors or (3) use local currencies (see Tables IA.1, IA.2, and IA.3 of the internet appendix, respectively).

[3] The results at the country level are available in Table IA.4 of the internet appendix.

[4] Wermers et al. (2012) show that portfolio holdings of U.S. mutual funds are useful in predicting stock returns, provided that the holdings are weighted by the estimated skill level of each fund manager. Our results are complementary to theirs, in the sense that we study a larger sample of countries and institutional investors, while doing a simpler aggregation of portfolio holdings. While their results are consistent with some funds possessing superior skills, the results in this section suggest that the "average" fund exerts mostly a price-pressure effect.

Table 3
Portfolio tests.

Country	Excess return			Alpha (Market model)			Alpha (Carhart model)		
	Domestic holdings (%)	Foreign holdings (%)	Difference *t*-statistic	Domestic holdings (%)	Foreign holdings (%)	Difference *t*-statistic	Domestic holdings (%)	Foreign holdings (%)	Difference *t*-statistic
Australia	1.27	1.45	−1.04	0.09	0.22	−0.71	−0.02	0.11	−0.65
Austria	1.19	0.71	2.92	0.17	−0.36	3.23	0.28	−0.19	2.52
Belgium	0.47	0.24	1.54	−0.12	−0.38	1.80	−0.08	−0.16	0.60
Brazil	1.92	1.84	0.25	−0.22	−0.30	0.26	−0.16	−0.07	−0.27
Canada	0.89	0.58	1.05	−0.10	−0.58	1.64	−0.04	−0.20	0.56
China	1.52	0.87	1.53	0.94	0.37	1.38	0.78	0.43	0.94
Denmark	0.60	0.98	−1.78	−0.37	0.10	−2.21	−0.39	−0.01	−1.88
Finland	0.90	0.02	1.66	0.63	−0.39	2.43	−0.04	−0.03	−0.03
France	0.27	0.27	0.01	−0.06	−0.06	−0.06	−0.06	−0.07	0.07
Germany	0.27	0.22	1.05	−0.03	−0.08	0.99	0.01	−0.01	0.43
Hong Kong	0.84	0.67	1.62	0.22	0.06	1.55	0.21	0.07	1.31
India	1.55	1.31	1.30	0.02	−0.12	0.76	0.09	0.16	−0.44
Ireland	0.00	−0.03	0.11	−0.23	−0.25	0.06	−0.09	−0.12	0.09
Israel	−0.51	−0.73	0.23	−0.38	−0.63	0.27	0.55	−0.34	1.00
Italy	0.07	0.13	−0.77	0.03	0.09	−0.81	0.05	0.05	−0.01
Japan	−0.34	−0.35	0.10	−0.06	−0.0	0.20	0.11	0.06	0.75
Korea (South)	1.16	0.92	0.93	0.27	0.10	0.68	0.18	0.26	−0.34
Luxembourg	0.68	0.65	0.06	0.08	−0.19	0.51	0.08	−0.12	0.36
Malaysia	1.33	1.48	−1.21	−0.22	−0.04	−1.35	−0.21	−0.07	−1.09
Netherlands	0.26	0.27	−0.09	−0.08	−0.06	−0.23	−0.04	0.02	−0.55
Norway	1.15	1.19	−0.26	−0.09	−0.09	0.01	0.19	−0.01	1.52
Poland	1.82	1.78	0.20	0.04	0.02	0.09	−0.06	0.09	−0.84
Portugal	0.44	0.65	−0.78	−0.02	0.21	-0.84	0.04	0.27	−0.86
Singapore	0.67	0.42	0.46	−0.15	−0.55	0.73	−0.17	0.28	−0.84
South Africa	1.67	1.61	0.14	−0.12	−0.12	0.00	−0.10	−0.10	0.00
Spain	0.59	0.53	0.59	0.07	−0.02	0.80	0.04	0.01	0.27
Sweden	0.48	0.25	1.89	−0.04	−0.27	1.90	0.00	−0.12	0.92
Switzerland	0.49	0.37	1.25	−0.03	−0.14	1.11	−0.06	−0.09	0.32
Taiwan	2.31	2.39	−0.35	−0.21	0.12	−1.46	−0.19	0.14	−1.39
Thailand	1.75	1.81	−0.54	0.15	0.13	0.16	0.14	0.30	−1.42
United Kingdom	0.21	0.10	1.08	−0.02	−0.12	0.98	0.00	−0.15	1.48
United States	0.04	−0.02	1.60	0.03	-0.04	1.61	−0.01	−0.02	0.11
All countries:									
Domestic - Foreign	0.09	0.18	−0.59	−0.12	−0.05	−0.43	−0.06	0.04	−0.64
Same - Different Region	0.11	0.13	−0.13	−0.10	−0.09	−0.04	−0.04	−0.02	−0.13
Close - Distant Investors	0.10	0.17	−0.46	−0.11	−0.06	−0.34	−0.05	0.03	−0.49

This table shows value-weighted returns on the portfolios of domestic and foreign institutional holdings. The average monthly return in excess of the risk-free rate, the alpha from the market model, and the alpha from the four-factor (Carhart) model are shown. The four factors, expressed in U.S. dollars, are country-specific, except for the last three rows ("all countries") where the factors are global. The sample period is from 2000 to 2010.

