Who Invests in What? Public Firms Ownership Around the World*

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ABSTRACT

We construct a comprehensive database of public firm ownership in 49 countries and study the investment scope and preferences of different types of investors. Aggregate home bias has declined but is still much higher in emerging markets (EMs). Institutions have become more globally diversified but invest in a limited number of stocks. Retail investors remain highly home-biased. Institutions of different domiciles and types continue to show a strong preference for larger, more liquid, and more visible firms in both pooled regressions and country-level analyses but exhibit considerably heterogeneous preferences for other firm characteristics. Retail investors are mostly present in small and illiquid firms.

Keywords: institutional investors; emerging markets; international diversification;

JEL classification: G15, G23, G32.

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I. Introduction

Despite widespread liberalization of global financial markets, global equity markets are not fully integrated (Carrieri, Chaieb, and Errunza, 2013). The *de facto* international equity market structure depends on how listed equity securities worldwide are owned by different types of investors and what are their respective investment scopes and preferences. Institutional investors play an increasingly important role in international stock markets. From 2000 to 2020, the share of common equity held by mutual funds, hedge funds, pensions, and other institutions doubled from 20.4% to 41.6% of total market capitalization in developed markets (DMs). The increase is more striking for emerging markets (EMs) where institutional ownership quadrupled, moving from 2.3% to 8.3% (see Figure 1). These developments raise important questions about their impact on the structure of global equity markets because the investment scope and preference of institutional investors could be very different from those of other types of investors.

Since the international asset pricing models that investigate valuation consequences of barriers to cross-national portfolio flows do not differentiate between different types of shareholders, understanding international ownership and investor preferences is a key step towards a more realistic representation of global financial markets.[1] This paper aims at answering two research questions. First, who owns equity securities listed worldwide? Specifically, we are interested in ownership by different types of investors including retail investors as well as institutional investors from different domiciles and of different types. Due to the lack of direct observation of retail ownership, we infer retail ownership as the residual ownership

[1]See for example, Stulz (1981), Errunza and Losq (1985), Eun and Janakiramanan (1986), De Jong and De Roon (2005), and Chaieb and Errunza (2007)

not accounted for by other types of investors. In order to correctly infer firm-level retail ownership, we need to properly account for ownership by insiders and governments. To this end, we construct an up-to-date database of firm-level ownership by these different types of investors by combining ownership information from various sources. Our comprehensive sample includes 50,103 companies in 49 countries (23 DMs and 26 EMs) covered by the FTSE All-World Index and spans 20 years from 2000 to 2020. Second, what are the investment scopes and preferences of these different types of investors? We are in particular interested in their extent of diversification across countries (macro-diversification) as well as their diversification across individual stocks (micro-diversification). To measure macro-diversification, we provide new evidence about the time-varying home bias of aggregate residents, institutional investors, and retail investors. Our results reveal that institutional investors are the least home-biased and hence represent global investors. As for micro-diversification, we show that institutional investors invest in a limited number of stocks and that they have a strong and consistent preference for large, more liquid, and more visible stocks across countries.

Understanding the ownership structure and the preference of investors for EM stocks is important because compared to DMs, these markets are subject to greater investment barriers and are less integrated (see, for example, Bekaert and Harvey (1995), Carrieri, Errunza, and Hogan (2007)), less efficient (see, for example, Bartram and Grinblatt (2021)), and less liquid (see, Bekaert, Harvey, and Lundblad (2007), Chaieb, Errunza, and Langlois (2020)).[2] On the one hand, market frictions could deter foreign institutional investors. On the other hand, the lack of institutional investors and/or prevalence of retail investors could give rise to market inefficiency. Therefore, understanding how ownership and investor preference vary across DMs and EMs helps us understand both the implications of market frictions as well as the contribution of institutional investors to market efficiency.[3] We perform our analysis

[2]Illiquid markets have higher frictions and trading costs with significant pricing effects.

[3]Kacperczyk, Sundaresan, and Wang (2021) show that foreign institutional investors improve price efficiency.

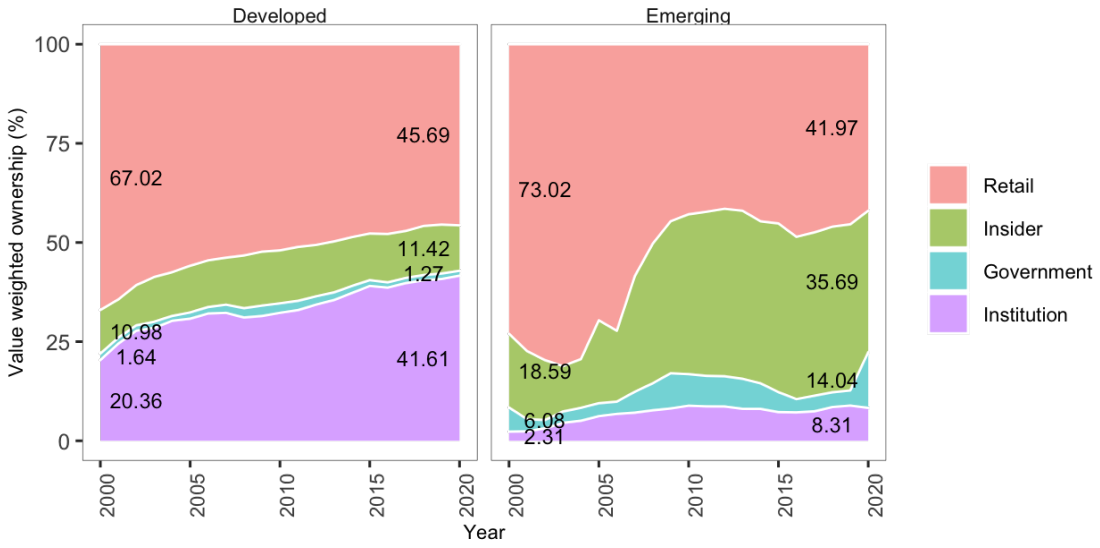


Figure 1. Proportion of total market capitalization owned by different types of investors in developed and emerging markets 2000-2020

This figure shows the proportion of total market capitalization of public firms domiciled in developed and emerging markets that are owned by four different types of investors: institutional investors, governments, insiders, and retail investors. Institutional ownership is calculated using FactSet, insider ownership and government ownership are retrieved from Datastream, and retail ownership is calculated as the residual ownership not accounted for by other types.

separately for DMs and EMs to highlight the difference between these two types of markets. We also study the relative importance of firm-level, country-level, and industry-level variables in explaining firm-level institutional ownership.

To characterize equity ownership around the world, we exploit the increasing availability of firm-level holdings data for institutional investors from FactSet as well as ownership data for strategic shareholders such as insiders and governments from Datastream. We infer retail ownership at the firm level as the residual after subtracting ownership by insiders and governments. Accounting for ownership by governments and by insiders is especially important for EMs because these markets tend to have weaker investor protection and corporate governance. We further decompose institutional ownership along two dimensions. First by institutions' country of domicile into domestic institutional ownership, foreign US institutional ownership, foreign UK institutional ownership, foreign European institutional ownership, and

other foreign institutional ownership; Second by institution type using the classification of Koijen, Richmond, and Yogo (2022) into brokers, private banking, hedge funds, investment advisors, and long-term investors. Hence we provide an updated and comprehensive analysis of firm-level ownership by different investors.

To characterize the home bias of different types of investors, we use both aggregate and institutional investor-level data. At the country-aggregate level, we use cross-border equity portfolio investment positions from the International Monetary Fund (IMF) Coordinated Portfolio Investment Survey (CPIS) to construct home bias measures as in Bekaert and Wang (2009) for aggregate residents and retail investors. We also calculate the home bias of institutional investors both aggregated for each domicile country as well as for individual institutions using FactSet holdings data. Such analyses allow us to identify who are global investors that facilitate risk-sharing in international equity markets.

To characterize the diversification of institutional investors across individual stocks, we calculate the number of stocks in the portfolio of each institutional investor as well as the proportion of stocks invested by institutional investors in each country. The investment preferences of different types of investors determine which types of firms benefit more from investors' international diversification and improved risk-sharing. Therefore, it is equally important to understand what factors determine institutional and retail ownership and how these determinants differ across developed markets (DMs) and emerging markets (EMs). We provide new results on the determinants of firm-level ownership using both pooled regression as well as country-by-country variable selection.

Our main findings can be summarized as follows. First, we show that institutional investors are the least home biased but they invest in a limited number of stocks. We show that equity home bias has a declining trend over time. Home bias varies across countries and is still much higher in EMs compared to DMs. Home bias also varies across investor types. As expected, retail investors have a very strong home bias. Among institutional investors, US institutions

are more home-biased than UK and European institutions. Investment advisors and long-term investors also show higher international diversification compared to other institution types. Despite their high level of foreign diversification, institutional investors invest in a limited range of firms. The number of stocks held varies significantly across institutions. The largest institutions invest in thousands of firms, but the median number of firms held by institutional investors does not exceed 150. Moreover, institutional investors in aggregate do not invest in all firms within each market, and the proportion of firms invested by institutional investors is lower in EMs.

Second, we use pooled regression models estimated on panel data of 28,323 non-US firms to study how firm characteristics affect institutional and retail ownership. It is well known that institutional investors overweight large stocks (see, for example, Gompers and Metrick (2001) and Lettau, Ludvigson, and Manoel (2018) for evidence from the US market and Ferreira and Matos (2008) for international evidence. The panel regressions that pool observations across countries confirm that size is the most significant and highly robust factor associated with institutional ownership. Institutional ownership is also higher in firms that are more liquid and firms that are more visible. Firms that are cross-listed on a U.S. exchange, and firms that have higher foreign sales and analyst coverage attract more foreign institutional investment. Country-level variables account for 75% and 64% of the total R-squared when explaining domestic institutional ownership in DMs and EMs. Firm variables, on the other hand, are more important (account for more than 70% of total R-squared) than country variables in explaining firm-level foreign institutional ownership. Our findings suggest that foreign institutional investors pay more attention to firm characteristics when they allocate their investment within DMs and EMs. We also examine how firm characteristics affect ownership by institution type, namely, investment advisors, long-term investors, hedge funds, and private banking. Institutions of different types share the same preference for size, liquidity, and visibility.

Third, we perform least absolute shrinkage and selection operator (LASSO) variable selection analyses at the country level to find a parsimonious set of firm characteristics that maximize the explanatory power for firm ownership by foreign US institutions.[4] We show that US institutions' preference for large, more liquid, and more visible stocks hold independent of where they invest. However, there is a large dispersion across countries in other firm characteristics. This is especially true for EM firms. The large heterogeneity in the set of firm characteristics that drive US institutions' holdings across countries implies the use of different investment strategies across markets.

Our work is closely related to Ferreira and Matos (2008) and Aggarwal, Erel, Ferreira, and Matos (2011) who study institutional investor preferences and the effect of institutional ownership on corporate governance. Our focus is instead on the ownership of firms by different stakeholders in both developed and emerging markets and the resulting implications on the global financial structure. Faias and Ferreira (2017) use equity holdings data for 45 countries over the period 2000-2010 to examine the role of institutional investors on stock return comovement. While we have similar country coverage of DMs and EMs, our interest is not limited to the institutional sector but also to the retail sector. We also use ownership by strategic investors from Datastream, while past literature (see, for example FM, Ferreira, Matos, Pereira, and Pires (2017), Faias and Ferreira (2017)) focuses on institutional ownership only.

Our work also adds to the empirical literature about home bias (see, for example, Cooper, Sercu, and Vanpee (2013), and we are the first to study comprehensively the home bias of different types of institutional and retail investors. Our study is also related to the recent literature that uses institutional holdings data to infer the demand system (see, for example, Koijen and Yogo (2019), and Koijen et al. (2022). This literature runs the analysis at the

[4]We focus on US institutions since they transcend our sample of countries and are the most important institution group in most countries. On the other hand, domestic institutional ownership depends on the host country.

institutional level and estimates the demand curve of institutions using portfolio weights of a given institutional sector, whereas our study centers at the firm level and studies the determinants of ownership by institutional and non-institutional investors. We uncover a lot of heterogeneity across countries in the set of firm characteristics that matter for foreign US institutions and no clear style investing.

Our paper also contributes to an emerging literature that applies machine learning (ML) techniques to deal with the high-dimensionality challenge. We use Cluster-LASSO approach to better understand what factors drive the portfolio choices of US institutions. DeMiguel, Martin-Utrera, Nogales, and Uppal (2020), Feng, Giglio, and Xiu (2020), and Kozak, Nagel, and Santosh (2017) apply LASSO for selection of factors important for capturing the cross-section of returns. Bakalli, Guerrier, and Scaillet (2021) apply LASSO for selection of co-variates to model the time-variations in factor exposures. See Karolyi and Van Nieuwerburgh (2020) for a review of the recent ML application to identify the most relevant asset pricing factors.

Section II describes the data. Section III examines the underdiversification of different types of investors. Section IV examines determinants of institutions and retail firm ownership. Section V concludes.

II. Data Description

Our sample includes 49 countries that are covered by the FTSE All-World Index. We use three main types of data, namely, aggregate country-level data, institution portfolio-level data, and firm-level data. Different data sources are explained below. Appendix A provides details about the data construction process.

A. *Country-level Data*

In the home bias literature, the most commonly used datasets are the two benchmark surveys conducted by the U.S. Treasury Department and the Federal Reserve Board in 1994 and 1997. The 1997 survey was part of the IMF-led initiative, the Coordinated Portfolio Investment Survey (CPIS). The CPIS has become a regular survey with at least annual frequency since 2001. 86 investor countries participated in the CPIS in 2020 and reported their equity investment in 243 target countries. The CPIS includes core and encouraged items. Core items include the geographical allocation of foreign securities holdings of all residents aggregated at the country level and encouraged items include the decomposition of holders by residential sectors (central bank; deposit-taking corporations except central bank; other financial corporations including insurance corporations, pension funds, and money market funds; general government; nonfinancial corporations; households and non-profit institutions serving households (NPISH)). One limitation of the CPIS data is the difficulty in capturing cross-border portfolio investment by households that do not use the services of resident custodians. Consequently, foreign investment could be underestimated if retail investors use non-resident custodians to invest directly in foreign markets. But this channel is estimated to be relatively small for many participating countries (IMF, 2017). Moreover, empirical studies using more granular data on individual portfolios show that retail investors have a strong local bias in their pension (Karlsson and Nordén, 2007) as well as direct investments (Seasholes, 2004), suggesting that it is unlikely for retail investors to bypass the CPIS and invest directly in foreign markets. Another shortcoming of the CPIS is that it does not map investment in securities issued by offshore subsidiaries to the ultimate parent companies. Coppola, Maggiori, Neiman, and Schreger (2021) develop an algorithm to redirect investment in offshore subsidiaries to parent companies.

In addition to cross-border portfolio investment, we also collect country-level variables from various sources. We obtain GDP per capita (GDP), the ratio of stock market capi-

talization to GDP ($Stockmv$), the ratio of stocks traded to GDP ($Stocktrade$), the ratio of total trade to GDP ($Trade$), and the business extent of disclosure index ($Disc$) from the World Bank World Development Indicators. We calculate the log average great-circle distance between the capital of each country to other countries ($Distance$) using FactSet country coordinates. We obtain annual inflation rates ($Inflation$) from International Financial Statistics (IFS). We use the country-level financial openness index ($Openess$) developed by Chinn and Ito (2006) to measure capital market openness. We follow Bekaert and Wang (2009) and calculate Political Risk Index (Pol) as the average of Law and Order, Corruption, and Bureaucratic Quality from the International Country Risk Guide (ICRG). We use the country-level World Uncertainty Index (WUI) developed by Ahir, Bloom, and Furceri (2022). We retrieve exchange rates and market-level returns from Datastream and calculate the annual average exchange rate (Fx) and exchange rate volatility ($FxVol$). We also calculate the beta of each country's market portfolio with respect to the world market portfolio ($Beta^{Ctry}$). Table I provides the detailed definitions and sources of these country-level variables.

B. Institution-level data

We obtain institutional holdings data from FactSet. FactSet collects institutional holdings from regulatory reports, stock exchange announcements, company annual reports, and interviews with fund managers. We use the method of Ferreira and Matos (2008) to aggregate holdings by 13f reporting entities and fund-level holdings at the FactSet institution level and carry forward past reports. We follow Koijen et al. (2022) and classify institutional investors according to their FactSet entity sub-type into investment advisors, long-term investors, hedge funds, private banking, and brokers. Table II provides the mapping between FactSet entity sub-types and our institution types. For each investor, we calculate its domestic weight as the proportion of its total equity portfolio that is invested in the same country as its country of domicile. For each investment advisor i, we calculate its active share as the

sum of absolute deviations of an investor's portfolio from a market-weighted portfolio, based on the same securities as the ones held by the investor, divided by two.[5]

$$AS_{i,t} = \frac{1}{2} \sum_{j \in \mathcal{C}_i} |\omega_{i,j,t} - \omega_{j,t}|$$

where $\omega_{i,j,t}$ is the weight of investment in security j in investor i's portfolio, $\omega_{j,t} = \frac{M_j}{\sum_{k \in \mathcal{C}_i} M_k}$ is the market-capitalization weight of security j in investor i's choice set $\mathcal{C}_i$. Because investment advisors are a very large group, we then classify in each time period investment advisors whose active share is above the median active share as active investment advisors (active-IA) and those whose active share is below the median level as passive investment advisors (passive-IA).

C. Firm-level data

We start with a stock universe consisting of all firms included in country lists provided by the WorldScope database for the 49 countries that are covered by the FTSE All-World Index. We exclude financial firms (SIC codes 6000-6999) and apply standard name filters suggested by Griffin, Kelly, and Nardari (2010) and Chaieb, Langlois, and Scaillet (2020) to exclude non-equity entries. We keep only companies that are listed on the major stock exchanges of each country.[6]

We calculate the firm-level institutional ownership as the ratio of USD market capitalization of ordinary shares (EQ), preferred shares (PF), and depository receipts (AD) held by a given type of institutional investors to the firm's total USD market capitalization. We merge ownership information into the firm universe constructed from WorldScope using common

[5] Active share ranges from 0 to 1. In the extreme case that $\omega_{i,j,t} = -\omega_{j,t}$, active share equals one.

[6] We define a major stock exchange as the one with the highest number of listed equities. However, we include more than one stock exchange in some countries: Canada (Toronto Stock Exchange and Canadian Ventures Exchange), China (Shanghai Stock Exchange and Shenzhen Stock Exchange), Germany (Frankfurt Stock Exchange and Xetra), India (Bombay Stock Exchange and National Stock Exchange), Russia (Russian Trading System and MICEX), South Korea (Korea Stock Exchange and KOSDAQ), the United Arab Emirates (Abu Dhabi Stock Exchange and Dubai Financial Market), and the US (NYSE, NYSE Arca, NYSE AMEX, and Nasdaq).

identifiers (ISIN, SEDOL, CUSIP). For firm-year observations without a match in FactSet, we assign zero institutional ownership. We obtain firm-level ownership by insiders and governments from Datastream. We then define retail ownership as the residual ownership after subtracting ownership by institutions, insiders, and governments.[7]

We decompose total institutional ownership (IO) along two dimensions, namely, by geographical origin and by institution type. We first break down institutional ownership based on the institutions' country of domicile: domestic (IO^{Dom}), foreign US (IO^{US}), foreign UK (IO^{UK}), foreign European (IO^{EU}) and other foreign institutions (IO^{Others}). We classify an institutional holding as foreign when the company and the institution have different countries of domicile. We also classify institutions by their type into brokers (IO^{BR}), active investment advisors ($IO^{Active-IA}$), passive investment advisors ($IO^{Passive-IA}$), hedge funds (IO^{HF}), private banking (IO^{PB}), and long-term investors (IO^{LT}). Table I lists the definition and sources of each ownership item.

Table III presents, for each country, as of December 2020, the number of firms and the value-weighted average ownership by retail investors (Retail), governments (Govt), insiders (Insider), and institutional investors (IO). Insider ownership is the highest in Chile, Indonesia, and Turkyie at higher than 60%. Government ownership is the highest in Saudi Arabia at 88%, followed by Columbia, Czechia, and Qatar at around 50%. The high level of insider and government ownership in these markets suggests that it is necessary to subtract ownership by these strategic investors when inferring retail ownership as the residual. Admittedly, Datastream coverage of government ownership could be incomplete and might not fully capture government ownership through government-controlled entities. This could be the reason why government ownership is merely 0.18% in China, which is likely to be a severe underestimate. We acknowledge this limited coverage.

[7]Several other papers define the complement of institutional holdings as a proxy for individual investors' ownership, see, for example, DeVault, Sias, and Starks (2019), Agarwal, Vashishtha, and Venkatachalam (2018), and Choi, Gao, and Jiang (2020). Taking into account ownership by insiders and governments is important in EMs in order to correctly infer retail ownership.

Table III also shows the ownership by institutional investors from different domiciles and of different types. The average institutional ownership across all markets is 33%, among which the average domestic institutional ownership is 22%. This average domestic institutional ownership is driven by US firms whose domestic institutional ownership amounts to 46%. Among foreign institutions, the value-weighted average ownership across all markets by US institutions is around 4%, followed by European institutions who own 3% of total market capitalization, and UK institutions whose ownership is 2%. Ownership by foreign institutional investors from other countries is very small compared to these three major groups.

The level of domestic and foreign institutional ownership varies considerably across countries. Domestic institutional ownership is relatively small in countries other than the US, with the exception of Canada, Sweden, and UK where domestic institutional ownership exceeds 10%. This is not surprising because these well-developed markets also have well-established domestic institutional sectors. Among other countries, domestic institutions are more important than US institutions in Brazil, China, India, Japan, and Poland.

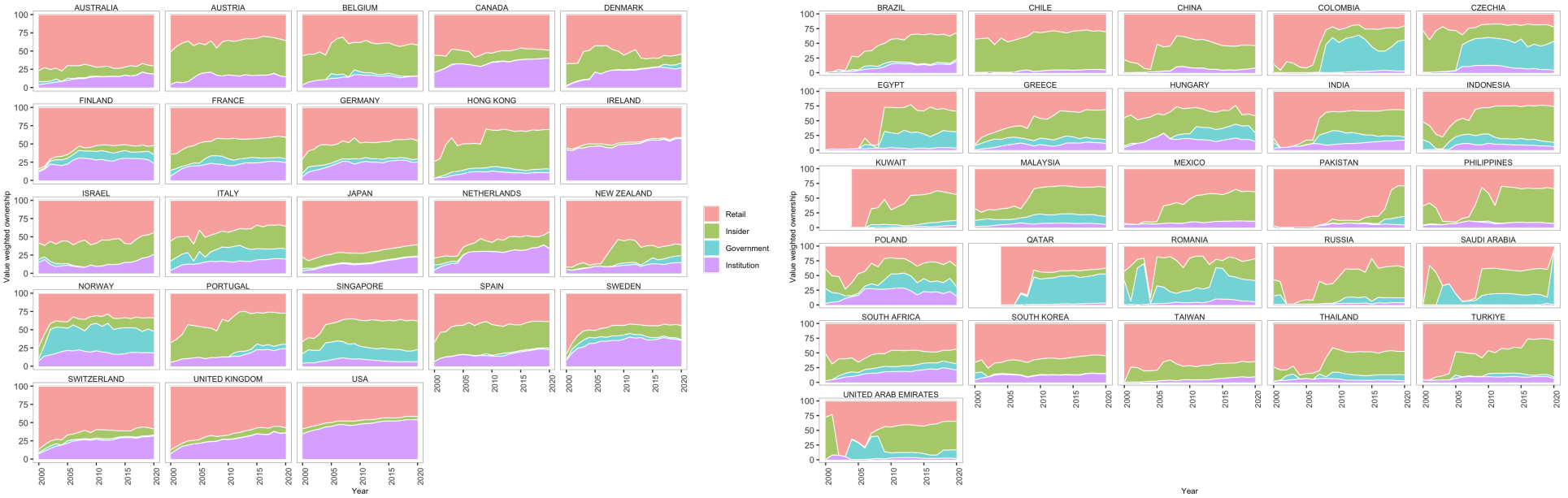
In terms of institutional investor types, the average ownership by active investment advisors across all markets is 11%, and ownership by passive investment advisors is slightly higher at 16%. Long-term institutions own 2.4% of world market capitalization, while the ownership by hedge funds and private banking is at 1.7% and 1.2% respectively. Ownership by brokerage companies is 0 in most countries and averages 0.53% across all markets. The relative importance of these different types of institutional investors is comparable across markets.

To reveal the changes in ownership composition over time and provide a more intuitive comparison across markets, we complement Table III with Figures 2-4 that plot time-varying ownership by investor types over the two decades. Figure 2 shows the value-weighted average firm ownership by four types of investors: retail, governments, insiders, and institutions. Overall, ownership by insiders and governments is higher in EMs than in DMs throughout the sample period. Institutional ownership is higher in DMs than EMs, but institutional ownership

has increased in most markets across both DMs and EMs.[8]

Figure 3 shows the time-varying value-weighted average institutional ownership by institutions of different countries of domicile: domestic institutions, foreign US institutions, foreign UK institutions, and foreign European institutions. We could confirm that domestic institutional ownership is relatively small in most countries except Canada, Sweden, UK, US, China, and Poland. In Denmark, France, and Germany, domestic institutions have become less important in recent years compared to foreign institutions. Among foreign institutional investors, US institutional ownership is the highest, whereas ownership by UK and European institutional investors are comparable in most countries. Overall, foreign institutional ownership has increased over time in most countries.

[8]Part of this increase is due to changes in firm coverage in FactSet over time. FactSet V5 has incomplete coverage of international holdings before 2005.



(a) Developed markets

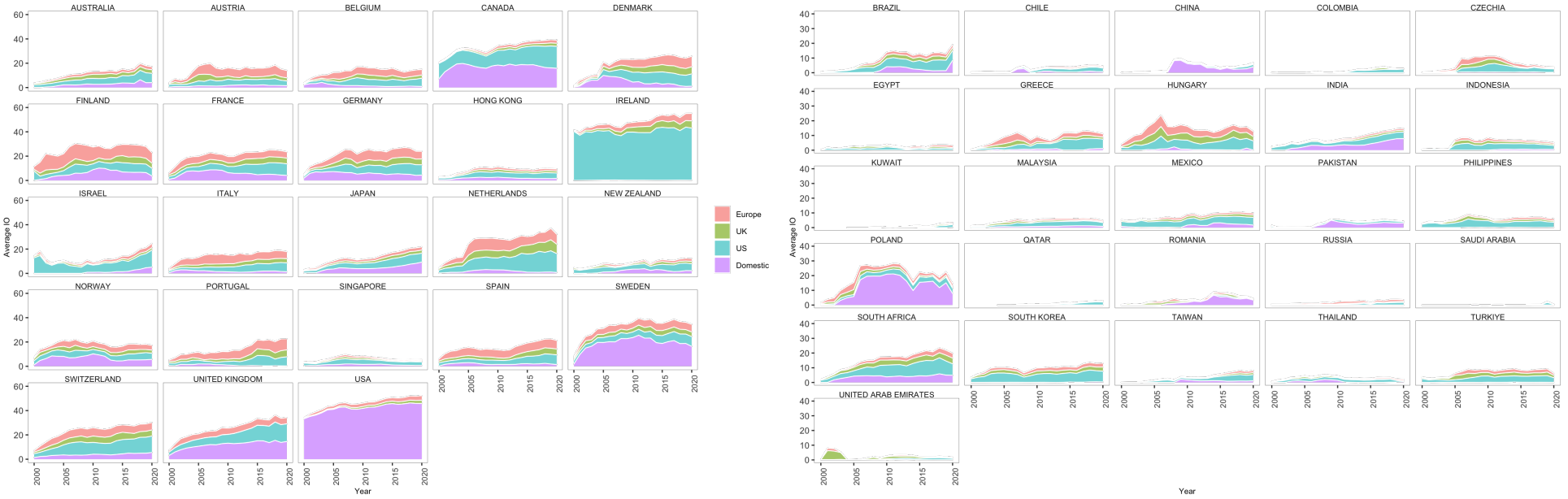
(b) Emerging markets

Figure 2. Value-weighted firm ownership by investor type 2000-2020

This figure plots for each market the annual value-weighted average public firm ownership ratio by four different types of investors from 2000 to 2000: retail investors, institutions, insiders, and governments. Institutional investors include buy or sell side financial institutions with holdings data available in FactSet. Governments and insider ownership are obtained from Datastream, and retail ownership is calculated as the residual $\max(1-government-IO-insider, 0)$. Details about the calculation of different ownership are provided in Appendix A.

Figure 4 plots the time-varying value-weighted ownership for different types of institutional investors, namely, brokers, hedge funds, active and passive investment advisors (Active IA and Passive IA), long-term investors, and private banking. Investment advisors are the most important type of institutional investors in all markets. The relative importance of active versus passive investment advisors varies across countries. Active investment advisors are more important in countries such as Canada, France, Germany, and China. In contrast, passive investment advisors are more significant in US and have increased their ownership relative to active investment advisors. This is consistent with the recent shift towards passive investment. Long-term institutions have the second-highest ownership in public firms around the world. They are particularly important in countries including Finland, Norway, Sweden, and Poland. Ownership by hedge funds and private banking is only noticeable in the US and Ireland, whereas ownership by brokers is negligible in all markets.

For the clarity of presentation, in our subsequent analyses we remove the broker category which has minimal ownership in public firms.

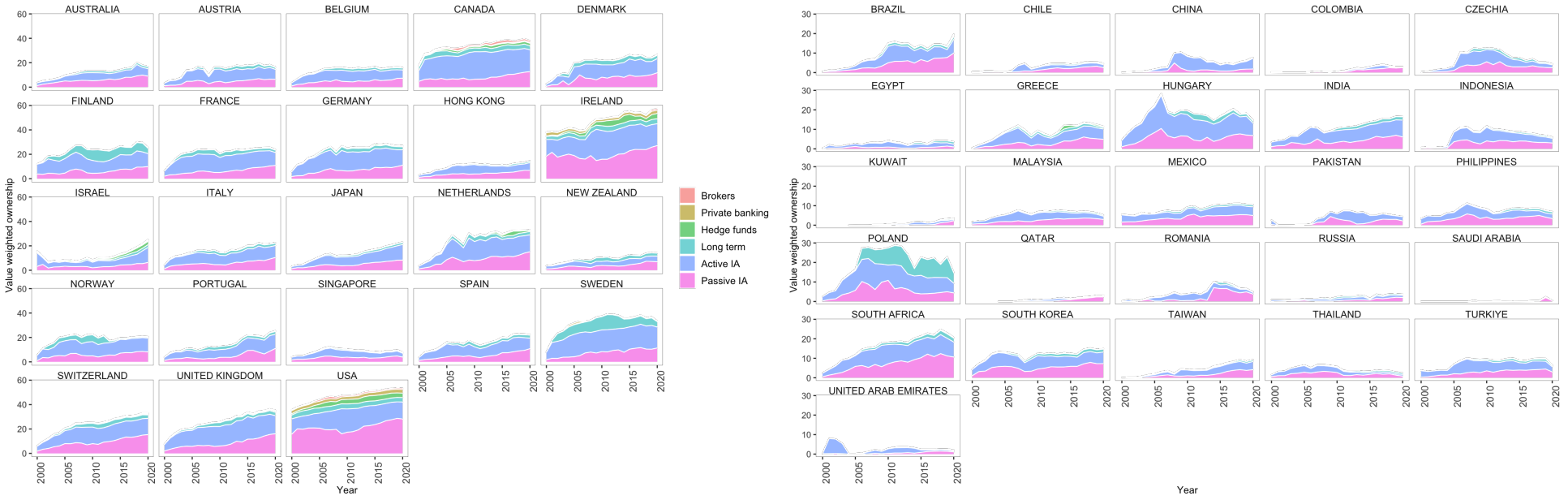


(a) Developed markets

(b) Emerging markets

Figure 3. Value-weighted firm ownership by institution domiciles 2000-2020

This figure plots the annual value-weighted average public firm ownership ratio by institutional investors of different domiciles from 2000 to 2020: domestic institutional investors, foreign US institutional investors, foreign UK institutional investors, and foreign European institutional investors.



(a) Developed markets

(b) Emerging markets

Figure 4. Value-weighted Firm Ownership by institution types 2000-2020

This figure plots the annual value-weighted average public firm ownership ratio by institutional investors of different types: active investment advisors (Active IA), passive investment advisors (Passive IA), long-term institutions, hedge funds, private banking, and brokers.

We calculate a wide range of firm characteristics using data from Datastream and WorldScope as explanatory variables for ownership. These explanatory variables can be categorized into the following groups: (1) size: log total market capitalization ($Logmv$), log total assets ($Logasset$), log total sales ($Logsales$); (2) liquidity: turnover ($Turn$), Fong, Holden, and Trzcinka (2017) transaction cost measure (FHT); (3) visibility: foreign sales ($Fsales$), analyst coverage ($Analyst$) and ADR listing dummy (ADR), (4) growth: investment measured as the sum of CAPEX and R&D costs ($Investment$), sales growth ($Gsales$), asset growth ($Gasset$); (5) value: dividend yield (DY), price-to-earnings ratio (PE), book-to-market ratio (BM); (6) profitability: return on equity (ROE), return on asset (ROA), net profit margin (NPM); (7) systematic risk and momentum: R-squared from a domestic market model (R^2), idiosyncratic volatility ($Ivol$) and momentum (Mom); and (8) other control variables: cash ($Cash$), PP&E (PPE), leverage (Lev), dividend (Div). Variables are scaled by total assets, total sales, or the book value of equity when appropriate. Firm-level ratios are winsorized at the bottom and top 1% for each country.

In order to control for industry effects, we calculate industry-level variables as the median of firm-level variables that are related to industry-specific operation properties (ROE^{Ind}, $Investment^{Ind}$, $Cash^{Ind}$, PPE^{Ind}, PE^{Ind}, BM^{Ind}, $Gsales^{Ind}$, Div^{Ind}, Lev^{Ind}). In addition, we calculate the beta of industry portfolios with respect to the world market portfolio ($Beta^{Ind}$). We use Fama-French 38 industries classification. As additional country-level explanatory variables, we use firm-level variables to calculate country-level momentum (Mom^{Ctry}), dividend yield (DY^{Ctry}), and the synchronicity measure ($Sync$) of Morck, Yeung, and Yu (2000). Table I presents detailed definitions of all variables used in this study. Our final sample for the panel regressions contains 28,323 unique non-US firms, totaling 240,483 firm-year observations.[9]

Table IV provides the summary statistics of the firm-level ownership (Panel A), firm-level

[9]Our final sample for the pooling regression does not have observations from Kuwait, Qatar, Romania, Saudi Arabia, Taiwan, and UAE due to the inavailability of country-level variables.

explanatory variables (Panel B), country-level variables (Panel C), and industry-level variables (Panel D). Average government ownership is higher in EMs at 1% compared to DMs at 0.5%. Insider ownership is also higher in EMs at 38% compared to 29% in DMs. The average institutional ownership is 10% in DMs, which is much higher than the average institutional ownership of 4% in EMs. This difference is mostly driven by the higher domestic institutional ownership in DMs at 5%, compared to the average domestic institutional ownership of 2% in EMs. Ownership by foreign institutions of different domiciles and institutions of different types are all higher in DMs. Interestingly, the median foreign institutional ownership regardless of foreign institutions' domicile is zero in both DMs and EMs. This suggests that institutional investors do not fully diversify into all stocks in the universe. We discuss the underdiversification of institutional investors in more detail in Section III.

Panel B of Table IV provides the summary statistics of firm-level explanatory variables. The average company in DMs is larger than its counterpart in EMs. The mean market capitalization in DMs and EMs is $222 million USD and $163 million USD. The value measures are comparable across DMs and EMs. The mean book-to-market ratio is 0.98 and 1.04 in DMs and EMs, the mean dividend yield is 2% in both DMs and EMs. Stocks in EMs on average are more synchronous with their local market, as reflected by the higher local market R^2 of 0.29 compared to 0.21 in DMs, which is consistent with the findings of Morck et al. (2000). The average stock return idiosyncratic volatility is comparable at 5% and 6% in DMs and EMs. DM stocks have on average lower turnover but the same average transaction costs compared to EM stocks in our sample period. DM firms are on average less profitable compared to EM firms measured by ROE, ROA, and NPM. However, firms in DMs have higher growth rates and investments, and they are more visible with higher foreign sales and more analyst coverage compared to EM firms.

Panel C of Table IV provides summary statistics on country-level control variables. Developed markets have more developed economies measured by higher GDP per capita and

more developed equity markets measured by higher stock market capitalization and trading volume to GDP. They are economically and financially more open to the world as is reflected in their higher trade-to-GDP and financial openness. In addition, DMs have better legal environment and lower political risk compared to EMs. Panel D reports the summary statistics of industry-level variables. Most industry-level variables are comparable across DMs and EMs, except for industry net profit margin, which is on average lower in DMs compared to EMs. This suggests that the lower average firm-level profitability in DMs could be driven by DMs having more firms in less profitable industries.