Table 4
Regression of future returns on levels of and changes in total, domestic and foreign institutional ownership.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
IO_t	0.040***							
	(18.22)							
IO_{t-1}		0.037***						
		(16.93)						
Δ *IO*		−0.011						
		(−1.10)						
IO_DOM_t			0.039***				0.041***	
			(17.29)				(17.71)	
IO_DOM_{t-1}				0.035***				0.037***
				(15.50)				(16.05)
Δ *IO_DOM*				−0.004				−0.003
				(−0.34)				(−0.24)
IO_FOR_t					0.021***		0.031***	
					(3.98)		(5.86)	
IO_FOR_{t-1}						0.028***		0.038***
						(5.38)		(7.08)
Δ *IO_FOR*						−0.059**		−0.055**
						(−2.19)		(−2.04)
BM	0.018***	0.019***	0.018***	0.019***	0.019***	0.019***	0.018***	0.019***
	(32.89)	(33.25)	(32.78)	(33.24)	(34.97)	(35.28)	(32.78)	(33.21)
SIZE	−0.003***	−0.002***	−0.002***	−0.002***	−0.001**	−0.001***	−0.003***	−0.002***
	(−6.86)	(−6.64)	(−6.58)	(−6.30)	(−2.37)	(−2.66)	(−6.90)	(−6.62)
VOL	−0.084***	−0.078***	−0.084***	−0.078***	−0.091***	−0.085***	−0.084***	−0.078***
	(−18.07)	(−16.87)	(−18.01)	(−16.83)	(−19.70)	(−18.36)	(−18.01)	(−16.87)
TURN	−0.005***	−0.004***	−0.005***	−0.004***	−0.004***	−0.003***	−0.005***	−0.004***
	(−16.44)	(−15.01)	(−16.47)	(−14.94)	(−13.99)	(−12.53)	(−16.48)	(−14.94)
PRICE	−0.010***	−0.009***	−0.010***	−0.009***	−0.009***	−0.009***	−0.010***	−0.009***
	(−28.23)	(−27.41)	(−27.85)	(−27.03)	(−27.20)	(−26.49)	(−28.07)	(−27.31)
MSCI	0.006***	0.006***	0.007***	0.007***	0.002*	0.003***	0.006***	0.006***
	(5.36)	(5.90)	(6.26)	(6.60)	(1.87)	(2.61)	(5.62)	(5.88)
MOM	0.007***	0.010***	0.007***	0.010***	0.007***	0.010***	0.007***	0.010***
	(12.00)	(15.92)	(12.07)	(15.85)	(11.88)	(15.61)	(12.02)	(15.93)
DY	0.220***	0.212***	0.219***	0.211***	0.205***	0.199***	0.220***	0.212***
	(17.50)	(16.88)	(17.39)	(16.76)	(16.39)	(15.90)	(17.50)	(16.87)
ADR	−0.002	−0.001	0.0002	0.0005	−0.004***	−0.004***	−0.001	−0.001
	(−1.42)	(−1.01)	(0.15)	(0.36)	(−3.16)	(−2.96)	(−0.98)	(−1.00)
ANALYSTS	0.010***	0.009***	0.010***	0.010***	0.012***	0.011***	0.010***	0.009***
	(17.47)	(16.27)	(18.60)	(17.46)	(20.75)	(19.16)	(17.53)	(16.18)
FXSALES	0.005***	0.005***	0.006***	0.006***	0.005***	0.005***	0.005***	0.005***
	(3.42)	(3.43)	(3.92)	(3.89)	(3.72)	(3.61)	(3.52)	(3.42)
CLOSE	0.017***	0.017***	0.016***	0.016***	0.013***	0.013***	0.017***	0.017***
	(10.40)	(10.24)	(9.79)	(9.62)	(7.95)	(8.14)	(10.28)	(10.21)
Number of observations	632,505	620,038	632,505	620,038	632,505	620,038	632,505	620,038
R-squared	0.207	0.208	0.207	0.208	0.206	0.208	0.207	0.208
Test of difference in coefficients (*p*-values) between:								
IO_DOM = *IO_FOR*							0.09	0.87
Δ *IO_DOM* = Δ *IO_FOR*								0.07

This table reports estimates of coefficients of the quarterly time-series cross-sectional firm-level regression of one-quarter-ahead returns on levels of and changes in total institutional ownership (*IO*), domestic institutional ownership (*IO_DOM*), and foreign institutional ownership (*IO_FOR*) and other firm characteristics. Regressions include industry, country and time dummies. Refer to Table A1 in the Appendix for variable definitions. The sample period is from 2000 to 2010. Robust *t*-statistics in parentheses are adjusted for clustering at the firm-level. *, **, and *** indicates significance at the 10%, 5% and 1% levels respectively.

tional ownership. We cannot reject the null of equal coefficients at the 5% significance level. Therefore, using a worldwide sample, we conclude that neither domestic investors nor foreign investors have a return predictive edge.

To disentangle the smart institutions and demand shock explanations, we also run a specification with the level of and changes in domestic and foreign institutional ownership (columns (4), (6), and (8)). Lagged institutional ownership is positive for both domestic and foreign holdings, consistent with a demand shock effect. Furthermore, we find that foreign institutions seem to be at a slight information disadvantage. While an increase in foreign holdings is associated with a reduction in future stock returns, a change in local holdings is not statistically related to future returns.

We find further evidence for the price-pressure hypothesis from additional tests shown in Table IA.5 of the Internet Appendix. First, we separate countries with high total institutional ownership from countries with low total institutional ownership. There should be more price pressure in the former group. Indeed, we find that the coefficients on the level of institutional holdings are much stronger in countries with high *IO* than in countries with low *IO*.