III. Underdiversification of different investors

The actual investment scopes of different investors shape the *de-facto* structure of global equity markets. This section characterizes the portfolio diversification of different types of investors. We focus on two aspects of investors' portfolio diversification: their degree of international diversification (macro-diversification) and their extent of diversification across individual securities (micro-diversification). We first present evidence about the time-varying home bias of different types of investors and then show that institutional investors invest in a limited number of securities.

A. Home-bias by investor type

It is well-documented that investors fail to optimally diversify internationally and exhibit home bias in their portfolio allocation. There is evidence that home bias has trended down (see Cooper et al. (2013) for a comprehensive review of the equity home bias literature) and that institutional investors have become more globally diversified over time (Didier, Rigobon, and Schmukler, 2013; Faias and Ferreira, 2017). Most of the existing empirical studies about home bias focus on the home bias of all residents aggregated at the country level (see, for

example, Dahlquist, Pinkowitz, Stulz, and Williamson (2003) and Warnock (2002)) or on one type of investors such as mutual funds (Chan, Covrig, and Ng, 2005; Lau, Ng, and Zhang, 2010) or individual investors using micro-level data.[10] Because we are interested in identifying who are global investors, we calculate the home bias of both institutional investors and retail investors whenever data is available.

Home bias is measured as the difference between the actual weight of investors' home investment and an optimally-diversifying benchmark weight, typically the world market portfolio weight of their home country. For a given investor i, let $I_{i,k}$ denote her dollar investment in country k, her actual portfolio weight in her home country c_i is:

$$W_{i,c_i}^{act} = \frac{I_{i,c_i}}{\sum_k I_{i,k}} \tag{1}$$

Assuming the World Capital Asset Pricing Model (WCAPM) holds, then the optimally-diversifying portfolio of each investor is the world market portfolio. The benchmark weight is the share of country c in the world market portfolio. Then the benchmark weight for investors from country c, W_c^{BM} is:

$$W_c^{BM} = \frac{M_c}{\sum_k M_k} \tag{2}$$

The raw home bias of investor i is defined as the difference between the actual weight of her home investment and the benchmark weight of the home country c_i:

$$HB_i^{raw} = W_{i,c_i}^{act} - W_{c_i}^{BM} \tag{3}$$

[10]Using administrative data on Swedish pension portfolios, Karlsson and Nordén (2007) show that individual investors exhibit home bias and tend to choose domestic funds from an investment menu. Using U.S. individual investor data from a large discount brokerage house, Seasholes and Zhu (2010) show that individual investors have a local bias preferring stocks whose headquarter is close to them.

As a starting point, we calculate the home bias of the aggregate residents in each country using CPIS cross-country portfolio investment as in Bekaert and Wang (2009). The CPIS reports for each investor country c the total equity investment made by its residents in each target country k, denoted as $I_{c,k}$.[11] Because the CPIS does not contain $I_{c,c}$, country c's domestic investment, the domestic investment of aggregate residents needs to be inferred. We measure domestic equity investment as the residual component of the total domestic market capitalization of country c, denoted as M_c, not accounted for by total non-resident investment from the rest of the world. The domestic equity investment of residents in country c is expressed as:[12]

$$I_{c,c} = M_c - \sum_{k \neq c} I_{c,k} \tag{4}$$

The actual weight of home investment in the overall equity portfolio of the residents in country c can be expressed as,

$$W_{c,c}^{act} = \frac{I_{c,c}}{\sum_k I_{c,k}} \tag{5}$$

The raw home bias of all residents in country c is calculated according to the definition in (3):

$$HB_c^{raw} = W_{c,c}^{act} - W_c^{BM} \tag{6}$$

The raw home bias measure is sensitive to the size of the domestic market, and the measure for investors from large markets is most affected by their benchmark weights. To

[11] We use c to denote the aggregate investor of country c, i to denote a generic investor, and c_i to denote the home country of the investor i.

[12] The total market capitalization of domestic listed companies is sourced from the World Bank or Datastream.

see this, consider a US investor and a Canadian investor who both invest 60% in their home markets in 2020. To calculate the home bias of the US investor, we need to subtract a benchmark weight of as high as 40% while the benchmark for the Canadian investor is only 3%. This results in a raw home bias of 20% for the US investor and 57% for the Canadian investor. However, much of the difference in the home bias between these two investors results from the difference in their home market size. To adjust for home market size, we could normalize the raw home bias by the maximum amount of home bias possible:

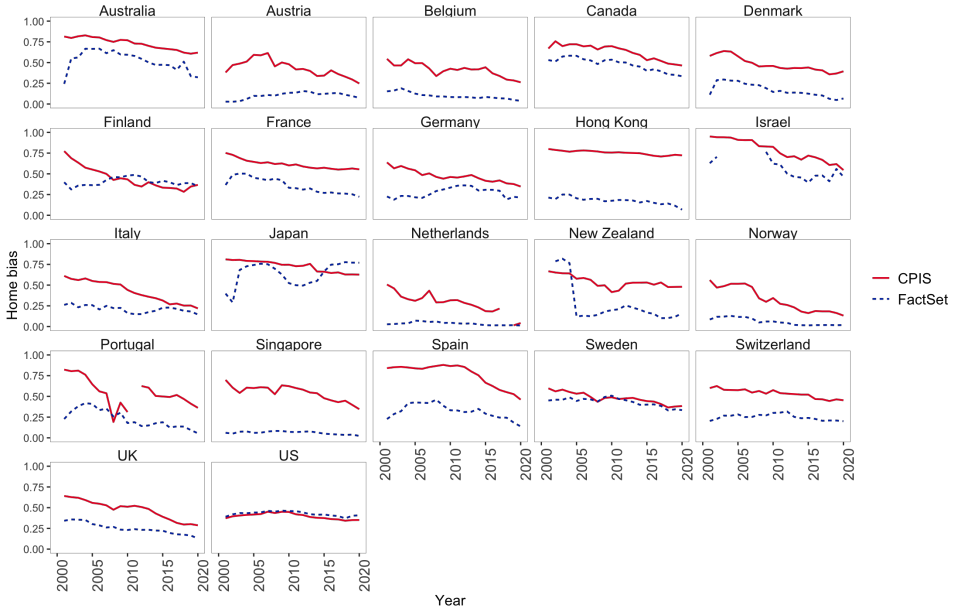
$$HB_i^{norm} = \frac{W_{i,i}^{act} - W_i^{BM}}{1 - W_i^{BM}} \quad \text{if } HB_i^{raw} > 0 \tag{7}$$

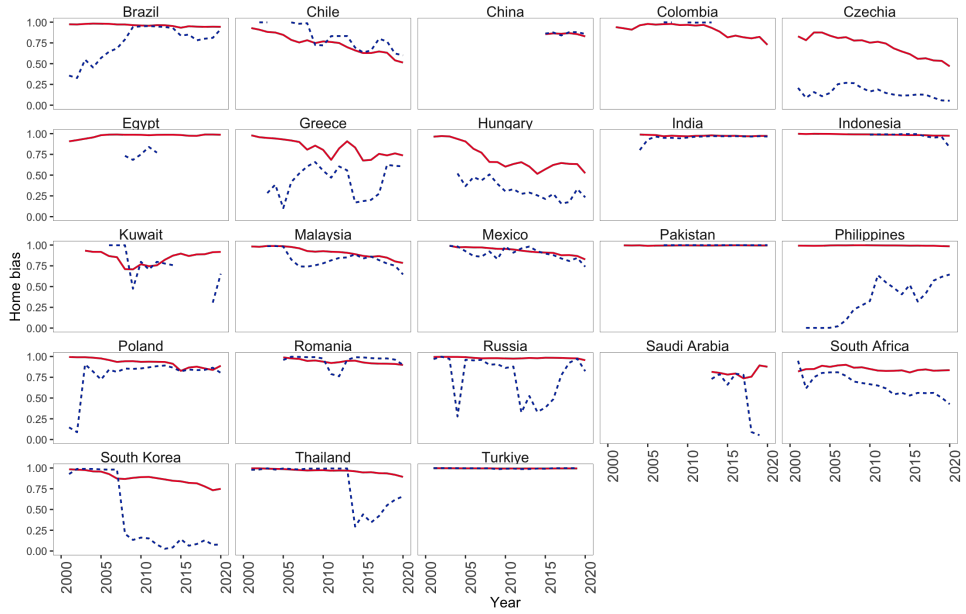
where the normalized home bias ranges between 0 and 1.

We calculate both raw and normalized home bias measures using the CPIS data. Appendix Figure 13 compares the raw and normalized home bias of each country. In most countries, they are very close to each other. The normalized home bias is only noticeably different from the raw home bias in larger markets such as US, Japan, and China, which is consistent with the findings of Bekaert and Wang (2009). In addition to aggregate home bias calculated using the CPIS data, we also calculate the aggregate home bias of institutional investors domiciled in each country defined in (3) using the country weight of the aggregated investment of all institutional investors from each country that is available in FactSet.

Figure 5 shows the home bias of all residents using the CPIS data and that of all institutions in FactSet. For ease of presentation, we only show the aggregate raw home bias. The home bias has trended down in most DMs.[13] To the contrary, in EMs, home bias is persistently high in most countries. But there is a significant downward trend in countries such as Chile, Colombia, Czechia, Hungary, and South Korea. In both DMs and EMs, the home bias of institutional investors is lower than that of all residents in most countries, however, the two

[13]We exclude Ireland because using our method, the inferred domestic investment is negative because Ireland is an offshore center and its domestic total market capitalization is lower than the total portfolio investment inflow.





(a) Developed markets

Figure 5. Home bias of aggregate residents and institutional investors 2000-2020

This figure plots the raw home bias measure defined in Equation 6 of aggregate residents from different countries calculated using the CPIS and the home bias of aggregate institutional investors from each country using FactSet holdings data from 2000 to 2020

lines have similar trends over time. This suggests that institutional investors are less home-biased than the average investor in each country, but they could represent the changes in the home bias of investors in each country over time.

Building on the evidence about aggregate home bias presented above, we next examine the home bias at the individual institution level to study how home bias varies across institutional investors of different domiciles and of various types. To facilitate the comparison between institutions domiciled in markets of different sizes, we calculate the annual normalized home bias of each institutional investor defined in (7) using their holdings in FactSet. Figure 6 plots the frequency distribution of institution-level home bias measure for institutions from different domiciles. We find that the distribution of institutional-level home bias is bimodal in UK and European institutions. The distribution of US institutions' home bias is uni-modal and concentrates at the high home bias end. Institutions from other domiciles are mostly fully home-biased. This is consistent with the findings of Hau and Rey (2008) that the domestic investment weight of mutual funds from US, UK, EU, and Switzerland is very bimodal. We extend their analyses by providing new evidence about home bias at the institution level and show that the lower mode of the bimodal distribution is driven by European and UK institutions while the higher mode is driven by US institutional investors.[14]

Figure 7 shows the frequency distribution of institution-level normalized home bias by institution type. The distribution of home bias across investment advisors tends to be bimodal with significant mass at the low home bias end, whereas, for long-term institutions, hedge funds, and private banking, the distribution is centered around a very high level of home bias that is above 0.8. Overall, the distributions of home bias across institution types are not as heterogeneous as those across institution domiciles, implying that home-bias is decided more by investors' home country than by the nature of their business.

[14]Institutional home bias is less than zero in 9% of total observations and such observations is omitted from the histograms.

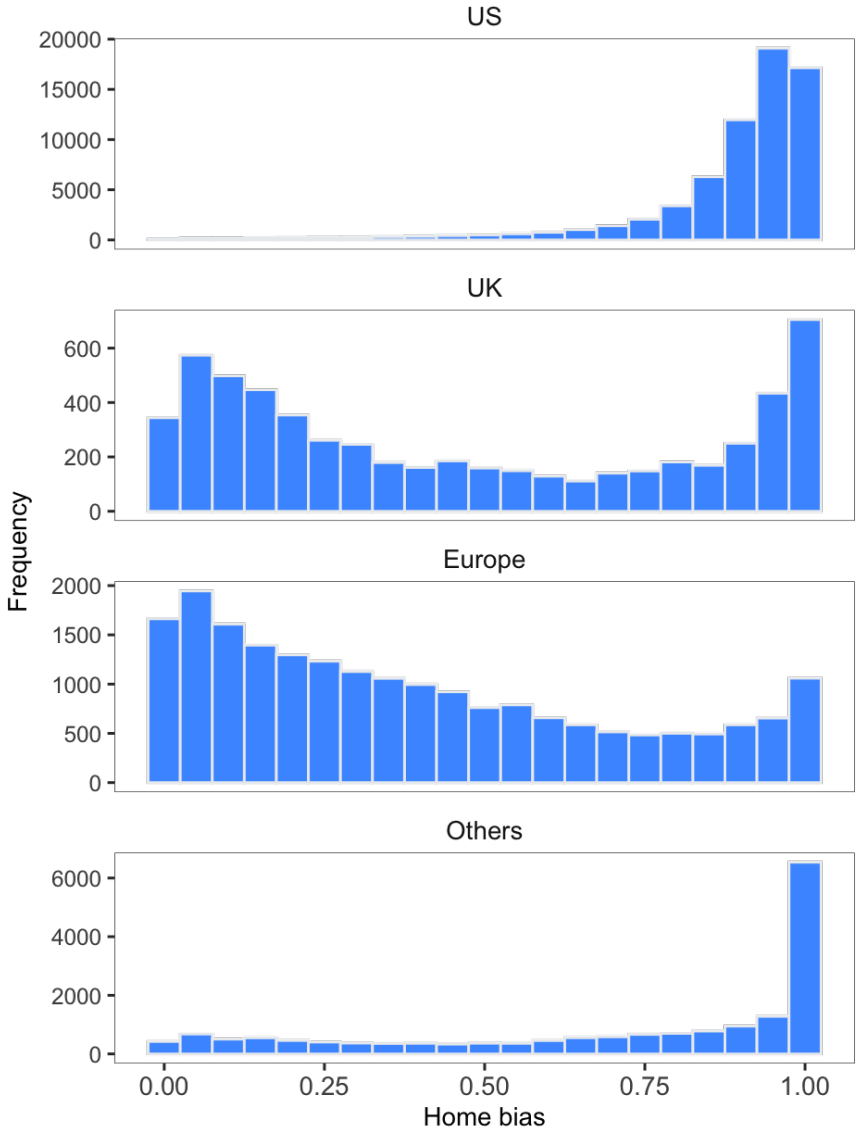


Figure 6. Distribution of home bias at the institution level by country of domicile

This figure shows the frequency distribution of the home bias at the institutional investor level for institutions from different countries of domicile: US institutions, UK institutions, European institutions and Other institutions. We calculate the annual home bias of institutional investors defined in (7) from 2000 to 2020 using their end-of-year portfolio holdings in FactSet.

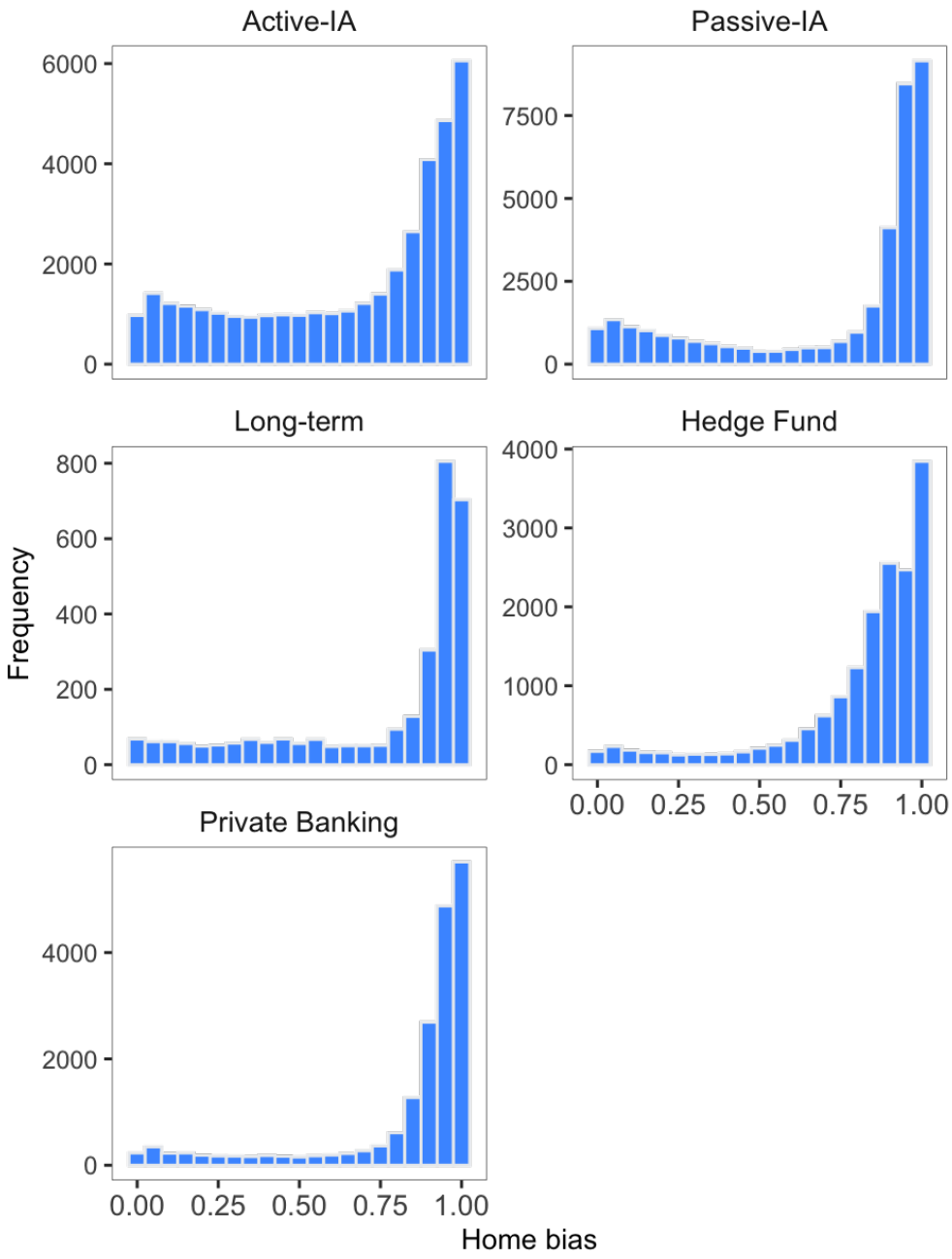
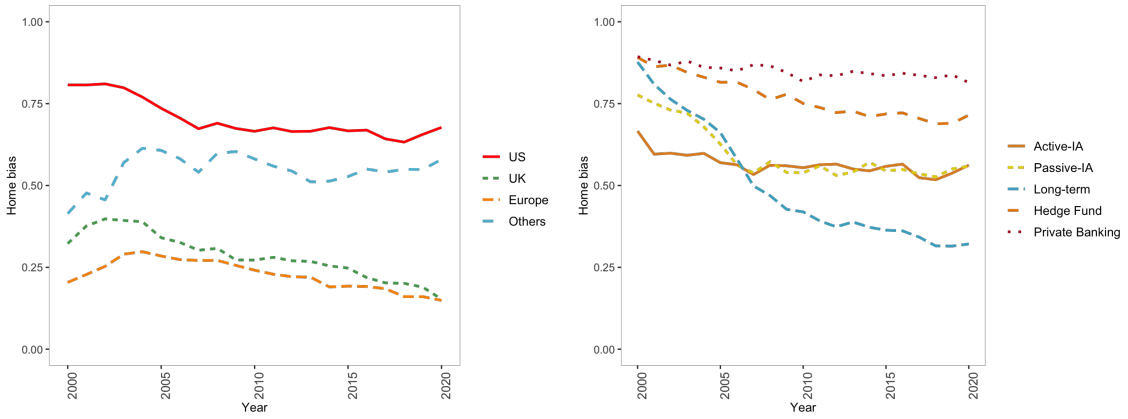


Figure 7. Distribution of home bias at the institution level by type

This figure shows the frequency distribution of the home bias at the institutional investor level for institutions of different types: active investment advisors (Active IA), passive investment advisors (Passive IA), Long-term institutions, and private banking. We calculate the annual home bias of institutional investors defined in (7) from 2000 to 2020 using their end-of-year portfolio holdings in FactSet.

In order to directly compare the level of home bias across different groups of institutional investors and illustrate their time variation, we also calculate the asset-under-management (AUM)-weighted normalized home bias of each group of institutions. Figure 8a shows the AUM-weighted home bias of institutions by their domicile. Consistent with the frequency distribution in Figure 6, we find that US institutions are the most home-biased. UK institutions are less than half as home-biased as US institutions and European institutions are even less home-biased than UK institutions. Institutions from other countries are slightly less home-biased than US institutions but still much more home-biased than UK institutions. Both UK and European institutions have declining home bias over time. The home bias of US institutions declined until the end of the sample period.



(a) By institution domicile **(b)** By institution type

Figure 8. Value-weighted home bias by institution domiciles and by types

Figure 8b presents the AUM-weighted normalized home bias of different types of institutions. Private banking has the highest level of home bias which is above 0.8. Hedge funds have the second highest level of home bias. Both active and passive investment advisors have much lower home bias throughout the sample period, with the home bias of passive investment advisors declining considerably before 2006. Long-term investors were more home-biased at the beginning of the sample period but experienced a significant decline in their home bias and end up being the least home-biased group of institutions by 2020. Thus we could conclude

that among institutional investors, investment advisors and long-term institutions are more likely to be global investors who facilitate international risk-sharing.

Retail investors own almost half of all listed equity worldwide (see Figure 1). Understanding their international diversification is essential for depicting a full picture of the global equity market structure. Existing evidence about the home bias and local bias of retail investors relies on administrative data or proprietary data and is restricted to a single country (Karlsson and Nordén, 2007; Seasholes, 2004). We contribute by providing global evidence about the home bias of retail investors. Because there is no widespread coverage of retail holdings in commercial databases such as FactSet, we resort to aggregate statistics of the household sector to calculate retail home bias. We obtain from the Enhanced CPIS the total equity and fund investment by households in each reporting country to the rest of the world as household total foreign investment. Because household foreign investment is an encouraged item to report in the CPIS, only a limited number of countries choose to report this item.[15] We use the financial assets invested in "Equity and investment fund shares/units" by the household sector in the OECD National Accounts to proxy the total equity investment of households. Then the proportion of household investment at home is calculated as one minus the ratio of the total foreign investment from the CPIS to the total portfolio investment from the OECD. Figure 9 plots the evolution of the raw home bias and the normalized home bias for the aggregate households from markets where both these two sources of data are available. The figure shows that households have a very high level of home bias across many countries, which barely declined over the past two decades. We expect the retail home bias to be even higher in less developed countries in which data is not available because Figure 5 already shows that the home bias is higher in EMs compared to DMs. This is in stark contrast to institutional investors who have lower and declining home bias. Thus we could conclude that relative to retail investors, institutional investors represent global investors who contribute to

[15]For example, important markets such as US and China do not report household foreign investment.

international risk-sharing.

Figure 9. Home bias of retail investors

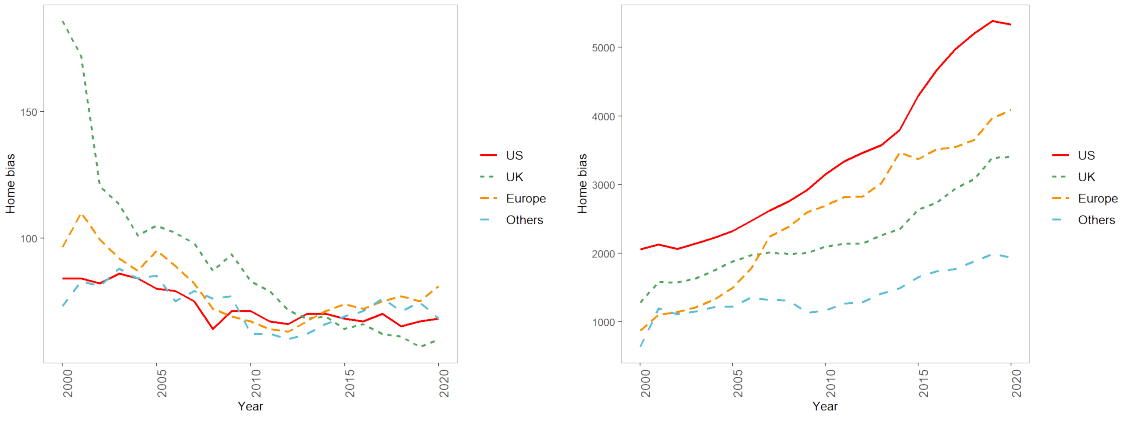
This figure plots the time-varying raw home bias defined in (3) and normalized home bias defined in (7) of retail investors (households) from different countries. The total value of households' equity portfolio is sourced from the OECD national account transaction item "Equity and investment fund shares/units" for the Household sector. The total value of households' foreign investment is retrieved from the Enhanced CPIS item "Equity and Investment Fund Shares" for the Household sector. The domestic weight of household equity and fund investments is one minus the foreign weight calculated as the ratio between CPIS foreign investment and OECD total portfolio value.

B. Limited investment scopes of institutional investors

In addition to investors' international diversification (macro diversification), market structure also depends on how investors diversify across individual stocks (micro diversification). Because institutional investors represent global investors, it is important to understand to what extent they engage in micro diversification because firms in their portfolio benefit from improved international risk-sharing. Compared to less sophisticated retail investors, we would expect institutional investors to be more investment-savvy and better at exploiting diversification opportunities. Existing studies, however, have shown that institutional investors invest

in a limited number of stocks. For example, Didier et al. (2013) show that U.S. equity mutual funds under-diversify by holding only a limited number of stocks in each country, Koijen and Yogo (2019) show that the median number of stocks held by 13F institutions is fewer than 100.

We provide new global evidence about the investment scopes of institutional investors from different domiciles as well as of different types. We start by characterizing the number of stocks invested at the individual institution level. Figure 10a shows the median number of firms invested by US institutions, UK institutions, European institutions, and other institutions. Except for UK institutional investors at the beginning of the sample period, the median number of firms invested by each group of institutional investors is fewer than 100 regardless of their domicile. Figure 10b shows the AUM-weighted average number of firms invested by institutions from different domiciles. The AUM weighted average is driven by very large institutions that are much more diversified than the median institution. However, the average investment scope is still much smaller than the stock universe. Among different groups, US institutions have the largest investment scope, followed by European institutions and UK institutions.

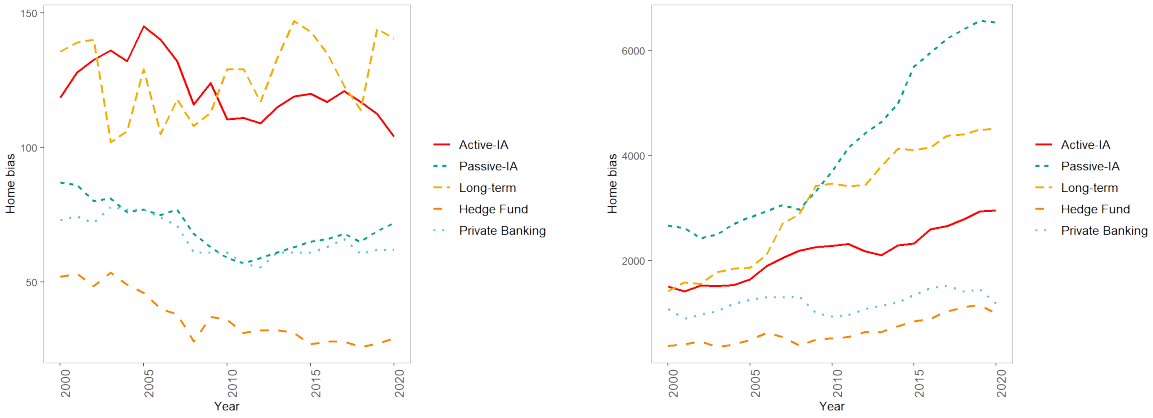


(a) Median number of firms **(b)** Value-weighted number of firms

Figure 10. Number of firms in institutional portfolios by country of domicile

This figure plots in the left panel (a) the median number of firms held by institutions of different domiciles and in the right panel (b) the AUM-weighted average number of firms held by institutions of different domiciles.

Figure 11a shows the median number of firms in the portfolios of active and passive investment advisors, long-term investors, hedge funds, and private banking. The median investment scopes of active investment advisors and long-term investors are comparable at between 100 and 150 stocks, which is larger than the other types of institutions. Passive investment advisors and private banking have the second largest number of stocks in their portfolios at between 50 and 100 stocks. The median hedge fund holds fewer than 50 stocks in its portfolios. Because the median could be due to a large number of less diversified small institutions, Figure 11b shows the AUM-weighted average number of firms in the portfolios of each type of institutions. Under AUM-weighting, passive investment advisors are the most diversified with on average more than 6,000 stocks in their portfolios by 2020. The AUM-weighted investment scope of long-term investors is now larger than that of active investment advisors. The change in the ranking of investment scopes across institution types is driven by large (in terms of AUM) passive investment advisors and long-term investors who diversify across a large number of stocks. Private banking and hedge funds remain to be less diversified compared to the other types.



(a) Median number of firms **(b)** Value-weighted number of firms

Figure 11. Number of firms in institutional portfolio by type

This figure plots in the left panel (a) the median number of firms held by institutions of different types and in the right panel (b) the AUM-weighted average number of firms held by institutions of different types.

Underdiversification at the institution level is not informative about the equilibrium pricing implications. Indeed, although individual institutional investors may not invest in all the stocks in the universe, institutional investors in aggregate could still fully diversify across individual stocks. In order to understand whether institutional investors also have a limited investment scope in the aggregate, we calculate the proportions of firms in each country in each period that have non-zero ownership by all institutions and by foreign institutions. The proportion is calculated as the number of firms in each country-year with positive corresponding institutional ownership divided by the total number of firms that have a valid market capitalization in Datastream. Figure 12 plots the time evolution of these proportions. The proportion of firms invested by institutional investors has increased in most DMs. However, by the end of 2020, institutional investors still do not participate in all the stocks in each country. In markets such as Australia, Canada, Hong Kong, and Singapore, only 50% of all listed companies have positive ownership by institutions covered in FactSet. In markets such as US, Switzerland, and Italy, more than 75% but less than 100% listed companies have positive institutional ownership in 2020. This reflects the underdiversification of institutional investors as a group. The underdiversification is more striking in EMs. In many markets including Chile, Egypt, Kuwait, India, Indonesia, Taiwan, Thailand, and Turkyie, less than half of listed firms are invested by institutional investors in 2020. The overall rank of the proportion across markets is consistent with Figure 3 of Didier et al. (2013). Because FactSet has good coverage of large global institutional investors, the low proportion of firms with positive institutional ownership shows that global investors only invest in a limited number of firms within each market. Our results extend previous evidence of under-diversification of U.S. equity mutual funds to the broader institutional sector.

In summary, we show that home bias is still a pervasive phenomenon but institutional investors are more globally diversified than retail investors. Among institutional investors, UK, and European institutions have lower home bias compared to US and other institutions, and so

(a) Developed markets

(b) Developed markets

Figure 12. Proportion of public firms invested by all and foreign institutional investors 2000-2020

This figure plots the proportion of public firms in each country that have positive ownership by all institutional investors and by foreign institutional investors from 2000 to 2020. The numerator is the number of firms with positive institutional ownership using FactSet holdings data and the denominator is the number of firms with a valid market capitalization in Datastream.

do investment advisors and long-term investors compared to other types of institutions. These institutional investors tend to be the global investors that facilitate international risk sharing. We also document the limited diversification of institutional investors across individual stocks. On the one hand, individual institutions hold a small number of stocks in their portfolio, on the other hand, institutional investors in aggregate invest in only a limited number of stocks in each country, and thus a considerable proportion of firms in each country are not invested by institutional investors.

The evidence presented above depicts a realistic picture of the global equity market structure: institutional investors invest globally, yet they invest in a limited set of companies. This observation is important to derive pricing implications since firms with different levels of global institutional ownership are likely to have different exposures to international risk-sharing which results in different risk premia.

IV. Determinants of firm ownership

This section studies what factors determine institutional and retail ownership in DMs and EMs. Because institutional investors represent global investors, answers to this question help us understand which firms benefit from improved international risk-sharing brought about by increased institutional investment. We start with firm-level pooled panel regression analyses to investigate what are the firm-level determinants of institutional ownership. Because pooled regressions do not reveal cross-country differences, we further use country-by-country cluster-LASSO regression analyses to study what are the most important determinants of foreign US institutional ownership. Our goal here is to find a parsimonious set of firm characteristics that maximize the explanatory power for foreign US institutional ownership. The country-by-country analyses reveal whether US institutions use similar investment strategies when they invest across different foreign countries.

A. Determinants of institutional and retail ownership

We first examine firm, industry, and country characteristics associated with retail and institutional ownership using firm-level pooled panel regressions. We run separate pooled regressions for firms in non-US DMs and firms in EMs. We expand the analyses about the determinants of institutional ownership by Ferreira and Matos (2008) by separating EMs from DMs and extending the sample to the most recent period. We also offer initial evidence on the determinants of retail ownership. Our baseline regression is specified as:

$$y_{i,t} = X_{i,t-1}\beta + Z_{c,t-1}\gamma_c + Z_{I,t-1}\gamma_I + \epsilon_{i,t} \tag{8}$$

where $y \in \{Retail, IO_{i,t}^{g\in\mathcal{G}}\}$. $IO_{i,t}^{g\in\mathcal{G}}$ is the ownership of firm i in year t by institutional investor group $g \in \mathcal{G} = \{US, UK, EU, Active-IA, Passive-IA, LT, HF, PB\}$. $X_{i,t-1}$ is a vector of firm i characteristics, $Z_{c,t-1}$ is a vector of country c variables, and $Z_{I,t-1}$ is a vector of industry I variables. All explanatory variables are lagged by one period. Although we calculate a wide range of firm-level variables, in the pooled regressions, we keep only one variable when multiple variables measure the same firm characteristic: we use $Logmv$ to measure firm size, FHT to measure liquidity, $Ivol$ to measure idiosyncratic risk, DY to measure price-to-cashflow ratio, $Gsales$ to measure growth, and ROE to measure profitability.

Because we are interested in which group of variables among firm, industry, and country categories is more important in explaining firm-level ownership, we run a Shapley-Owen decomposition which gives us the contribution of each group of variables to the total R^2. The contribution of a group of characteristics $\mathcal{C}$ is calculated as:

$$R^2_{\mathcal{C}\in\{firm,industry,ctry\}} = \sum_{S\subseteq\{X\setminus X_\mathcal{C}\}} \frac{R^2(S\cup\mathcal{C}) - R^2(S)}{(p-|\mathcal{C}|+1)C^{|S|}_{p-|\mathcal{C}|}} \tag{9}$$

where $|\mathcal{C}|$ is the number of regressors in group $\mathcal{C}$. $S \subset \{X \setminus X_\mathcal{C}\}$ is a set of $|S|$ regressors not containing any regressors in group $\mathcal{C}$, and p is the number of regressors in the full model.

Intuitively, the Shapley-Owen decomposition measures the average marginal contribution to R^2 across all possible combinations of pre-existing regressors by adding the group of regressors $\mathcal{C}$, weighted by the number of permutations represented by each combination.

Table V reports the estimates of how firm and country characteristics determine retail ownership and institutional ownership by institutions of different domiciles for non-US DMs and EMs. For all regressions, we control for time fixed effects and all the industry variables defined in Section II. Total institutional ownership as well as ownership by institutions from different origins increase significantly with firm size ($Logmv$) in both DMs and EMs. A one standard deviation increase in the size of the average firm in DMs, that is, an increase from \$222 million to \$1563 million, is associated with a 3.5% increase in total institutional ownership. A one-standard-deviation increase in size for an average EM firm, that is, an increase from \$163 million to \$1181 million in market capitalization, is associated with an increase of 2.2% in total institutional ownership. Our findings confirm the earlier evidence of institutional investors' preference for large stocks (Gompers and Metrick, 2001; Ferreira and Matos, 2008) and recent evidence that US mutual funds overweight very large firms (Lettau et al., 2018). Furthermore, institutions regardless of their domicile have a strong preference for more liquid stocks. In DMs, a one standard deviation decrease in FHT is accompanied by an increase in total institutional ownership by 1%. The magnitude of the coefficient of FHT is similar across domestic institutional ownership and foreign US institutional ownership. Foreign UK institutional ownership decreases significantly with an increase in transaction costs but the economic magnitude of its coefficient is much smaller than that of US institutions. In EMs, liquidity preference is also universal across all institutional investor groups, but the sensitivity of institutional ownership to transaction costs is weaker than that in DMs. Domestic institutional ownership is the most sensitive to increases in transaction costs in EMs. A one standard deviation increase in FHT is associated with a reduction in domestic institutional ownership by 14 bps. Ferreira and Matos (2008) do not find evidence

for liquidity preference using turnover as the liquidity measure, our results using FHT uncover this preference. Similar to the preference for liquidity, we find that both domestic and foreign US institutions invest less in firms with high idiosyncratic volatility in both DMs and EMs. In contrast to institutional investors, retail investors invest more in smaller firms in both DMs and EMs. Retail ownership is significantly higher in less liquid firms in DMs only but higher in firms with high $Ivol$ in both DMs and EMs. Since retail ownership is measured as the residual, we caution the reader that these are only preliminary findings on drivers of retail investment.