Second, given that the net inflow of money into institutions decreases substantially after 2005 (values not shown, but available upon request), we split the sample into two subperiods: 2000–2005 and 2006–2010. The results show that the coefficient on the level of foreign institutional ownership becomes statistically insignificant after 2005, when smaller inflows lead to less demand pressure. We find, however, that the coefficient on the level of domestic ownership remains statistically significant in the second period. To investigate this result, we further split the later-period sample into low versus high domestic inflow countries, that is, countries that have on average negative domestic inflows versus countries that have on average positive domestic inflows. We find that the level of domestic institutional ownership is significant only for the group with high inflows, consistent with a price-

pressure effect. However, the U.S. behave differently: even though they have low domestic inflows during 2006–2010, the coefficient on domestic IO remains positive. This may be explained by the U.S. being, by far, the country with the highest level of domestic ownership (recall Fig. 1). Even without more inflows, just the rebalancing of very large domestic portfolios may sustain the observed price-pressure effect.

To summarize, our results generalize to a worldwide basis the finding of Gompers and Metrick (2001) for the U.S. market. We find that the unconditional forecasting power of institutional ownership for stock returns comes from a demand shock effect, not from a smart institutions effect.

The presence of demand pressure effects has different implications for individual investors depending on their investment horizons and holding periods. Shorter-term investors may benefit from higher returns when they initiate and liquidate their portfolios during periods of growth in aggregate institutional holdings. In contrast, longer-term investors may see comparatively lower returns if there is a reduction in flows to institutional investors before their horizon. Foreign investors typically have shorter horizons than domestic investors so they are more likely to benefit from demand pressure effects.

4.3. Alternative explanations

It could be the case that lagged institutional ownership is not simply an indicator of price pressure. Specifically, institutional investors could exploit the underreaction of market participants to cash flow news by increasing their positions in these undervalued stocks only slowly over time (Cohen et al., 2002). Under this interpretation, a high lagged institutional ownership signals the ability of institutional investors to detect mispricing which can be perceived as superior abilities. To verify whether the results from Gompers and Metrick (2001) framework could be driven by this alternative explanation, we implement additional tests to better support our baseline results.

In order to detect any information advantage that is only revealed slowly through time, we analyze the return on portfolios formed on institutional buys and sales up to four quarters ago. The procedure is as follows. First, stocks are ranked in each quarter into deciles according to changes in institutional ownership, from largest ownership decreases (decile 1) to largest increases (decile 10). At any point in time there are j portfolios with a given decile ranking, with each portfolio being formed over one of the prior j quarters. We combine these j portfolios into a single equal-weighted portfolio and hold it during the next quarter. Then, we also compute a zero-cost portfolio that goes long on the stocks in the tenth decile ("strong" buys) of institutional ownership variation and goes short on the stocks in the first decile ("heavy" sales). Additionally, in order to provide a summary measure of performance over several quarters, we also compute the one-year-ahead performance of portfolios formed on the deciles of institutional trades over the previous four quarters. This portfolio formation procedure is similar to the overlapping momentum portfolio procedure of Jegadeesh and Titman (1993).

The results are reported in Table 5. We find that the performance of the high-ownership portfolio is very similar to the low-ownership portfolio. In fact, the one-quarter return on a long-short portfolio is not statistically different from zero. This is true for returns from portfolios formed from institutional trades one quarter ago through four quarters ago. Furthermore, the long-short one-year-ahead return is also statistically indistinguishable from zero. These results hold for both domestic and foreign investors, and do not depend on whether we use simple excess returns or four-factor risk adjusted returns. In summary, these results suggest that institutional trades on average are uninformed, which is supportive of the price-pressure hypothesis.

Additionally, our results are consistent with the possibility that some institutional investors in our sample may be herding (as in Brown et al., 2014). Herding would reflect trading on commonly available information, rather than skill of specific institutional investors, and would contribute to the price-pressure effect that we find.

Finally, our distinction between domestic and foreign investors might be affected by foreign institutions outsourcing fund management to local managers. However, Chuprinin et al. (2015) find that only 23.9% of mutual funds are outsourced, and from those only 19.7% are outsourced to a management company from a different country. Therefore, it does not seem likely that our results could be significantly affected by cross-border outsourcing.

4.4. Predictive power of institutional investors under information asymmetry

While the results above fail to reveal any significant advantage of either domestic or foreign investors, previous research suggests that local and foreign investors may perform differently in markets or stocks with different levels of information asymmetry (Baik et al., 2010). Therefore, we use our broad panel of 32 countries to investigate further the relation between future stock returns and institutional holdings conditioning on different country and stock characteristics that may reflect information asymmetry or opaqueness.

To test whether the level of information asymmetry influences the predictive power of local and foreign institutions, we first divide stocks into those with high information asymmetry and those with low information asymmetry, and then run a regression of future returns on the level of and changes in domestic and foreign institutional ownership (and other firm- and country-level controls). A positive coefficient on the level of ownership suggests a price pressure or demand shock effect, while a positive coefficient on the change in ownership suggests an information or smart institutions effect.

We start by testing the effect of information asymmetry at the country level. Given that information asymmetry is a hard-to-measure concept, we consider several alternative proxies in turn: U.S. versus non-U.S. countries; English-speaking countries versus other languages; a corruption index (La Porta et al., 1998); an index of financial disclosure (Jin and Myers, 2006); an index of anti-director rights or shareholder protection (La Porta et al., 1998); and the average R^2 of an international market model as a measure of functional efficiency (Morck et al., 2000). Table A1 in the appendix provides details on the construction and interpretation of each variable.