In terms of momentum, we do not find evidence that institutional investors chase the momentum of individual stocks in either DMs or EMs, as the coefficients of Mom are close to zero. We also do not find consistent evidence regarding institutional investors' preference for value. Although the coefficients of BM for US institutional ownership are positive and significant in both DMs and EMs, their economic magnitude is very small.[16] All groups of institutions invest more in profitable firms with higher ROE in both DMs and EMs. The coefficient of ROE for domestic institutional ownership is higher than those for foreign institutional ownership, suggesting that domestic institutions could better identify profitable firms. Retail investors, on the contrary, invest more in less profitable firms. Unlike Ferreira and Matos (2008) who find that institutions prefer high growth opportunities, we do not find evidence supporting preference for investment or growth. Total institutional ownership is significantly lower in companies with higher leverage in both DMs and EMs, which is driven mostly by the aversion of domestic institutions to leverage. Ferreira and Matos (2008) find a significant preference for lower levered firms among non-US institutions but not for US or domestic institutions. In addition, foreign institutional investors, in particular, foreign US institutions prefer firms with more cash holdings in both DMs and EMs.

[16] There is mixed evidence about the value preference in existing studies. Ferreira and Matos (2008) show that US institutions overweight value stocks but Lettau et al. (2018) show that US mutual funds hold low BM stocks.

In both DMs and EMs, more visible firms (more analyst coverage, with US cross-listing, higher foreign sales) attract higher foreign institutional ownership. Analyst coverage and ADR dummy are significantly positive for foreign but not for domestic institutional ownership. Foreign US institutional ownership is about two percentage points higher for firms with a U.S. cross-listing in both DMs and EMs. Foreign non-US institutions exhibit a similar preference for cross-listed firms in both DM and EM countries though the coefficient is smaller in magnitude compared to US institutional ownership.

Country-level characteristics have much weaker and less consistent explanatory power for institutional ownership. Economic development (GDP) is positively associated with higher UK and European foreign institutional ownership in both DMs and EMs. Stock market development measured by market capitalization relative to GDP ($Stockmv$) is positively and significantly associated with institutional ownership of all groups in EMs, not DMs. We do not find strong evidence for distance aversion except that UK and European institutions have significant distance aversion in both DMs and EMs. Foreign institutional ownership in EM firms significantly increases with the degree of market openness, however, trade at the country level does not seem to increase foreign institutional ownership. US and European Institutions prefer politically stable DMs. The weaker evidence for the above country-level determinants could be due to our use of separate samples for DMs and EMs, which does not capture how the difference in country-level characteristics affects ownership across DMs and EMs. Foreign institutions invest more in EMs with recent positive returns (Mon^{Ctry}). Domestic institutions and foreign European institutions also tend to chase country momentum in DMs. Past literature (see, for example, Tesar and Werner (1995); Bohn and Tesar (1996); Grinblatt and Keloharju (2000) show that foreign institutions chase hot markets. Our results show weaker evidence for a return-chasing effect. Overall, evidence about country-level variables is weaker and less consistent for explaining variations in firm-level institutional ownership.

The relative importance of country, industry, and firm variables is reflected in their con-

tribution to the total R^2. Firm variables explain most of the R^2 for foreign institutional ownership whereas country variables are most important for domestic institutional ownership. Firm characteristics contribute 22% and 33% to the total R^2 for domestic institutional ownership in DMs and EMs, while the contribution of country characteristics is 76% and 64% respectively. This is because, in a pooled sample across countries, variation in domestic institutional ownership is mostly explained by variation across countries in their economic and financial development, openness, familiarity, and investor protection. Firm variables contribute to more than 70% of the total R^2 of foreign institutional ownership in both DMs and EMs except for foreign European institutional ownership in DMs. The contribution to the total R^2 by country variables is less than 30% in most cases for foreign institutional investment. This reflects that institutional investors pay more attention to firm-level variables in their foreign equity investment allocation. Once firm and country-level variables are controlled for, the explanatory power of industry variables is minimal, at around 2% contribution to the total R^2 in most cases.

Table VI shows the estimates of the panel regressions for institutional ownership by type. Preference for size, liquidity, profitability, and visibility is universal, except for private banking which marginally holds smaller firms. Aversion to $Ivol$ and leverage are also widespread. Active investment advisors chase firm-level momentum in both DMs and EMs. Country-level variables often have a very small effect on institutional ownership. All types of institutions prefer English-speaking countries and closeness when they invest in DMs. There are more variations in the relative contribution to the total R^2 by different types of variables across institution types. Firm-level variables remain to be the most important for passive investment advisors. Country variables contribute more to explaining ownership by active investment advisors, hedge funds, and private banking in DMs as well as long-term investors in EMs.

B. *Determinants of foreign US institutional ownership by country*

Our pooled regressions show that firm characteristics are the most important determinants of foreign institutional ownership. Because pooled regressions could not reveal cross-country differences in institutional investors' preference, we perform country-by-country least absolute shrinkage and selection operator (LASSO) analyses to see whether the most important firm-level determinants of foreign US institutional ownership vary across countries.

LASSO was introduced by Frank and Friedman (1993) and Tibshirani (1996). We use a variant of LASSO, the Cluster-LASSO proposed by Belloni, Chen, Chernozhukov, and Hansen (2012). The LASSO estimator is defined as,

$$\hat{\boldsymbol{\beta}} = \arg\min_{b} \sum_{i=1}^{n} \sum_{t=1}^{T} (y_{it} - \sum_{j=1}^{p} x_{ijt} b_j)^2 + \lambda \sum_{j=1}^{p} |b_j| \psi_j, \tag{10}$$

where $\lambda > 0$ is the overall penalty level and ψ_j are variable-specific penalty loadings. The penalty loadings are chosen to address heteroskedasticity, clustering and non-normality in model errors (Belloni, Chernozhukov, and Hansen, 2014). Belloni, Chernozhukov, Hansen, and Kozbur (2016) prove that the Cluster-LASSO has good model selection properties under approximate sparsity and regulatory conditions. Because our goal is to select the most important variables for foreign US ownership from a wide range of variables, we include all 25 firm-level variables we calculated in Section II. For LASSO-selected variables, we perform post-LASSO OLS regression to estimate their effect on foreign US institutional ownership.[17] We relegate the details of the Cluster-LASSO to Appendix C.

TableVII presents the variable selection and post-LASSO estimation for DMs. The most striking result is that size, liquidity, and visibility variables are selected in all countries. Log

[17] The objective of LASSO is typically for out-of-sample prediction, therefore regularized regression has a strong emphasis on guarding against overfitting to improve out-of-sample predictive performance. Our objective is to reduce the complexity of the model and identify the most important determinants of firm ownership. Because of the additional penalty term in the LASSO objective function, LASSO induces a shrinkage bias, which is often alleviated by post-estimation OLS. It is important to keep in mind that post-LASSO OLS can result in biased coefficients if the selected variables are not truly associated with the dependent variable.

total market capitalization ($Logmv$) is consistently chosen by LASSO in all DMs. In most countries, other size measures ($Logasset$, $Logsales$) are not important once market capitalization is selected. In 14 out of 22 DMs, the coefficient on $Logmv$ is positive and significant. In every DM, either turnover ($Turn$) or transaction costs (FHT) are selected. Turnover is selected in almost all DMs, among which in 17 markets turnover is positively and significantly associated with foreign US institutional ownership. FHT is selected in 16 markets all with negative coefficients, although it is not always significant at the 5% level. In all DMs, at least one of the three visibility variables ($Fsales$, $Analyst$, and ADR) are selected. And in almost all countries at least one of these variables has a positive and significant effect on foreign US institutional ownership.

The other firm characteristics (idiosyncratic risk, sales and asset growth, investment, dividend, value, profitability, leverage, momentum) are not as universally selected. Specifically, the aversion to high idiosyncratic volatility is widespread, with $Ivol$ being selected with negative coefficients in 9 markets. Profitability measures are only selected in 5 markets. Book-to-market ratio and momentum are not selected in most cases. Therefore, the absence of evidence for return chasing or for value tilt for US institutions that we uncover from the pooled regressions is confirmed with our country-level analysis.

Table VIII reports LASSO variable selection in EMs. Size, liquidity, and visibility still emerge as the most important determinants of foreign US institutional ownership. Compared to DMs, we observe more heterogeneity and more sparsity in terms of other firm characteristics. $Ivol$ is selected with a negatively significant coefficient in 9 EMs. Other firm-level variables are often not selected in most EMs.

In summary, we show at different levels that size, liquidity, and visibility are the most important drivers of institutional ownership. Although there are some differences in the drivers of institutional holdings compared to past studies for DMs, by and large, the results based on pooled samples carry through to the most recent period. For pooled EM samples,

our findings exhibit differences via-a-vis those for DMs, for example, the evidence for country-level momentum following. Results at the country level reveal some differences in revealed preferences of US institutions investing in both DMs and EMs, but the preference for size, liquidity, and visibility is universal.

V. Conclusion

We construct a comprehensive database of public firm ownership in 49 countries and study the diversification and preferences of different types of investors. We show that aggregate home bias has been declining but is higher in EMs than in DMs. Institutional investors are the least home-biased and have been increasingly internationally diversified. Among institutional investors, investment advisors and long-term investors are the least home biased. Retail investors have persistently high home bias over time. Institutional investors invest in a limited set of firms within each country.

We use pooled regression and country-level variable selection to study what firm characteristics determine institutional ownership. We provide strong evidence that institutional investors have a consistent preference for larger, more liquid, and more visible firms in both DMs, EMs, and across individual countries. There is considerable heterogeneity in their preference for other firm characteristics across countries.

Appendices

A. Data construction

We start our stock universe with companies from 49 countries that are covered in the FTSE All-World Index.

I. WorldScope stock universe

We retrieve WorldScope (WS) country lists of 49 markets and apply the standard filters in the literature as in Griffin et al. (2010) and Chaieb et al. (2020). Specifically, we eliminate non-equity securities from Datastream, identify the primary security identifier, and select entries relevant for the sample period in which FactSet data are available, using the following filters on the raw WS universe:

1. Security type filter: we restrict the type of security to be among 'EQ','ADR','GDR'. We include 'ADR' and 'GDR' because some Chinese or Russian firms have ADR or GDR as their primary listing.
2. We restrict 'Quote indicator' to be primary ('P') and 'Major flag' to be yes ('Y').
3. We apply Global name filters and county-specific name filters as suggested by Griffin et al. (2010) and Chaieb et al. (2020).
4. We eliminate financial firms (SIC code 6000-6999) as is standard in the literature.
5. We eliminate all firms whose last record is before 2000/01/01. We also exclude firms that have a last date of NA, which constitute a negligible number and tend to be firms that are no longer active.
6. The firm is listed on major exchange of each country following Chaieb et al. (2020).

We calculate a number of variables characterizing different aspects of a firm that have been used in previous studies. Detailed definitions of firm variables are provided in Online

Appendix Table I. Because WorldScope contains many missing values, for three variables, we replace NA with 0: research and development cost, analyst following the firm, and foreign sales. We winsorize all ratios at the top and bottom 1% for each country.

Cleaning of return time series: we apply the following cleaning procedure on the Datastream daily time series following Chaieb et al. (2020)

- We remove trailing zeros in returns. In addition, we only keep days with valid price (P) and volume (VO) as a sign of real market activity.
- For MV, Datastream repeats the last available MV and P for dead stocks. We remove such instances by removing observations after the last equity price date (TIME).
- – A return r_t is set to missing if $r_t > 200\%$
  – If $r_t > 100\%$ or $r_{t-1} > 100\%$ and $(1 + r_{t-1})(1 + r_t) - 1 < 20\%$, then both r_t and r_{t-1} are set to missing.
  – To further limit the effect of outliers, we winsorize return observations at the 1% and 99% levels in each month for each country.

Table I Definition and sources of variables

Variable	**Definition**
Firm-level ownership	
IO	Total institutional ownership calculated following Ferreira and Matos (2008)
IO^{Dom}	Domestic institutional ownership
IO^{US}	Foreign US institutional ownership
IO^{UK}	Foreign UK institutional ownership
IO^{EU}	Foreign European institutional ownership

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Variable	Definition
IO^{Others}	Other foreign institutional ownership
$IO^{Active-IA}$	Ownership by active investment advisors
$IO^{Passive-IA}$	Ownership by passive investment advisors
IO^{BR}	Ownership by brokers
IO^{LT}	Ownership by long-term investors
IO^{HF}	Ownership by hedge funds
IO^{PB}	Ownership by private banking
$Govt$	Government ownership, Datastream item NOSHGV
$Insider$	Non-institution block-holders, datastream item NOSHST-NOSHIC-NOSHPF
$Retail$	Retail ownership, calculated as residual ownership after subtracting ownership by institutions, non-financial strategic investors (including governments, corporations, and employees): $\max\Big(1-(NOSHST-NOSHIC-NOSHPF)-IO,0\Big)$
Firm-level explanatory variables	
$Logmv$	Log annual market capitalization in USD .
$Logasset$	Log total assets (WC02999).
$Logsales$	Log total sales (WC07101).
BM	Book-to-market equity ratio (WC03501 divided by Datastream MV).
$Gasset$	Growth in total asset (WC02999) from the previous year
$Gsales$	Geometric average of growth in total sales (WC01001) over the past two years

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Variable	Definition
Mom	12-2 momentum return in local currency from last December to current November.
$Turn$	Annual share volume (Datastream VO) divided by adjusted shares-outstanding (Datastream NOSH/AF)
FHT	Monthly Fong et al. (2017) illiquidity measure averaged over 12 months calculated using returns in local currency. $FHT = 2\sigma_{i,t}N^{-1}\left(\frac{1+ZR_{i,t}}{2}\right)$, where $\sigma_{i,t}$ is the volatility of non-zero daily returns for stock i, $N^{-1}(.)$ is the inverse function of the cumulative normal distribution, and $ZR_{i,t}$ is the empirical proportion of zero returns for stock i during the month.
$Ivol$	Idiosyncratic volatility estimated from a domestic market model of USD weekly returns. The average value in one year is used.
$R2$	R-squared estimated from a domestic market model of USD weekly returns. The average value in one year is used.
Div	Cash divided paid (WC04551) divided by book equity (WC03501).
Lev	Ratio of total debt (WC03255) to total assets (WC02999).
ROE	Return on equity (WC08301).
$Investment$	The sum of CAPEX (WC04601) and R&D expense (WC01201) divided by total assets (WC02999).
$Fsales$	International sales (WC07101) as a proportion of net sales (WC01001).
$Cash$	Ratio of cash and short-term investments (WC02001) to total assets (WC02999).

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Variable	Definition
PPE	Ratio of property, plant and equipment (WC02501) to total assets (WC02999)
PE	Price to earnings ratio P/EPS
ADR	A dummy variable that equals one if a firm has a cross-listed security in a U.S. exchange (WC11496 or WC11503 if the primary identifier is an ADR). For US firms, this dummy is set to one.
$Analyst$	The number of analysts following the firm as reported by I/B/E/S (EPS1NE).
Industry level explanatory variables	
ROE^{Ind}, ROA^{Ind}, NPM^{Ind}, $Investment^{Ind}$, $Gsales^{Ind}$, $Gasset^{Ind}$, $Cash^{Ind}$, PPE^{Ind}, PE^{Ind}, BM^{Ind}, Div^{Ind}, Lev^{Ind}	The median of firm-level variables across global firms within an industry. Industry classification follows Kenneth French 38 industries.
$Beta^{Ind}$	Regression coefficient of regressing the weekly USD returns of the industry portfolio on the weekly USD returns of the world market portfolio using 52-week rolling window.
Country -level explanatory variables	
FHT^{Ctry}	Value-weighted FHT illiquidity measure within a country-year
$Amihud^{Ctry}$	Value-weighted Amihud illiquidity measure within a country-year
$Ivol^{Ctry}$	Value-weighted idiosyncratic volatility
Mon^{Ctry}	Value-weighted momentum of the country
DY^{Ctry}	Value-weighted dividend yield of the country

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Variable	Definition
$Sync$	Synchronicity measure used in Morck et al. (2000): the value-weighted average of R^2 of regressing weekly returns of individual stocks on country portfolio using weekly returns and a rolling window of 52 weeks. The average value over a year is used. $Sync_c = \frac{\sum_i R^2_{i,c} \times SST_{i,c}}{\sum_i SST_{i,c}}$, where $SST_{i,c}$ is the sum of squared total variations.
$Beta^{Ctry}$	Regression coefficient of regressing the weekly USD returns of the market portfolio of the country on the weekly USD returns of the world market portfolio using 52-week rolling window.
Fx	Average nominal exchange rate relative to the USD, computed over past 52-week window.
$FxVol$	Volatility of exchange rate relative to USD computed using a 52-week rolling window.
$Legal$	Anti-director rights(Porta et al., 1998) multiplied by the rule-of-law index. Worldbank worldwide governance indicators (Rule of Law: Estimate RL.EST). Rue of law index is not available in 1999, we fill in the value of 1998.
GDP	Log gross domestic product per capita in USD, World Bank WDI.
$Stockmv$	The ratio of stock market capitalization of domestic listed companies to gross domestic product in USD, World Bank WDI.
$Stocktrade$	Stocks traded, total value (% of GDP), World Bank Development Indicators.
$English$	A dummy variable that equals one if English is a country's *de jure* or *de facto* official language, Wikipedia.

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Variable	Definition
WUI	The World Uncertainty Index
Distance	Log average bilateral distance in kilometers between a country's capital city and other capital cities, using FactSet country coordinates.
Disc	World Bank business extent of disclosure index, data starts in 2004, we use values in 2005 for pre-2005 years.
Inflation	Annual percentage change in Consumer price Index, International Financial Statistics.
Trade	The sum of exports and imports of goods and services measured as a share of gross domestic product, World Bank Development Indicators
PoI	The sum of the International Country Risk Guide (ICRG) Political Risk sub-components: Corruption, Law and Order and Bureaucratic Quality. Higher values indicate lower political risk.
Openess	The Chinn-Ito financial openness index (Chinn and Ito, 2006).

II. FactSet ownership

We follow Ferreira and Matos (2008) to construct a panel of entity-company-quarter holdings of public companies by institutional investors (buy or sell-side institutions as defined by FactSet).

FactSet contains two sources of ownership information: from 13F reports, and from mutual fund reports. We follow Koijen et al. (2022) and exclude two FactSet entity identifiers (0FSVG4-E and 000V4B-E), which contain known errors in comparison with the EDGAR13F filings.

Table II Institution type classification according to FactSet entity sub-type

Institution type	**FactSet entity subtype**
1.Broker	MM: Market Maker
	BM: Bank Management Division
	IB: Investment Banking
	ST: Stock Borrowing/Lending
	BR:Broker
2.Private banking	CP:Corporate
	CU:Custodial
	FY:Family Office
	PB: Private Banking Portfolio
	VC: Venture Capital/Pvt Equity
3.Hedge fund	FH:Fund of Hedge Funds Manager
	FF:Fund of Funds Manager
	FU:Fund
	FS: Fund Distributor
	HF: Hedge Fund Company
	AR: Arbitrage
4.Investment Advisor	IA : Investment Advisor
	IC: Investment Company
	RE: Research Firm

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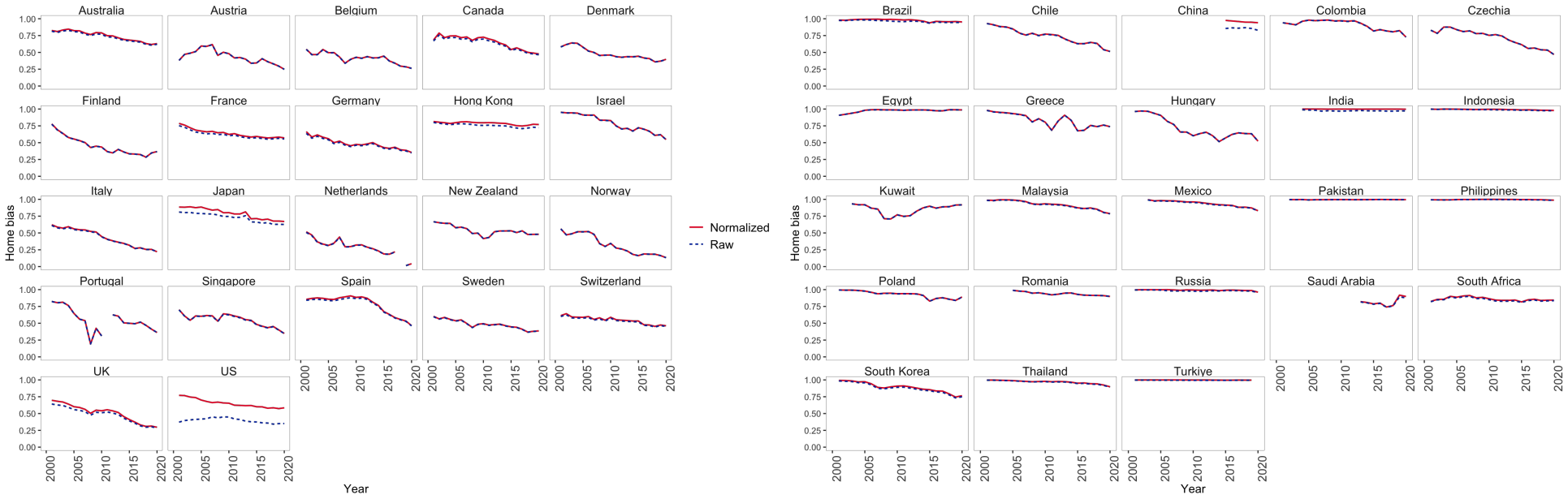
Institution type	FactSet entity subtype
	PP: Real Estate Manager
	SB: Subsidiary Branch
	MF: Mutual Fund Manager
	ML: Master Ltd part
5.Long-term	FO: Foundation/Endowment Manager
	SV: Sovereign Wealth Manager
	IN: Insurance Company
	PF: Pension funds

B. Normalized home bias

This appendix compares raw home bias and normalized home bias for aggregate residents of each country using the CPIS. Figure 13 plots the raw home bias defined in (3) along with the normalized home bias defined in (7).



(a) Developed markets **(b)** Emerging markets

Figure 13 Normalized home bias of aggregate residents and institutional investors 2000-2020

This figure plots the raw home bias defined in Equation (6) and the normalized home bias measure defined in Equation (7) of aggregate residents from different countries calculated using the CPIS from 2000 to 2020

C. Cluster-LASSO variable selection

This appendix describes the Cluster-LASSO regression used for country-level variable selection. The LASSO regression chooses the coefficients to minimize the sum of squared residuals plus a penalty term that penalizes the size of the model through the sum of absolute values of the coefficients. Because LASSO imposes $\ell - 1$ penalty, it sets some of the coefficients exactly to zero, and in doing so removes some regressors from the model. The LASSO estimator is defined as

$$\hat{\boldsymbol{\beta}} = \arg\min_{b} \sum_{i=1}^{n} \sum_{t=1}^{T} (y_{it} - \sum_{j=1}^{p} x_{ijt} b_j)^2 + \lambda \sum_{j=1}^{p} |b_j| \psi_j. \tag{11}$$

Solving the problem requires two tuning parameters: the main penalty level λ and covariate specific loadings ψ_j. The main penalty parameter specifies the amount of regularization in the LASSO procedure and balances over-fitting and bias concerns.

$$\begin{aligned} \lambda &= 2c\sqrt{nT}\Phi^{-1}(1 - \gamma/(2p)) \\ c &= 1.1, \quad \gamma = \frac{0.1}{log(n)}. \end{aligned} \tag{12}$$

The covariate-specific loadings allow us to handle errors with within-cluster correlation, heteroskedasticity, and non-normality. The intuition is that penalty loadings capture the variability in learning about the coefficient β_j and the penalty parameters are chosen to be large enough to dominate the noise in estimating model coefficients. Hence coefficients whose magnitude is not big enough relative to sampling noise would be set exactly to zero in the LASSO solution so the probability that the correct model is chosen will be higher than a conventional confidence level. Cluster-LASSO is a data-dependent way of choosing the penalty

loadings:

$$\psi_j = \sqrt{\frac{1}{nT}\sum_{i=1}^{n} u_{ij}^2} \tag{13}$$
$$u_{ij} = \sum_{t=1}^{T} x_{ijt}\epsilon_{it}.$$

In practice, the values of the penalty loadings are infeasible because they depend on unobservable errors ϵ_{it}. An iterative algorithm is used to estimate initial residuals and penalty loading until convergence.

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Table III Value-weighted ownership in 2020

This table shows the value-weighed ownership in percentage (%) by different investors in December 2020. Firm-level institutional ownership is calculated using the method of Ferreira and Matos (2008) with FactSet holdings data. Ownership by insiders and governments is calculated from Datastream. Table I provides the definitions of ownership variables.

Country	Investor types				Institution by domicile					Institution by type						
	Retail	Govt	Insider	IO	IO^{Dom}	IO^{US}	IO^{UK}	IO^{EU}	IO^{Others}	IO^{BR}	$IO^{Active-IA}$	$IO^{Passive-IA}$	IO^{LT}	IO^{HF}	IO^{PB}	N
Australia	70.57	0.24	10.81	18.38	4.06	7.63	3.00	2.41	1.29	0.00	7.05	9.59	1.60	0.12	0.03	1576
Austria	35.62	0.21	49.63	14.53	1.51	3.97	2.50	6.07	0.48	0.00	7.30	5.54	1.30	0.31	0.09	51
Belgium	41.91	0.45	42.16	15.48	0.93	6.76	2.54	4.63	0.61	0.01	6.16	7.11	1.79	0.28	0.12	89
Brazil	31.84	3.03	45.38	19.75	8.42	6.66	1.93	2.05	0.69	0.00	7.03	9.98	1.42	0.62	0.70	147
Canada	48.94	0.14	10.94	39.98	15.84	18.06	2.52	2.62	0.93	1.24	18.70	14.17	3.00	2.15	0.71	1908
Chile	30.51	0.00	64.79	4.70	0.70	2.55	0.50	0.76	0.19	0.00	1.54	2.52	0.54	0.08	0.01	131
China	53.70	0.18	38.37	7.76	4.02	1.62	0.61	0.52	0.99	0.00	5.47	1.82	0.36	0.08	0.03	4054
Colombia	20.31	52.50	24.22	2.97	0.00	2.47	0.17	0.30	0.03	0.00	0.18	2.56	0.21	0.01	0.01	31
Czechia	22.09	49.16	24.32	4.43	0.30	2.34	0.55	0.59	0.65	0.00	1.44	2.52	0.41	0.05	0.00	7
Denmark	54.14	6.52	12.22	27.11	1.11	10.11	5.87	8.59	1.42	0.00	11.75	11.95	2.76	0.49	0.16	113
Egypt	33.92	27.67	34.77	3.64	0.00	1.20	0.56	1.42	0.46	0.00	1.45	0.99	1.13	0.06	0.00	180
Finland	52.12	12.19	12.31	23.38	3.72	6.39	4.17	8.58	0.52	0.00	9.52	9.61	3.68	0.44	0.12	139
France	40.90	4.81	29.66	24.62	4.14	9.58	4.67	5.17	1.07	0.00	10.91	11.19	1.88	0.42	0.22	595
Germany	45.66	4.29	25.12	24.93	4.41	8.48	4.76	6.34	0.94	0.00	11.67	10.39	2.08	0.66	0.13	430
Greece	31.17	6.32	50.98	11.53	1.09	6.41	1.40	2.20	0.43	0.03	5.33	4.90	0.71	0.48	0.08	159
Hong Kong	30.45	5.06	53.88	10.61	1.61	4.49	1.70	1.58	1.23	0.00	4.50	5.02	0.91	0.14	0.03	1539
Hungary	41.56	14.88	28.77	14.79	0.11	6.23	2.99	3.42	2.04	0.00	6.38	6.82	1.10	0.48	0.02	25
India	31.78	5.82	45.79	16.61	7.85	4.45	1.25	1.18	1.88	0.00	8.65	6.11	1.70	0.13	0.02	2879
Indonesia	25.88	7.22	60.84	6.05	0.49	2.70	0.90	0.98	0.99	0.00	2.37	3.03	0.52	0.10	0.03	520
Ireland	41.37	0.10	1.29	57.24	0.19	42.91	5.89	6.16	2.09	1.52	17.71	26.62	4.13	4.56	2.69	65
Israel	44.25	0.00	29.81	25.94	5.10	14.10	1.94	3.45	1.35	0.71	11.85	6.20	2.59	3.62	0.96	334
Italy	35.52	14.28	30.82	19.39	1.33	7.34	3.47	5.76	1.48	0.00	8.42	8.92	1.70	0.26	0.08	302

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Country	Investor types				Institution by domicile					Institution by type						
	Retail	Govt	Insider	IO	IO^{Dom}	IO^{US}	IO^{UK}	IO^{EU}	IO^{Others}	IO^{BR}	$IO^{Active-IA}$	$IO^{Passive-IA}$	IO^{LT}	IO^{HF}	IO^{PB}	N
Japan	60.62	0.85	15.87	22.66	9.25	7.32	2.60	2.64	0.85	0.00	12.57	8.14	1.61	0.31	0.03	3397
Kuwait	43.96	8.43	44.04	3.57	0.14	1.91	0.58	0.80	0.13	0.00	0.63	2.30	0.50	0.14	0.00	69
Malaysia	31.48	13.73	49.60	5.20	0.83	2.59	0.54	0.83	0.42	0.00	1.67	2.94	0.54	0.04	0.01	729
Mexico	39.34	0.00	50.12	10.54	1.72	5.33	1.51	1.33	0.65	0.00	4.45	4.98	0.99	0.10	0.02	59
Netherlands	42.98	0.28	23.00	33.73	0.74	15.56	7.70	8.13	1.60	0.35	14.08	15.32	2.64	1.08	0.26	94
New Zealand	60.87	9.68	14.93	14.51	2.23	5.73	1.90	2.36	2.28	0.00	4.87	7.06	2.45	0.08	0.05	106
Norway	33.87	29.50	18.38	18.25	5.73	5.03	2.60	3.93	0.96	0.00	9.71	7.33	0.90	0.21	0.10	167
Pakistan	29.37	14.34	51.91	4.37	3.20	0.87	0.10	0.16	0.05	0.00	2.14	2.22	0.01	0.00	0.00	339
Philippines	33.87	0.04	59.15	6.94	0.16	3.55	0.92	1.34	0.98	0.00	2.34	3.39	1.08	0.10	0.04	180
Poland	34.78	16.28	34.07	14.87	7.78	3.54	1.19	2.00	0.35	0.00	4.96	4.41	5.34	0.14	0.02	505
Portugal	27.35	6.37	42.39	23.89	0.27	7.55	5.71	9.08	1.28	0.00	11.27	10.16	1.98	0.33	0.14	40
Qatar	37.37	49.39	10.04	3.19	0.02	2.04	0.37	0.65	0.11	0.00	0.35	2.33	0.48	0.03	0.00	26
Romania	21.35	36.54	37.19	4.92	3.43	0.24	0.41	0.34	0.51	0.00	0.82	3.78	0.27	0.03	0.01	99
Russia	36.36	8.62	51.31	3.70	0.02	1.78	0.65	1.10	0.16	0.00	1.08	2.04	0.55	0.03	0.00	174
Saudi Arabia	7.43	88.15	3.93	0.50	0.00	0.37	0.07	0.05	0.01	0.00	0.05	0.42	0.02	0.01	0.00	136
Singapore	38.03	16.85	39.00	6.13	0.65	3.02	0.91	0.90	0.64	0.00	2.31	3.14	0.54	0.10	0.03	361
South Africa	43.46	10.80	25.04	20.69	4.89	7.81	3.87	3.28	0.85	0.00	7.69	10.64	2.01	0.29	0.06	193
South Korea	54.88	0.45	29.72	14.95	0.37	7.31	2.81	2.60	1.86	0.00	5.91	7.28	1.48	0.25	0.04	2086
Spain	38.97	2.29	36.35	22.39	1.50	7.94	4.83	6.99	1.15	0.00	9.10	10.54	2.24	0.34	0.17	143
Sweden	44.13	1.44	19.22	35.21	16.41	8.04	3.80	6.26	0.70	0.01	17.90	12.19	4.52	0.49	0.10	550
Switzerland	58.77	1.21	8.21	31.80	5.54	13.53	5.01	6.15	1.58	0.08	13.15	14.58	2.87	0.67	0.44	175
Taiwan	64.75	0.14	25.82	9.28	1.11	4.23	1.36	1.45	1.13	0.00	4.18	4.16	0.81	0.13	0.00	1002
Thailand	47.44	10.18	39.86	2.51	0.46	0.61	0.19	0.86	0.40	0.00	0.86	0.86	0.76	0.02	0.01	642
Turkiye	28.39	2.49	62.64	6.47	0.08	3.16	1.65	1.21	0.37	0.00	2.64	2.99	0.69	0.12	0.03	286
UAE	34.62	14.68	48.64	2.06	0.06	0.95	0.30	0.46	0.29	0.00	0.56	1.12	0.30	0.06	0.02	54
UK	56.99	0.35	6.93	35.73	14.60	14.51	0.00	5.12	1.49	0.15	14.96	16.52	2.77	0.85	0.48	1080
USA	41.67	0.02	4.13	54.18	45.85	0.00	2.67	3.76	1.91	1.18	14.07	28.97	3.73	3.51	2.73	3084
Total	44.73	4.57	17.70	33.00	21.72	4.28	2.38	3.23	1.40	0.53	10.91	16.26	2.40	1.68	1.21	31050

Table IV Summary statistics

This table reports the mean, standard deviation, median, 10% and 90% percentiles and the number of observations of variables in our sample. Panel A reports the summary statistics of ownership variables. Panel B reports the summary statistics of firm-level explanatory variables, Panel C reports the summary statistics of country-level variables and Panel D reports the summary statistics of industry-level variables. The sample period is annual from 2000 to 2020, all explanatory variables are lagged by one-year. Table I provides detailed definitions of all variables and Appendix A explains the data construction process.

	Developed markets						Emerging markets					
Variables	Mean	STD	P10	Median	P90	N	Mean	STD	P10	Median	P90	N
A: Firm-level ownership (%)												
Retail	60.66	24.06	27.68	61.88	92.64	120261	56.87	25.80	24.75	54.00	99.30	113377
Govt	0.48	4.60	0.00	0.00	0.00	120261	1.04	7.24	0.00	0.00	0.00	113377
Insider	28.93	25.21	0.00	25.00	65.00	120261	38.09	25.10	0.00	41.00	70.00	113377
IO	9.92	12.78	0.00	4.88	27.61	120261	4.00	7.44	0.00	0.49	13.17	113377
IO^{Dom}	4.71	7.86	0.00	1.64	13.15	120261	2.01	5.35	0.00	0.00	6.38	113377
IO^{US}	2.77	5.89	0.00	0.52	7.83	120261	0.92	2.56	0.00	0.00	2.84	113377
IO^{UK}	0.86	2.32	0.00	0.00	2.66	120261	0.27	1.11	0.00	0.00	0.53	113377
IO^{EU}	1.25	2.55	0.00	0.06	3.76	120261	0.35	1.11	0.00	0.00	1.11	113377
IO^{Others}	0.33	1.21	0.00	0.00	0.87	120261	0.46	1.63	0.00	0.00	1.05	113377
IO^{BR}	0.03	0.29	0.00	0.00	0.00	120261	0.00	0.06	0.00	0.00	0.00	113377
$IO^{Active-IA}$	6.34	8.53	0.00	2.91	18.08	120261	2.39	4.72	0.00	0.11	8.28	113377
$IO^{Passive-IA}$	2.45	4.00	0.00	0.53	7.53	120261	1.16	2.73	0.00	0.00	3.84	113377
IO^{LT}	0.62	1.54	0.00	0.00	1.97	120261	0.38	1.80	0.00	0.00	0.81	113377
IO^{HF}	0.31	1.72	0.00	0.00	0.47	120261	0.05	0.66	0.00	0.00	0.02	113377
IO^{PB}	0.16	1.06	0.00	0.00	0.21	120261	0.02	0.35	0.00	0.00	0.00	113377
B: Firm-level explanatory variables												
Logmv	19.22	1.95	16.90	19.01	21.90	120261	18.91	1.98	16.34	18.95	21.41	113377
Logasset	19.62	2.02	17.11	19.55	22.27	120261	19.28	1.73	17.19	19.18	21.54	113377
Logsales	19.22	2.51	16.41	19.41	22.06	119852	18.83	1.85	16.68	18.79	21.14	113266
DY	0.02	0.03	0.00	0.01	0.05	120261	0.02	0.03	0.00	0.01	0.04	113377
PE	24.63	35.94	6.34	15.44	43.80	85602	28.52	37.20	5.17	16.56	61.72	80986
BM	0.98	0.93	0.20	0.73	2.00	120261	1.04	1.37	0.18	0.64	2.26	113377
Ivol	0.05	0.03	0.03	0.05	0.09	120261	0.06	0.03	0.03	0.05	0.10	113377
R2	0.21	0.16	0.03	0.18	0.43	120256	0.29	0.18	0.06	0.27	0.53	113313
Mom	0.12	0.59	-0.45	0.03	0.71	120261	0.15	0.66	-0.45	0.00	0.90	113377
FHT	0.01	0.02	0.00	0.00	0.03	120261	0.01	0.01	0.00	0.00	0.01	113377