We begin by examining how the predictive power of local and foreign holdings varies according to characteristics of the country where the firm is located. We consider several alternative proxies for information asymmetry: U.S. versus non-U.S. countries; English-speaking countries versus other languages; a corruption index; an index of financial disclosure; an index of anti-director rights or shareholder protection; and the average R^2 of an international market model as a measure of functional efficiency (Morck et al., 2000).[5]

Table 6 shows the results. For each country characteristic in Panel A, there are two subsamples, according to whether the level of the characteristic indicates high or low information opaqueness (as defined in Table A1). We find that the coefficients on the lagged level of ownership are significantly positive for both domestic and

[5] Table A1 in the Appendix provides details on the construction of each variable.

Table 5
Performance of portfolios sorted according to changes in Domestic and Foreign Institutional Ownership.

	Domestic					Foreign				
	$ret_{t,t+3}$ $j=1$	$ret_{t,t+3}$ $j=2$	$ret_{t,t+3}$ $j=3$	$ret_{t,t+3}$ $j=4$	$ret_{t,t+12}$ $j=4$	$ret_{t,t+3}$ $j=1$	$ret_{t,t+3}$ $j=2$	$ret_{t,t+3}$ $j=3$	$ret_{t,t+3}$ $j=4$	$ret_{t,t+12}$ $j=4$
Low (D1)	0.67%	0.67%	1.19%	1.64%	6.01%	1.32%	1.37%	1.56%	1.93%	7.73%
High (D10)	0.51%	1.03%	1.26%	1.55%	5.33%	0.97%	1.20%	1.45%	1.81%	6.31%
High-Low (Excess return)	−0.17%	0.35%	0.07%	−0.08%	−0.68%	−0.35%	−0.17%	−0.10%	−0.12%	−1.42%
t-statistic	(−0.38)	(1.01)	(0.27)	(−0.44)	(−0.94)	(−1.14)	(−0.66)	(−0.43)	(−0.50)	(−1.23)
High-Low (4-Factor alpha)	−0.20%	0.45%	0.27%	−0.03%	−1.31%	−0.35%	−0.08%	0.05%	0.02%	−0.33%
t-statistic	(−0.37)	(1.11)	(1.06)	(−0.14)	(−1.55)	(−1.08)	(−0.29)	(0.24)	(0.09)	(−0.30)

This table presents the time-series average of quarterly ($ret_{t,t+3}$) and yearly ($ret_{t,t+12}$) value-weighted returns on portfolios sorted according to changes in foreign and domestic institutional ownership (IO). In each quarter, stocks are ranked into deciles according to changes in IO, from largest ownership decreases (D1) to largest increases (D10). The row "Low (D1)" shows the average next quarter return ($ret_{t,t+3}$) on: the stocks included in the D1 portfolio from the previous quarter (column $j=1$); the stocks included in the two D1 portfolios from the previous two quarters ($j=2$); ...; the stocks included in the four D1 portfolios from the previous four quarters ($j=4$). The last column in each panel shows yearly returns ($ret_{t,t+12}$) on the stocks included in the four D1 portfolios from the previous four quarters ($j=4$). High-Low is a zero-cost investment strategy, which takes a long position in the portfolio of stocks experiencing the largest ownership increases and a short position in the portfolio of stocks experiencing the largest ownership decreases. We report average excess returns and Carhart four-factor alphas for the High-Low spreads, together with *t*-statistics in parentheses.

Table 6
Regression of future returns on levels of and changes in local and nonlocal institutional ownership: Effect of information asymmetry.