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Variables	Developed markets						Emerging markets					
	Mean	STD	P10	Median	P90	N	Mean	STD	P10	Median	P90	N
Turn	0.81	1.26	0.09	0.44	1.75	120261	2.15	3.61	0.09	0.89	5.60	113254
Investment	0.07	0.09	0.00	0.04	0.15	120261	0.06	0.06	0.00	0.04	0.14	113377
Gsales	0.19	1.03	-0.14	0.06	0.43	120261	0.13	0.36	-0.15	0.08	0.43	113377
Gasset	0.17	0.96	-0.16	0.06	0.41	120239	0.13	0.37	-0.14	0.07	0.41	113357
ROE	-0.02	0.54	-0.28	0.06	0.23	120261	0.04	0.28	-0.13	0.07	0.24	113377
ROA	0.00	0.21	-0.12	0.03	0.12	120239	0.05	0.09	-0.03	0.05	0.13	113355
NPM	-2.79	36.54	-0.34	0.03	0.14	119857	0.00	1.19	-0.09	0.04	0.19	113266
Fsales	0.24	0.33	0.00	0.00	0.84	120261	0.11	0.23	0.00	0.00	0.45	113377
Analyst	3.63	5.76	0.00	1.00	12.00	120261	2.29	5.06	0.00	0.00	7.00	113377
ADR	0.08	0.28	0.00	0.00	0.00	120261	0.04	0.19	0.00	0.00	0.00	113377
Cash	0.19	0.18	0.03	0.13	0.43	120261	0.14	0.14	0.01	0.10	0.34	113377
PPE	0.29	0.23	0.03	0.24	0.63	120261	0.33	0.21	0.06	0.30	0.63	113377
Lev	0.20	0.20	0.00	0.17	0.46	120261	0.24	0.19	0.00	0.23	0.50	113377
Div	0.03	0.06	0.00	0.01	0.08	120261	0.03	0.05	0.00	0.01	0.08	113377
C: Country-level explanatory variables												
GDP	10.57	0.22	10.37	10.50	10.89	120261	8.82	1.01	7.21	8.97	10.19	113377
Stockmv	1.78	2.80	0.53	0.97	2.39	120261	0.74	0.38	0.31	0.71	1.19	113377
Stocktrade	1.24	1.47	0.41	0.87	1.56	120261	0.82	0.61	0.17	0.68	1.53	113377
Trade	0.86	1.08	0.26	0.46	3.48	120261	0.67	0.36	0.38	0.54	1.21	113377
Disc	7.47	1.78	7.00	7.00	10.00	120261	8.20	1.95	6.00	8.00	10.00	113377
English	0.39	0.49	0.00	0.00	1.00	120261	0.31	0.46	0.00	0.00	1.00	113377
Distance	9.08	0.21	8.76	9.20	9.21	120261	9.06	0.13	8.91	9.08	9.24	113377
Pol	13.21	1.18	12.00	13.50	14.50	120261	8.97	1.46	7.50	9.21	11.00	113377
Inflation	0.01	0.01	0.00	0.01	0.03	120261	0.04	0.04	0.01	0.03	0.09	113377
Openess	1.95	0.23	2.00	2.00	2.00	120261	-0.31	0.98	-1.00	-1.00	1.00	113377
Legal	6.53	1.44	5.05	6.75	8.49	120261	0.98	2.12	-0.59	-0.14	4.47	113377
WUI	0.05	0.04	0.01	0.05	0.10	120261	0.06	0.05	0.01	0.04	0.12	113377
$Beta^{Ctry}$	1.00	0.25	0.66	1.00	1.31	120261	1.05	0.39	0.62	1.01	1.46	113377
FHT^{Ctry}	0.00	0.00	0.00	0.00	0.00	120261	0.00	0.00	0.00	0.00	0.01	113377
Mon^{Ctry}	0.16	0.26	-0.10	0.15	0.46	120261	0.21	0.37	-0.15	0.14	0.57	113377
DY^{Ctry}	0.02	0.01	0.01	0.02	0.04	120261	0.02	0.01	0.01	0.02	0.03	113377
Sync	0.18	0.08	0.09	0.18	0.28	120261	0.26	0.12	0.11	0.25	0.42	113377
Fx	0.53	0.58	0.01	0.13	1.39	120261	0.14	0.23	0.00	0.09	0.30	113377
FxVol	0.02	0.03	0.00	0.00	0.05	120261	0.00	0.01	0.00	0.00	0.01	113377
D: Industry-level explanatory variables												
BM^{Ind}	0.66	0.24	0.39	0.62	0.96	120261	0.70	0.25	0.42	0.65	1.01	113377

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	Developed markets						Emerging markets					
Variables	Mean	STD	P10	Median	P90	N	Mean	STD	P10	Median	P90	N
PE^{Ind}	16.01	4.15	10.78	15.78	21.17	120261	15.70	4.16	10.23	15.50	21.29	113377
Div^{Ind}	0.00	0.01	0.00	0.00	0.01	120261	0.01	0.01	0.00	0.01	0.01	113377
ROE^{Ind}	0.05	0.06	0.03	0.06	0.09	120261	0.06	0.04	0.04	0.07	0.09	113377
ROA^{Ind}	0.03	0.04	0.02	0.04	0.05	120261	0.04	0.03	0.03	0.04	0.05	113377
NPM^{Ind}	-0.03	0.28	0.01	0.03	0.05	120261	0.01	0.17	0.02	0.03	0.05	113377
Lev^{Ind}	0.17	0.07	0.10	0.18	0.27	120261	0.20	0.07	0.11	0.19	0.30	113377
$Investment^{Ind}$	0.04	0.02	0.02	0.04	0.07	120261	0.04	0.02	0.01	0.04	0.06	113377
$Gsales^{Ind}$	0.07	0.07	0.00	0.07	0.15	120261	0.06	0.06	-0.01	0.06	0.14	113377
$Gasset^{Ind}$	0.06	0.07	-0.01	0.05	0.14	120261	0.05	0.06	-0.01	0.04	0.14	113377
$Cash^{Ind}$	0.13	0.05	0.07	0.12	0.19	120261	0.12	0.05	0.06	0.11	0.18	113377
PPE^{Ind}	0.23	0.15	0.07	0.20	0.48	120261	0.25	0.14	0.07	0.24	0.45	113377
$Beta^{Ind}$	1.02	0.27	0.70	1.01	1.35	120261	1.00	0.22	0.70	1.01	1.30	113377

Table V Determinants of ownership by retail investors and institutions of different domiciles

This table reports estimates of the annual pooled panel regressions of firm ownership on firm, country, and industry variables.

$$y_{i,t} = X_{i,t-1}\beta + Z_{c,t-1}\gamma_c + Z_{I,t-1}\gamma_I + \epsilon_{i,t}, \;\; y \in \{Retail, IO, IO^{Dom}, IO^{US}, IO^{UK}, IO^{EU}\}$$

We report coefficients for retail ownership ($Retail$), total institutional ownership (IO), domestic institutional ownership (IO^{Dom}), foreign US institutional ownership (IO^{US}), foreign UK institutional ownership (IO^{UK}), and foreign European institutional ownership (IO^{EU}). Standard errors are clustered at the firm level and reported in parentheses. All regressions control for industry-level variables defined in section II and year fixed effects. We also report the total R^2 of each regression and the Shapley-Owen decomposition of the contribution of firm, industry, and country variables as a percentage of the total R^2. The sample is annual from 2000 to 2020. *** p<0.01, ** p<0.05, * p<0.1.

	Developed markets						Emerging markets					
	$Retail$	IO	IO^{Dom}	IO^{US}	IO^{UK}	IO^{EU}	$Retail$	IO	IO^{Dom}	IO^{US}	IO^{UK}	IO^{EU}
$Logmv$	-0.008***	0.018***	0.006***	0.007***	0.002***	0.002***	-0.030***	0.011***	0.006***	0.003***	0.001***	0.001***
	(0.002)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
FHT	0.694***	-0.499***	-0.232***	-0.245***	-0.029***	-0.003	-0.071	-0.090**	-0.137***	-0.017	-0.015***	-0.009
	(0.085)	(0.040)	(0.026)	(0.024)	(0.010)	(0.006)	(0.179)	(0.036)	(0.026)	(0.017)	(0.006)	(0.007)
Mom	-0.002	0.002***	0.002***	-0.001***	0.001***	0.000**	0.002	0.002***	0.001***	0.000**	0.000*	0.000***
	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
$Ivol$	0.161***	-0.227***	-0.214***	-0.039***	0.020***	0.014***	0.463***	-0.102***	-0.057***	-0.028***	0.001	-0.007***
	(0.061)	(0.023)	(0.016)	(0.013)	(0.005)	(0.005)	(0.047)	(0.011)	(0.008)	(0.005)	(0.002)	(0.002)
DY	-0.001	-0.094***	0.012	-0.102***	-0.023***	0.009*	-0.477***	-0.005	-0.022**	0.009*	-0.003	0.011***
	(0.051)	(0.027)	(0.019)	(0.015)	(0.005)	(0.005)	(0.057)	(0.014)	(0.011)	(0.005)	(0.003)	(0.002)
BM	0.019***	-0.001**	-0.003***	0.002***	0.000	0.000	0.005***	0.000	-0.001***	0.001***	0.000**	0.000***
	(0.002)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
$Gsales$	-0.000	0.000	-0.000	-0.000**	0.000*	0.000***	0.004*	0.001	0.002***	-0.001***	-0.000**	-0.000
	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.003)	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)

Continue on the next page

	Developed markets						Emerging markets					
	Retail	*IO*	IO^{Dom}	IO^{US}	IO^{UK}	IO^{EU}	*Retail*	*IO*	IO^{Dom}	IO^{US}	IO^{UK}	IO^{EU}
ROE	-0.032***	0.007***	0.005***	0.000	0.000***	0.001***	-0.049***	0.008***	0.005***	0.001***	0.000***	0.001***
	(0.002)	(0.001)	(0.000)	(0.001)	(0.000)	(0.000)	(0.004)	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)
Investment	0.080***	0.024***	0.011**	0.004	0.003*	0.003**	0.173***	0.036***	0.031***	-0.001	0.000	0.001
	(0.014)	(0.007)	(0.005)	(0.005)	(0.002)	(0.001)	(0.019)	(0.005)	(0.004)	(0.002)	(0.001)	(0.001)
Div	-0.095***	-0.016	-0.010	-0.021**	0.011***	0.007*	-0.087***	-0.023**	-0.032***	-0.006	0.007***	-0.000
	(0.024)	(0.017)	(0.011)	(0.010)	(0.004)	(0.004)	(0.029)	(0.010)	(0.006)	(0.004)	(0.002)	(0.002)
Lev	0.014	-0.014***	-0.007***	-0.004*	-0.001	-0.000	0.019**	-0.010***	-0.006***	-0.001	-0.000	0.001*
	(0.009)	(0.003)	(0.002)	(0.002)	(0.001)	(0.001)	(0.008)	(0.002)	(0.002)	(0.001)	(0.000)	(0.000)
Cash	-0.040***	-0.000	-0.016***	0.011***	0.002*	0.001	-0.028**	0.008**	-0.001	0.004***	0.001*	0.001
	(0.010)	(0.004)	(0.003)	(0.003)	(0.001)	(0.001)	(0.011)	(0.003)	(0.002)	(0.001)	(0.000)	(0.000)
PPE	-0.039***	-0.013***	-0.005*	-0.003	-0.002***	-0.002***	-0.101***	-0.011***	-0.009***	-0.001	0.001	-0.001*
	(0.009)	(0.004)	(0.003)	(0.002)	(0.001)	(0.001)	(0.009)	(0.003)	(0.002)	(0.001)	(0.000)	(0.000)
Analyst	0.001**	0.004***	0.000***	0.002***	0.001***	0.001***	-0.000	0.004***	0.001***	0.001***	0.001***	0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
ADR	0.053***	-0.010**	-0.036***	0.023***	0.002*	0.002**	0.076***	0.014***	-0.014***	0.021***	0.004***	0.003***
	(0.007)	(0.005)	(0.002)	(0.004)	(0.001)	(0.001)	(0.012)	(0.005)	(0.002)	(0.003)	(0.001)	(0.001)
Fsales	-0.006	0.033***	0.010***	0.012***	0.007***	0.005***	0.006	0.012***	0.001	0.006***	0.001***	0.002***
	(0.005)	(0.003)	(0.002)	(0.002)	(0.001)	(0.001)	(0.007)	(0.002)	(0.001)	(0.001)	(0.000)	(0.000)
GDP	0.047***	0.010	0.011***	-0.006	0.003*	0.004**	-0.001	-0.001	0.002	-0.002***	0.001**	0.001***
	(0.013)	(0.007)	(0.004)	(0.004)	(0.002)	(0.002)	(0.005)	(0.002)	(0.001)	(0.001)	(0.000)	(0.000)
Stockmv	0.001	-0.005***	0.000	-0.004***	-0.001***	0.000	-0.061***	0.030***	0.025***	0.005***	0.002***	0.002***
	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.007)	(0.003)	(0.002)	(0.001)	(0.001)	(0.000)
Stocktrade	0.001	0.006***	0.005***	0.000	0.001***	0.000	0.090***	-0.010***	-0.001	-0.005***	-0.002***	-0.002***
	(0.002)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.003)	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)
Distance	0.334***	-0.152***	-0.115***	-0.030***	-0.012***	-0.010***	-0.097***	-0.118***	-0.124***	0.009***	-0.001	-0.006***

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	Developed markets						Emerging markets					
	Retail	*IO*	IO^{Dom}	IO^{US}	IO^{UK}	IO^{EU}	*Retail*	*IO*	IO^{Dom}	IO^{US}	IO^{UK}	IO^{EU}
	(0.014)	(0.009)	(0.005)	(0.006)	(0.003)	(0.002)	(0.022)	(0.011)	(0.008)	(0.003)	(0.002)	(0.002)
English	0.004	0.079***	0.055***	0.040***	-0.003***	-0.010***	0.091***	-0.016***	-0.015***	-0.002*	0.001**	-0.001
	(0.007)	(0.005)	(0.003)	(0.003)	(0.001)	(0.001)	(0.010)	(0.003)	(0.002)	(0.001)	(0.000)	(0.001)
Trade	-0.067***	-0.028***	-0.035***	-0.000	0.001	0.002***	-0.042***	-0.003	0.003	-0.005***	-0.002***	0.001*
	(0.004)	(0.002)	(0.001)	(0.001)	(0.001)	(0.000)	(0.009)	(0.003)	(0.002)	(0.001)	(0.001)	(0.001)
Openess	0.054***	0.040***	0.047***	0.002	-0.005***	-0.003***	0.014***	-0.004***	-0.006***	0.001***	0.000*	0.001***
	(0.007)	(0.004)	(0.002)	(0.003)	(0.001)	(0.001)	(0.003)	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)
Legal	0.018***	0.010***	0.015***	-0.002***	0.000	-0.001***	0.048***	-0.008***	-0.010***	0.002***	0.000	-0.001***
	(0.002)	(0.001)	(0.001)	(0.001)	(0.000)	(0.000)	(0.003)	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)
Disc	-0.004**	-0.001	0.001***	-0.001***	-0.000	-0.000*	0.009***	0.001	0.003***	-0.001***	-0.000***	-0.001***
	(0.002)	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Pol	0.010***	0.009***	0.003***	0.003***	0.000	0.002***	-0.064***	0.015***	0.015***	-0.000	-0.000**	0.000
	(0.002)	(0.001)	(0.001)	(0.001)	(0.000)	(0.000)	(0.002)	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)
WUI	0.067***	0.085***	0.019**	0.025***	0.012***	0.027***	-0.011	0.108***	0.013**	0.055***	0.017***	0.012***
	(0.024)	(0.013)	(0.007)	(0.007)	(0.004)	(0.004)	(0.023)	(0.009)	(0.005)	(0.004)	(0.002)	(0.002)
DY^{Ctry}	-1.601***	-1.612***	-0.476***	-1.076***	-0.152**	-0.013	-1.157***	1.247***	1.377***	-0.086**	0.001	0.005
	(0.239)	(0.159)	(0.087)	(0.147)	(0.060)	(0.040)	(0.278)	(0.094)	(0.071)	(0.037)	(0.014)	(0.013)
Mom^{Ctry}	-0.028***	0.007***	0.003***	-0.004***	-0.000	0.006***	-0.036***	0.008***	0.001	0.004***	0.001***	0.001***
	(0.004)	(0.002)	(0.001)	(0.001)	(0.001)	(0.000)	(0.004)	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)
Sync	0.076***	-0.049***	-0.000	-0.032***	-0.010***	-0.001	0.121***	-0.060***	-0.040***	-0.007***	0.001	-0.003***
	(0.023)	(0.011)	(0.007)	(0.006)	(0.003)	(0.003)	(0.019)	(0.006)	(0.004)	(0.003)	(0.001)	(0.001)
FHT^{Ctry}	-4.402**	1.166	-1.513**	1.590**	0.845***	0.098	4.808***	-0.875***	-1.369***	0.297**	0.048	0.072
	(1.756)	(0.944)	(0.595)	(0.776)	(0.311)	(0.214)	(1.127)	(0.315)	(0.217)	(0.129)	(0.060)	(0.061)
$Beta^{Ctry}$	-0.023***	0.014***	0.003*	0.007***	0.000	0.001	-0.060***	0.015***	0.009***	0.002***	0.001***	0.001***
	(0.006)	(0.003)	(0.002)	(0.002)	(0.001)	(0.001)	(0.004)	(0.001)	(0.001)	(0.001)	(0.000)	(0.000)
Fx	0.008	0.004	0.005**	-0.009***	0.001	0.008***	0.144***	-0.032***	-0.032***	0.004	-0.001	-0.001

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	Developed markets						Emerging markets					
	Retail	*IO*	IO^{Dom}	IO^{US}	IO^{UK}	IO^{EU}	*Retail*	*IO*	IO^{Dom}	IO^{US}	IO^{UK}	IO^{EU}
	(0.006)	(0.004)	(0.002)	(0.003)	(0.001)	(0.001)	(0.015)	(0.006)	(0.004)	(0.003)	(0.001)	(0.001)
FxVol	-0.049	0.106***	-0.056***	0.113***	0.055***	-0.002	-0.398***	0.419***	0.423***	-0.016	0.012	-0.003
	(0.050)	(0.030)	(0.020)	(0.027)	(0.013)	(0.007)	(0.129)	(0.056)	(0.045)	(0.023)	(0.008)	(0.010)
Inflation	-0.092	0.115**	0.201***	-0.038	-0.022	-0.011	0.064	-0.191***	-0.203***	0.008*	0.001	0.001
	(0.105)	(0.048)	(0.029)	(0.026)	(0.013)	(0.013)	(0.047)	(0.017)	(0.015)	(0.005)	(0.002)	(0.002)
Observations	120,261	120,261	120,261	120,261	110,897	120,261	113,377	113,377	113,377	113,377	113,377	113,377
R-squared	0.252	0.487	0.398	0.288	0.209	0.362	0.272	0.321	0.198	0.260	0.160	0.198
Firm (%)	20.87	58.21	22.44	75.91	74.35	64.71	27.70	72.31	32.90	77.97	74.40	70.87
Industry (%)	5.799	1.986	2.019	3.570	6.533	1.743	15.88	2.086	2.865	2.111	2.464	1.718
Country (%)	73.33	39.80	75.54	20.52	19.12	33.55	56.42	25.60	64.24	19.92	23.13	27.41

Table VI Determinants of firm-level institutional ownership of different types

This table reports estimates of the annual pooled panel regressions of firm ownership on firm, country, and industry variables.

$$y_{i,t} = X_{i,t-1}\beta + Z_{c,t-1}\gamma_c + Z_{I,t-1}\gamma_I + \epsilon_{i,t}, \;\; y \in \{IO^{Passive-IA}, IO^{Active-IA}, IO^{LT}, IO^{HF}, IO^{PB}\}$$

We report coefficients for ownership by passive investment advisors ($IO^{Passive-IA}$), active investment advisors ($IO^{Active-IA}$), long-term ownership (IO^{LT}), hedge fund ownership (IO^{HF}), and private banking ownership (IO^{PB}). Standard errors are clustered at the firm level and reported in parentheses. All regressions control for industry-level variables defined in section II and year fixed effects. We also report the total R^2 of each regression and the Shapley-Owen decomposition of the contribution of firm, industry and country variables as a percentage of the total R^2. The sample is annual from 2000 to 2020. *** p<0.01, ** p<0.05, * p<0.1.