Characteristics	Opaqueness	*IO_DOM* $_{t-1}$		*IO_FOR* $_{t-1}$		Δ *IO_DOM*		Δ *IO_FOR*		Nr. of obs.	*R*-squared	Test of difference in coefficients (p-value)	
												IO	Δ *IO*
Panel A: Country characteristics													
U.S.	Low (U.S.)	0.039***	(11.71)	0.097***	(4.17)	−0.026**	(−2.04)	−0.194***	(−3.35)	193,130	0.186	0.01	0.00
	High (other)	0.015**	(2.39)	0.019***	(3.58)	0.096***	(4.55)	−0.038	(−1.27)	426,908	0.235	0.56	0.00
ENGLISH	Low (Eng.)	0.033***	(12.70)	0.055***	(6.31)	−0.010	(−0.83)	−0.060	(−1.42)	347,966	0.211	0.02	0.25
	High (other)	0.018*	(1.83)	0.017**	(2.52)	0.041	(1.44)	−0.046	(−1.34)	272,072	0.229	0.93	0.05
CORRUPTION	Low	0.036***	(14.91)	0.049***	(7.60)	−0.020*	(−1.85)	−0.044	(−1.41)	472,892	0.198	0.05	0.47
	High	0.060**	(2.18)	0.014	(1.37)	0.145*	(1.91)	−0.048	(−0.83)	131,991	0.281	0.13	0.04
ANTI-DIRECTOR	Low	0.033***	(13.56)	0.054***	(7.09)	−0.008	(−0.74)	−0.042	(−1.18)	470,666	0.200	0.01	0.37
	High	0.034***	(3.09)	0.024***	(3.06)	0.086***	(2.83)	−0.079**	(−2.00)	149,372	0.260	0.61	0.00
DISCLOSURE	Low	0.036***	(14.92)	0.048***	(6.81)	−0.007	(−0.66)	−0.071**	(−2.05)	526,604	0.200	0.10	0.08
	High	0.064***	(4.83)	0.037***	(4.14)	0.032	(0.86)	−0.044	(−1.05)	78,279	0.326	0.09	0.17
R^2	Low	0.031***	(11.88)	0.052***	(6.17)	−0.027**	(−2.35)	-0.066	(−1.54)	317,810	0.212	0.01	0.37
	High	0.001	(0.09)	0.012*	(1.70)	0.112***	(3.23)	-0.036	(−1.06)	302,228	0.226	0.42	0.00
Panel B: Market conditions													
BULL/BEAR	Low (Bull)	0.027***	(10.21)	0.044***	(7.02)	−0.027**	(−2.19)	−0.029	(−0.88)	442,342	0.178	0.01	0.96
	High (Bear)	0.055***	(12.42)	-0.013	(−1.17)	0.077***	(3.69)	−0.140***	(−3.18)	177,696	0.187	0.00	0.00
STRESS	Low	0.031***	(11.29)	0.045***	(6.97)	−0.007	(−0.59)	−0.015	(−0.49)	435,983	0.111	0.04	0.82
	High	0.046***	(11.12)	−0.002	(−0.21)	0.020	(0.99)	−0.197***	(−4.75)	184,055	0.299	0.00	0.00
Panel C: Stock characteristics													
ANALYSTS	Low	0.021***	(7.27)	0.050***	(8.69)	−0.026**	(−2.11)	−0.058**	(−2.26)	403,036	0.243	0.00	0.26
	High	0.063***	(10.42)	0.015	(0.89)	0.068***	(2.95)	−0.019	(−0.25)	217,002	0.167	0.01	0.28
VOL	Low	0.013***	(5.37)	0.034***	(5.67)	0.013	(1.10)	−0.038	(−1.44)	310,062	0.214	0.00	0.08
	High	0.053***	(14.64)	0.033***	(3.81)	−0.008	(−0.54)	−0.068*	(−1.76)	309,976	0.233	0.02	0.15
ILLIQ	Low	0.031***	(10.41)	0.046***	(7.02)	−0.010	(−0.78)	−0.022	(−0.75)	305,893	0.243	0.04	0.72
	High	0.059***	(10.44)	0.020*	(1.87)	0.047**	(2.51)	-0.081	(−1.64)	304,602	0.192	0.00	0.02
CLOSE	Low	0.038***	(12.76)	0.062***	(9.04)	−0.022	(−1.58)	−0.067**	(−2.01)	310,074	0.213	0.00	0.21
	High	0.039***	(9.26)	0.020**	(2.27)	0.037**	(2.07)	−0.036	(−0.87)	309,964	0.209	0.05	0.11
HERF	Low	−0.029	(−1.37)	0.054***	(3.29)	−0.024	(−0.54)	0.024	(0.35)	262,600	0.216	0.00	0.56
	High	0.005*	(1.79)	0.024***	(3.33)	−0.037***	(−3.28)	−0.095***	(−3.36)	264,968	0.242	0.01	0.06
SIZE	Low	0.020***	(6.41)	0.023***	(4.02)	0.015	(1.20)	−0.008	(−0.33)	310,032	0.247	0.60	0.41
	High	0.061***	(11.89)	0.050***	(3.14)	−0.007	(−0.37)	−0.101*	(−1.90)	310,006	0.195	0.51	0.10
BM	Low	0.018***	(4.88)	0.044***	(4.92)	0.0004	(0.02)	-0.097*	(−1.92)	310,024	0.205	0.01	0.07
	High	0.048***	(16.40)	0.032***	(4.78)	0.007	(0.54)	-0.012	(−0.44)	310,014	0.215	0.02	0.53

This table reports estimates of coefficients of the quarterly time-series cross-sectional firm-level regression of one-quarter-ahead returns on levels of and changes in domestic institutional ownership (*IO_DOM*) and foreign institutional ownership (*IO_FOR*), and other firm characteristics (coefficients not shown). Refer to Table A1 in the Appendix for variable definitions. For each characteristic indicated in the table, stocks are divided into two subsamples according to the level of opaqueness revealed by that characteristic. We classify as *low* opaqueness: U.S. firms; English-speaking countries; countries with low R^2; countries with an accounting transparency index above the median; countries with a corruption index above the median; countries with an anti-director rights index equal to or above 4; quarters in which the bull market dummy equals one; periods in which the stress dummy equals zero; stocks covered by at least one analyst; stocks with return volatility below the median; firms with a fraction of shares held by insiders below the median; firms with ownership concentration below the median; firms with market capitalization above the median; firms with a book-to-market equity ratio above the median; and stocks with an illiquidity measure below the median. The high opaqueness group is formed with the remaining observations. Regressions include industry, country and time dummies. The sample period is from 2000 to 2010. Robust *t*-statistics in parentheses are adjusted for clustering at the firm-level. *, **, and *** indicates significance at the 10%, 5% and 1% levels respectively.

Table 7
Regression of future returns on levels of and changes in institutional ownership: alternative classifications.

	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Same and different region						
IO_SAME $_t$	0.039***				0.039***	
	(17.44)				(17.74)	
IO_SAME $_{t-1}$		0.035***				0.036***
		(15.85)				(16.24)
Δ *IO_SAME*		−0.008				−0.007
		(−0.73)				(−0.63)
IO_DIFF $_t$			0.029***		0.040***	
			(3.98)		(5.34)	
IO_DIFF $_{t-1}$				0.038***		0.047***
				(5.10)		(6.34)
Δ *IO_DIFF*				−0.053		−0.049
				(−1.36)		(−1.27)
Number of observations	632,505	620,038	632,505	620,038	632,505	620,038
R-squared	0.207	0.208	0.206	0.208	0.207	0.208
Test of difference in coefficients (*p*-values) between:						
IO_SAME = *IO_DIFF*					0.97	0.15
Δ *IO_SAME* = Δ *IO_DIFF*						0.29
Panel B: Local and distant						
IO_LOCAL $_t$	0.038***				0.040***	
	(17.31)				(17.76)	
IO_ LOCAL $_{t-1}$		0.035***				0.036***
		(15.68)				(16.24)
Δ *IO_ LOCAL*		−0.008				−0.007
		(−0.80)				(−0.69)
IO_DISTANT $_t$			0.023***		0.037***	
			(3.73)		(5.80)	
IO_ DISTANT $_{t-1}$				0.031***		0.043***
				(4.88)		(6.76)
Δ *IO_ DISTANT*				−0.042		−0.037
				(−1.28)		(−1.12)
Number of observations	632,505	620,038	632,505	620,038	632,505	620,038
R-squared	0.207	0.208	0.206	0.208	0.207	0.208
Test of difference in coefficients (*p*-values) between:						
IO_LOCAL = *IO_DISTANT*					0.68	0.29
Δ *IO_LOCAL* = Δ *IO_DISTANT*						0.39

This table reports estimates of coefficients of the quarterly time-series cross-sectional firm-level regression of one-quarter-ahead returns on levels of and changes in total institutional ownership (*IO*), domestic institutional ownership (*IO_DOM*), and foreign institutional ownership (*IO_FOR*) and other firm characteristics (coefficients not shown). Panel A reports the results for institutional ownership based on the geographical region (same/different) of the stock and the institution. Panel B reports the results for institutional ownership based on the distance between the capital city where the firm and institution are domiciled using a threshold of 1000 km. Regressions include industry, country and time dummies. Refer to Table A1 in the Appendix for variable definitions. The sample period is from 2000 to 2010. Robust t-statistics in parentheses are adjusted for clustering at the firm-level. *, **, and *** indicates significance at the 10%, 5% and 1% levels respectively.

Table 8
Robustness tests.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Fama–MacBeth								
IO $_t$	0.034***							
	(2.98)							
IO $_{t-1}$		0.032***						
		(3.30)						
Δ *IO*		−0.025*						
		(−1.97)						
IO_DOM $_t$			0.037***				0.037***	
			(3.02)				(3.05)	
IO_DOM $_{t-1}$				0.035***				0.035***
				(3.27)				(3.30)
Δ *IO_DOM*				−0.020				−0.020
				(−1.42)				(−1.42)
IO_FOR $_t$					0.005		0.011	
					(0.33)		(0.84)	
IO_FOR $_{t-1}$						0.005		0.011
						(0.34)		(0.88)

(*continued on next page*)

Table 8 (*continued*)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Δ *IO_FOR*						−0.038		−0.033
						(−0.81)		(−0.71)
Number of observations	632,505	620,038	632,505	620,038	632,505	620,038	632,505	620,038
R-squared	0.176	0.175	0.177	0.175	0.175	0.174	0.177	0.176
Test of difference in coefficients (*p*-values) between:								
IO_DOM = *IO_FOR*							0.15	0.16
Δ *IO_DOM* = Δ *IO_FOR*								0.79
Panel B: Standard errors clustered by country								
IO_t	0.040***							
	(6.70)							
IO_{t-1}		0.037***						
		(7.15)						
Δ *IO*		−0.011						
		(−0.59)						
IO_DOM_t			0.039***				0.041***	
			(7.26)				(7.35)	
IO_DOM_{t-1}				0.035***				0.037***
				(7.08)				(7.27)
Δ *IO_DOM*				−0.004				−0.003
				(−0.16)				(−0.11)
IO_FOR_t					0.021*		0.031**	
					(1.97)		(2.07)	
IO_FOR_{t-1}						0.028**		0.038**
						(2.28)		(2.27)
Δ *IO_FOR*						−0.059*		−0.055*
						(−1.90)		(−1.84)
Number of observations	632,505	620,038	632,505	620,038	632,505	620,038	632,505	620,038
R-squared	0.207	0.208	0.207	0.208	0.206	0.208	0.207	0.208
Test of difference in coefficients (*p*-values) between:								
IO_DOM = *IO_FOR*							0.51	0.96
Δ *IO_DOM* = Δ *IO_FOR*								0.05
Panel C: Standard errors clustered by firm and quarter								
IO_t	0.040***							
	(4.02)							
IO_{t-1}		0.037***						
		(3.99)						
Δ *IO*		−0.011						
		(−0.50)						
IO_DOM_t			0.039***				0.041***	
			(3.44)				(3.59)	
IO_DOM_{t-1}				0.035***				0.037***
				(3.34)				(3.52)
Δ *IO_DOM*				−0.004				−0.003
				(−0.15)				(−0.11)
IO_FOR_t					0.021		0.031*	
					(1.20)		(1.89)	
IO_FOR_{t-1}						0.028		0.038**
						(1.59)		(2.21)
Δ *IO_FOR*						−0.059		−0.055
						(−1.35)		(−1.27)
Number of observations	632,505	620,038	632,505	620,038	632,505	620,038	632,505	620,038
R-squared	0.207	0.208	0.207	0.208	0.206	0.208	0.207	0.208
Test of difference in coefficients (*p*-values) between:								
IO_DOM = *IO_FOR*							0.67	0.97
Δ *IO_DOM* = Δ *IO_FOR*								0.28