	Developed markets					Emerging markets				
	$IO^{Passive-IA}$	$IO^{Active-IA}$	IO^{LT}	IO^{HF}	IO^{PB}	$IO^{Passive-IA}$	$IO^{Active-IA}$	IO^{LT}	IO^{HF}	IO^{PB}
Logmv	0.007***	0.010***	0.002***	0.000***	-0.000***	0.004***	0.006***	0.002***	-0.000*	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
FHT	-0.055***	-0.354***	-0.015***	-0.076***	0.010*	-0.033***	-0.018	-0.036***	-0.005	0.001
	(0.011)	(0.028)	(0.004)	(0.008)	(0.005)	(0.012)	(0.021)	(0.011)	(0.007)	(0.002)
Mom	-0.000	0.003***	-0.001***	-0.000**	0.000**	0.000**	0.002***	-0.001***	0.000***	0.000**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Ivol	-0.034***	-0.164***	-0.017***	0.000	-0.012***	-0.030***	-0.056***	-0.019***	0.001	0.001**
	(0.007)	(0.016)	(0.004)	(0.004)	(0.003)	(0.004)	(0.007)	(0.003)	(0.001)	(0.001)
DY	-0.015	-0.023	-0.014***	-0.028***	-0.012***	0.003	-0.021**	0.010**	0.002	0.000
	(0.009)	(0.019)	(0.004)	(0.004)	(0.002)	(0.005)	(0.009)	(0.005)	(0.002)	(0.001)
BM	0.001***	-0.002***	-0.000	0.000**	-0.000	0.000***	-0.000**	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Gsales	-0.000***	0.001***	-0.000***	0.000	0.000***	-0.001***	0.002***	-0.001***	0.000	0.000**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)

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	Developed markets					Emerging markets				
	$IO^{Passive-IA}$	$IO^{Active-IA}$	IO^{LT}	IO^{HF}	IO^{PB}	$IO^{Passive-IA}$	$IO^{Active-IA}$	IO^{LT}	IO^{HF}	IO^{PB}
ROE	0.001***	0.006***	0.000***	-0.000	0.000***	0.002***	0.005***	0.001***	-0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)
Investment	0.003	0.016***	-0.000	0.003**	0.001*	0.002	0.031***	0.001	0.001	0.000
	(0.002)	(0.005)	(0.001)	(0.002)	(0.001)	(0.002)	(0.004)	(0.001)	(0.001)	(0.000)
Div	0.006	0.000	-0.003	-0.012***	-0.007***	-0.014***	-0.005	-0.003	-0.002***	-0.000
	(0.007)	(0.012)	(0.002)	(0.002)	(0.001)	(0.003)	(0.006)	(0.002)	(0.001)	(0.000)
Lev	-0.002**	-0.013***	0.001*	0.000	-0.000	-0.001	-0.009***	-0.000	-0.000	-0.000*
	(0.001)	(0.002)	(0.000)	(0.001)	(0.000)	(0.001)	(0.001)	(0.001)	(0.000)	(0.000)
Cash	-0.002*	-0.002	-0.001**	0.005***	-0.000	0.001	0.008***	-0.002**	0.001**	-0.000
	(0.001)	(0.003)	(0.000)	(0.001)	(0.000)	(0.001)	(0.002)	(0.001)	(0.000)	(0.000)
PPE	-0.005***	-0.007**	-0.001	0.000	-0.001***	-0.003***	-0.007***	-0.001*	0.000	0.000
	(0.001)	(0.003)	(0.001)	(0.001)	(0.000)	(0.001)	(0.002)	(0.001)	(0.000)	(0.000)
Analyst	0.001***	0.002***	0.001***	0.000	0.000	0.001***	0.002***	0.000***	0.000***	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
ADR	0.005***	-0.021***	-0.001*	0.005***	0.002***	0.006***	-0.003	0.002**	0.006***	0.002***
	(0.002)	(0.003)	(0.000)	(0.001)	(0.001)	(0.002)	(0.003)	(0.001)	(0.001)	(0.001)
Fsales	0.007***	0.021***	0.002***	0.003***	0.000	0.005***	0.004***	0.003***	0.000	0.000
	(0.001)	(0.002)	(0.000)	(0.001)	(0.000)	(0.001)	(0.001)	(0.001)	(0.000)	(0.000)
GDP	0.014***	0.003	-0.002	-0.004***	-0.000	-0.003***	0.002**	0.000	-0.000***	-0.000***
	(0.002)	(0.005)	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)
Stockmv	-0.002***	-0.002***	-0.000	-0.001***	-0.000***	0.012***	0.015***	0.003***	0.000*	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.002)	(0.000)	(0.000)	(0.000)
Stocktrade	0.002***	0.004***	0.000**	-0.001***	0.000	-0.008***	0.000	-0.002***	-0.000**	-0.000*
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)
Distance	-0.009***	-0.116***	-0.004***	-0.013***	-0.009***	-0.026***	-0.053***	-0.040***	0.000	0.001***

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	Developed markets					Emerging markets				
	$IO^{Passive-IA}$	$IO^{Active-IA}$	IO^{LT}	IO^{HF}	IO^{PB}	$IO^{Passive-IA}$	$IO^{Active-IA}$	IO^{LT}	IO^{HF}	IO^{PB}
	(0.003)	(0.005)	(0.001)	(0.002)	(0.001)	(0.004)	(0.005)	(0.003)	(0.001)	(0.000)
English	0.010***	0.045***	0.003***	0.014***	0.005***	-0.005***	-0.001	-0.008***	-0.000**	-0.001***
	(0.001)	(0.003)	(0.001)	(0.001)	(0.000)	(0.001)	(0.002)	(0.001)	(0.000)	(0.000)
Trade	-0.002***	-0.023***	-0.002***	-0.000	-0.001***	-0.005***	-0.007***	0.009***	-0.000	-0.000
	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)	(0.001)	(0.002)	(0.001)	(0.000)	(0.000)
Openess	0.002	0.032***	0.004***	0.001	0.000	0.001	-0.002***	-0.002***	-0.000	-0.000***
	(0.001)	(0.002)	(0.000)	(0.001)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)
Legal	-0.000	0.011***	-0.001***	-0.001***	0.001***	0.001*	-0.006***	-0.003***	-0.000	0.000***
	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Disc	-0.000	-0.000	-0.000	-0.000***	-0.000***	-0.001***	0.001***	0.000***	0.000	-0.000**
	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Pol	0.002***	0.005***	0.002***	0.001***	-0.001***	0.002***	0.008***	0.005***	0.000	-0.000
	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)
WUI	0.049***	0.010	0.008***	0.005*	0.012***	0.041***	0.056***	0.005***	0.005***	0.002***
	(0.005)	(0.009)	(0.002)	(0.003)	(0.002)	(0.004)	(0.005)	(0.002)	(0.001)	(0.000)
DY^{Ctry}	-0.483***	-0.844***	0.019	-0.193***	-0.079***	0.194***	0.686***	0.410***	-0.041***	0.001
	(0.067)	(0.086)	(0.025)	(0.036)	(0.012)	(0.033)	(0.053)	(0.034)	(0.015)	(0.003)
Mom^{Ctry}	0.002***	0.003**	0.002***	-0.000	-0.000	0.007***	0.000	-0.000**	0.000	0.000***
	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)
Sync	-0.010***	-0.023***	-0.011***	-0.008***	0.004***	-0.010***	-0.027***	-0.022***	-0.001	0.001***
	(0.004)	(0.008)	(0.002)	(0.001)	(0.001)	(0.002)	(0.003)	(0.002)	(0.001)	(0.000)
FHT^{Ctry}	0.079	-0.161	0.917***	0.101	0.243***	0.113	-0.937***	-0.100	0.065*	-0.016**
	(0.344)	(0.588)	(0.142)	(0.201)	(0.068)	(0.124)	(0.181)	(0.070)	(0.035)	(0.008)
$Beta^{Ctry}$	0.000	0.008***	0.004***	0.002***	-0.001***	0.004***	0.004***	0.006***	0.000	-0.000***
	(0.001)	(0.002)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)
Fx	0.004***	0.005**	-0.002***	-0.004***	0.001**	-0.017***	-0.006**	-0.014***	0.004**	0.001***

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	Developed markets					Emerging markets				
	$IO^{Passive-IA}$	$IO^{Active-IA}$	IO^{LT}	IO^{HF}	IO^{PB}	$IO^{Passive-IA}$	$IO^{Active-IA}$	IO^{LT}	IO^{HF}	IO^{PB}
	(0.001)	(0.002)	(0.001)	(0.001)	(0.000)	(0.002)	(0.003)	(0.002)	(0.002)	(0.000)
FxVol	0.029**	0.054***	0.011***	0.010*	0.000	0.168***	0.124***	0.158***	-0.026**	-0.005***
	(0.013)	(0.019)	(0.004)	(0.005)	(0.004)	(0.023)	(0.026)	(0.017)	(0.011)	(0.001)
Inflation	0.051***	0.069**	0.046***	-0.037***	-0.010**	-0.028***	-0.100***	-0.058***	-0.004**	-0.001*
	(0.017)	(0.033)	(0.008)	(0.009)	(0.005)	(0.006)	(0.008)	(0.006)	(0.002)	(0.000)
Observations	120,261	120,261	120,261	120,261	120,261	113,377	113,377	113,377	113,377	113,377
R-squared	0.389	0.424	0.230	0.095	0.078	0.281	0.245	0.198	0.040	0.018
Firm (%)	76.55	47.48	78.45	36.37	15.70	72.91	74.44	22.34	78.91	76.33
Industry (%)	3.919	2.131	3.030	4.391	4.561	1.909	3.089	2.371	2.754	2.624
Country (%)	19.53	50.39	18.52	59.23	79.74	25.18	22.47	75.28	18.34	21.05

Table VII Determinants of foreign US institutional ownership in developed markets

This table shows the country-by-country LASSO variable selection for the most important determinants of foreign US institutional ownership in DMs. For each country, we perform the Cluster-LASSO variable selection of Belloni et al. (2012) and perform post-LASSO OLS regression. We report the regression coefficient for each country for only variables that are selected by LASSO. Coefficients that are significant at the 5% level are printed in bold font.

A: First 11 developed markets

Variable	AT	AU	BE	CA	CH	DE	DK	ES	FI	FR	GB
Logmv	0.002	**0.003**	**0.007**	**0.015**	0.002	-0.000	**0.005**	0.001	**0.007**	**0.003**	0.004
Logasset											
Logsales		0.001									
Turn	**0.035**	**0.021**	**0.025**	**0.032**	**0.064**	**-0.010**	**0.016**	0.004	**0.015**	**0.011**	**0.019**
FHT		**-0.162**	-0.037	-0.057	-0.985	-0.285	**-0.772**	-0.496	-0.264		**-0.262**
R2						**0.016**				**0.016**	**0.058**
Ivol	**-0.231**					**-0.091**	**-0.256**	**-0.288**		**-0.314**	**-0.215**
Mom						**0.005**					
BM			-0.001			**-0.005**		-0.003			
DY				-0.106							**-0.129**
PE				**0.000**							
Investment			0.049								
Gasset		**-0.001**									
Gsales						**-0.004**		**-0.007**	**-0.013**	**-0.009**	
ROE						**0.007**					
ROA											
NPM								**0.048**			
Fsales	0.012	**0.011**	**0.014**	**0.027**	0.011	**0.015**		**0.018**	**0.012**	**0.009**	
Analyst	**0.002**	**0.002**		**0.004**		**0.002**	**0.001**	**0.001**	0.000	**0.002**	**0.001**
ADR		0.007		**0.170**	**0.063**		**0.023**				**0.022**
Cash				0.025							
PPE						**-0.018**	**-0.038**	-0.019		**-0.019**	**-0.019**
Div	0.083	**-0.036**		**-0.092**					**0.046**		
Lev		**-0.016**		**-0.038**							

B: Next 11 developed markets

Variable	HK	IE	IL	IT	JP	NL	NO	NZ	PT	SE	SG
Logmv	**0.004**	**0.033**	0.004	**0.004**	**0.008**	-0.002	**0.006**	**0.005**	-0.002	**0.008**	**0.005**
Logasset									**0.004**		
Logsales	0.001	**0.024**			0.001			0.001		0.001	
Turn	**0.005**	**0.107**	**0.026**		**0.001**	**0.034**	**0.011**	**0.044**		**0.007**	

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FHT	-0.244			**-0.894**	-0.080	**-1.574**			-0.148	-0.110	**-0.130**
R2			**-0.034**		0.002				0.007		
Ivol	**-0.120**				**-0.147**		**-0.313**		-0.034		
Mom											
BM					**0.004**	-0.024	-0.002				
DY			-0.039			**-0.317**					
PE					**-0.000**						
Investment			**0.210**								
Gassets											
Gsales				**-0.006**						**-0.005**	
ROE											
ROA	**0.022**			**0.057**	**0.046**						
NPM					0.023						
Fsales	**0.006**	**-0.108**	**0.031**	**0.015**	**0.020**	**0.049**	**0.017**			**0.009**	**0.007**
Analyst	**0.001**	0.000	**0.007**	**0.001**			0.000	**0.002**	**0.001**		**0.001**
ADR	**0.012**	0.016	0.033			**0.069**		**0.027**	**0.014**		
Cash			**0.051**		**0.010**						
PPE	**-0.012**		**-0.034**		-0.002					**-0.015**	
Div					**0.144**				0.043		
Lev	-0.009		-0.009		**-0.009**		-0.024				

Table VIII Determinants of foreign US institutional ownership in emerging markets

This table shows the country-by-country LASSO variable selection for the most important determinants of foreign US institutional ownership in DMs. For each country, we perform the Cluster-LASSO variable selection of Belloni et al. (2012) and perform post-LASSO OLS regression. We report the regression coefficient for each country for only variables that are selected by LASSO. Coefficients that are significant at the 5% level are printed in bold font.

A: First 13 emerging markets

Variable	BR	CL	CN	CO	CZ	GR	HU	ID	IN	KR	MX	MY	PH
Logmv			**-0.002**		-0.000	0.001	**0.009**	0.001	**0.001**	**0.006**		**0.002**	**0.004**
Logasset						0.001		0.002	**0.001**	0.001		**0.001**	
Logsales										0.001			
Turn	**-0.000**	**0.021**	**-0.001**					**0.006**	**0.003**	**-0.000**	**0.072**	**0.002**	**0.020**
FHT	-0.068	**-1.101**	**0.342**	**-0.764**	-0.264			-0.186			-0.671	-0.035	
R2			**-0.004**					0.014					**0.042**
Ivol			**0.075**		-0.265				**-0.049**	**-0.065**		**-0.048**	**-0.167**
Mom			**0.002**										
BM	**-0.005**		0.001		-0.000			-0.001			**-0.007**		
DY	**-0.223**		**0.069**										
PE						-0.000				**-0.000**			
Investment			**-0.013**										
Gasset						-0.002							
Gsales		**-0.006**				**-0.006**							
ROE													
ROA									**0.011**	**0.017**			
NPM				**-0.014**	0.039						0.014		
Fsales			**0.007**	**0.016**		0.016	**0.032**		**0.003**			0.004	
Analyst	**0.006**	**0.002**	**0.001**	**0.003**		**0.003**	0.000	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**
ADR			**0.017**			0.049				**-0.023**		0.011	**-0.013**
Cash						**0.027**				**0.009**			
PPE	**-0.045**	-0.008					-0.032				-0.025	**-0.009**	
Div							**-0.034**			0.058	0.049		
Lev										**-0.012**			

A: Next 13 emerging markets

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Variable	PK	PL	RU	TH	TR	TW	ZA	EG	SA	AE	KW	QA	RO
Logmv	**0.001**	**0.001**	0.000	**0.001**	0.001	**0.005**	0.002	0.002			**0.001**		
Logasset	0.000	0.001			**0.003**			0.000	**0.001**			**0.002**	
Logsales			0.000		0.000	0.000	0.002						
Turn		**0.003**	**0.005**				**0.060**		**-0.000**				
FHT	-0.082		-0.114		**-0.244**		0.028		**-0.301**		**-0.264**	-0.420	**-0.056**
R2							**0.040**		**-0.012**				0.002
Ivol		**-0.034**			**-0.063**	-0.028	**-0.133**	**-0.035**			**-0.055**		
Mom													
BM													
DY												**0.108**	
PE							**0.000**						
Investment									**-0.020**				
Gasset												-0.001	
Gsales						**-0.004**	**-0.004**					-0.000	
ROE													
ROA												**-0.044**	
NPM													
Fsales												**-0.016**	
Analyst	**0.002**	**0.003**	**0.002**	**0.001**	**0.002**	**0.004**	0.000	**0.001**	**0.000**	**0.003**			**0.001**
ADR					0.015								
Cash					0.011								
PPE										-0.008			
Div						**0.026**							
Lev										-0.023			