This table reports estimates of coefficients of the quarterly time-series cross-sectional firm-level regression of one-quarter-ahead returns on levels of and changes in total institutional ownership (*IO*), domestic institutional ownership (*IO_DOM*), and foreign institutional ownership (*IO_FOR*) and other firm characteristics (coefficients not shown). Panel A reports Fama–MacBeth regressions with robust t-statistics adjusted for autocorrelation with Newey-West standard errors using four lags. Panel B reports regressions with standard errors adjusted for clustering at the country level. Panel C reports regressions with standard errors adjusted for two-way clustering at the stock- and quarter-level. Regressions include industry, country and time dummies. Refer to Table A1 in the Appendix for variable definitions. The sample period is from 2000 to 2010. Robust *t*-statistics in parentheses are adjusted for clustering at the firm-level. *, **, and *** indicates significance at the 10%, 5% and 1% levels, respectively.

foreign institutions in almost every sample split. This indicates that, whatever the country information environment, institutions have a strong price pressure effect, which is consistent with our previous results.

More important, we now find evidence of a domestic smart money effect in several cases where there is likely to be higher information opaqueness or asymmetry. In particular, we find that domestic investors on average seem to trade with an information advantage in the following cases: in countries with high levels of corruption; in countries with weak investor protection (i.e., with few anti-director measures); in countries with less efficient stock markets; in countries outside the U.S.; or in countries where the official language is not English. In all these cases where information asymmetry is likely to be more severe, increases in the holdings of domestic investors are followed by higher future returns, while increases in holdings of foreign investors are followed by lower stock returns.

Next, we explore a different dimension of information asymmetry, namely we look at institutional performance during periods with different market conditions. We assume that there is more information opaqueness during stock market downturns (bear markets) or during periods with high market volatility (stress periods). The results in Panel B of Table 6 show a disadvantage for foreign investors under high information asymmetry. More precisely, during bear markets or during periods of higher market uncertainty, foreign investors rebalance their portfolios in the wrong direction, that is, an increase in their holdings is followed by lower stock returns. Domestic investors, though, are able to trade in the right direction during bear markets, and they exert higher price pressure during both bear markets and high-volatility periods.

Finally, we explore information asymmetry at the stock level by splitting the sample according to several firm-level characteristics that may proxy for opaqueness, as detailed in Panel C of Table 6. We find a statistically significant information advantage of domestic investors in illiquid stocks, which are likely to be more opaque. Other characteristics provide less strong evidence for a smart-money effect of domestic institutions. Domestic institutions trade in the right direction in stocks with low analyst coverage and high inside ownership stocks, while foreign institutions do not, but the difference between the coefficients is not statistically significant. Nevertheless, domestic investors exert significantly higher price pressure on stocks with low analyst coverage (high information opaqueness), high volatility (high opaqueness), high fractions of outstanding shares held by insiders (high opaqueness), and on stocks with low book-to-market (high opaqueness).

Overall, our results from a global sample of 32 countries show that domestic institutions trade with an information advantage over foreign institutions in more opaque countries, during market periods in which information asymmetry is likely to be higher, and in illiquid stocks.

5. Robustness

5.1. Alternative institutional ownership classifications

Our main results use a classification of domestic or foreign holdings according to the nationality of the institution versus the nationality of the stock. We now check whether the results are robust to alternative classifications.

First, we consider a coarser criterion of geographic region instead of country, and split holdings into same region and different region (Panel A of Table 7). Second, we measure proximity by the actual geographical distance, and split holdings into local and distant (Panel B of Table 7).

The results in Table 7 are similar across the two classifications. We find that all institutional holdings variables predict one-quarter-ahead stock returns. All coefficients are statistically significant and quite similar in magnitude to the coefficients based on the domestic and foreign classification in Table 4. We also decompose the level of holdings into its first difference and the lagged level, in order to distinguish the price pressure from the smart institutions effect. In both classifications, we find evidence of a price pressure effect, but not of a smart institutions effect. Again, these results are consistent with our primary conclusions based on the domestic and foreign classification.[6]

In summary, we find no difference between same versus different region investors and between local versus distant investors. Hence, these results confirm that our findings are robust to different classifications of institutional ownership, including the geographic proximity measure used by Coval and Moskowitz (2001).

5.2. Additional tests

To further check the robustness of our results we complete our analysis with three additional tests. First, we run Fama–MacBeth (1973) regressions and find no statistically significant difference between the return forecasting power of domestic and foreign institutions (Table 8, Panel A). Next, we perform the same regression but clustering standard errors at the country level (Table 8, Panel B). Again, we cannot find a statistically significant difference between local and foreign investors. Finally, we perform a regression with standard errors adjusted to two dimensions of clustering: by stock and by quarter (Table 8, Panel C). We also cannot reject the equality of coefficients between domestic and foreign institutional ownership.

In all three panels we find evidence of a price pressure effect, but no evidence for a smart institutions effect. If anything, we find weak evidence that foreign institutions are at a slight information disadvantage when standard errors are clustered at the country level (column (8) in Panel B). To sum up, our additional tests show that our benchmark results are robust to different forms of cross-sectional and temporal dependence.

6. Conclusion

We contribute to the literature by comparing the performance of domestic versus foreign institutional holdings using a worldwide sample of stocks during the 2000–2010 period. We find that, on average, domestic institutional investors perform as well as foreign institutional investors. Both domestic and foreign institutional holdings are positively associated with future returns, but this relation seems to come, on average, from a price-pressure effect, rather than from superior information. The results are consistent with the notion that both capital markets and asset management markets are efficient.

However, these averages mask conditional differences between local and foreign institutions. Our results suggest that individual investors may benefit from allocating their wealth through local money management companies when investing in countries where information asymmetry is high. In these more difficult settings, only domestic institutional investors seem to trade with an information advantage.

Appendix

[6] Results on portfolio performance with these alternative classifications are available in the Internet Appendix.

Table A1
Variables definition.

Variable	Definition
RET	Quarterly stock return in US$ (Datastream item RI ($)).
IO	Institutional ownership by all institutions as a percentage of market capitalization.
IO_DOM	Institutional ownership by domestic institutions as a percentage of market capitalization.
IO_FOR	Institutional ownership by foreign institutions as a percentage of market capitalization.
IO_SAME_REG	Institutional ownership by institutions sharing the same geographic region as a percentage of market capitalization.
IO_DIFF_REG	Institutional ownership by institutions not sharing the same geographic region as a percentage of market capitalization.
IO_LOCAL	Institutional ownership by local (<1000 km) institutions as a percentage of market capitalization.
IO_DISTANT	Institutional ownership by distant ($>=1000$ km) institutions as a percentage of market capitalization.
BM	Log of the book-to-market equity ratio (market value is WorldScope item 0,8001 and book value is WorldScope item 0,3501).
SIZE	Log market capitalization in US$ (Datastream item MV).
VOL	Annualized standard deviation of monthly stock returns (Datastream).
TURN	Ratio of share volume (Datastream item UVO) by the shares outstanding (Datastream item NOSH).
PRICE	Log of the stock price (WorldScope item 0,5001).
MSCI	MSCI member dummy, which equals one if a firm is in the MSCI All-Country World Index.
MOM	12-month trailing stock return in US$ (Datastream).
DY	Dividend yield (WorldScope item 0,4551 divided by WorldScope item 0,8001).
ADR	ADR dummy, which equals one if a firm is cross-listed on a U.S. exchange.
ANALYSTS	Number of analysts covering a firm as reported by IBES.
FXSALES	International annual net sales as a proportion of net sales (WorldScope item 0,8731).
CLOSE	Number of shares held by insiders as a proportion of the number of shares outstanding (WorldScope item 0,8021).
ILLIQ	Illiquidity measure computed as the number of days with zero returns in local currency divided by the number of observations in each year.
HERF	Concentration of institutions' holdings using the Herfindahl-Hirschman index - the sum of squares of the proportions of the firm's shares held by institutional investors. Large values of this index signify that the ownership is concentrated within a few large institutional holders.
BULL/BEAR	Market condition dummy, which equals one during bull markets, and zero during bear markets.
VIX	CBOE market volatility index (VXO index).
STRESS	Uncertainty dummy, which equals one in quarters during which the VIX index exceeded its 75th percentile, and zero otherwise.
ENGLISH	English speaking dummy, which equals one in English-speaking countries (Australia, Canada, Hong Kong, India, Ireland, South Africa, United Kingdom, United States), and zero otherwise.
R^2	R^2 measures the percent of the variation in each country stock returns explained by variations in the country and U.S. stock market returns (Morck et al., 2000). Stock markets with lower R^2 are more efficient.
ANTI_DIRECTOR	Anti-director rights index (La Porta et al., 1998). The index is formed by adding one when: (1) the country allows shareholders to mail their proxy vote to the firm; (2) shareholders are not required to deposit their shares prior to the General Shareholders' Meeting; (3) cumulative voting or proportional representation of minorities in the board of directors is allowed; (4) an oppressed minorities mechanism is in place; (5) the minimum percentage of share capital that entitles a shareholder to call for an Extraordinary Shareholders' Meeting is less than or equal to 10 percent (the sample median); or (6) shareholders have preemptive rights that can only be waved by a shareholders' vote. The index ranges from 0 to 6. A higher value of the index is associated with a higher level of shareholder protection.
DISCLOSURE	Accounting transparency index (Jin and Myers, 2006). A transparency measure from the Global Competitiveness Reports for 1999 and 2000 which include results from surveys about the level and effectiveness of financial disclosure in different countries. 22 Survey respondents were asked to assess the statement "The level of financial disclosure required is extensive and detailed" on a scale from one (strongly disagree) to seven (strongly agree). Respondents were also asked to assess the "availability of information" on the same scale. For each country, the index considers the average response for each question in 1999 and 2000, and average again over these two years. The result is a disclosure score (*DISCLOSURE*) for each country in the sample. A higher value of the index is associated with a higher level of transparency (low opaqueness).
CORRUPTION	Corruption index (La Porta et al., 1998). International Country Risk Guide (ICRG) assessment of the corruption in government. Lower scores indicate that "high government officials are likely to demand special payments" and "illegal payments are generally expected throughout lower levels of government" in the form of "bribes connected with import and export licenses, exchange controls, tax assessment, policy protection, or loans." Scale from zero to ten, with lower scores for higher levels of corruption.

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