Sustainable Investing Home and Abroad*

Ines Chaieb
University of Geneva
Swiss Finance Institute

Vihang Errunza
McGill University

Lucie Y. Lu
University of Melbourne

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ABSTRACT

We study how firm ESG performance affects domestic and foreign institutional investments. At the firm level, the marginal effects of ESG on institutional ownership vary across institution origin and investment destination countries. At the institution-firm level, institutions tilt towards high-ESG firms only when they are domestic. We term this asymmetry in ESG preference between domestic and foreign investment the "*ESG home bias*". We explore ESG information environment, country E&S awareness, and ESG factor discount as potential economic mechanisms and find that the ESG home bias reflects a combination of these factors, the most important being information asymmetry about the ESG outcome measured by ESG uncertainty.

Keywords: Institutional investors; international investment; ESG ;

JEL classification: G15, G23, G32.

I. Introduction

We examine the extent of concentration of institutional investors' portfolios on domestic high ESG firms compared to foreign high ESG firms. Institutional investors show a stronger preference towards high ESG firms when they invest domestically than globally. Our empirical findings suggest that institutional investors exhibit a home bias in sustainable investment decisions. We find that the ESG home bias reflects a combination of factors, the most important being information asymmetry about the ESG outcome measured by ESG uncertainty. We show that firm-level panel regressions fail to uncover this empirical phenomenon. Hence, we use granular, investor-stock-level data to study institutional investors' sustainable investing preferences at home and abroad.

Our sample covers more than 13,000 firms with ESG rating coverage that span 48 countries, both developed and emerging, from 2000 to 2020. We focus on more than 4,000 institutional investors domiciled in the US, UK, and Europe with detailed global portfolio holdings data at the individual stock level. These institutions account for the dominant share of the total institutional assets under management (see Figure 1). These data have been used before, by, for example, Ferreira and Matos, 2008, Kacperczyk, Sundaresan, and Wang, 2021, and Kacperczyk, Nosal, and Wang, 2023.

In light of the growth in global sustainable investment, understanding how ESG performance relates to institutional investors' cross-border investment allocation is a first step towards assessing the impact of sustainable investing on global equity market structure. To study how ESG affects institutions' cross-border portfolio allocation, we first examine how ESG performance is associated with institutions' demand for domestic and foreign investment. We find that US, UK, and European institutions tilt their portfolios toward high-ESG firms while investing at home and less so while investing abroad. Our results shed light on the role of ESG in shaping international capital flows, that is, whether ESG awareness enhances or hinders foreign investment.

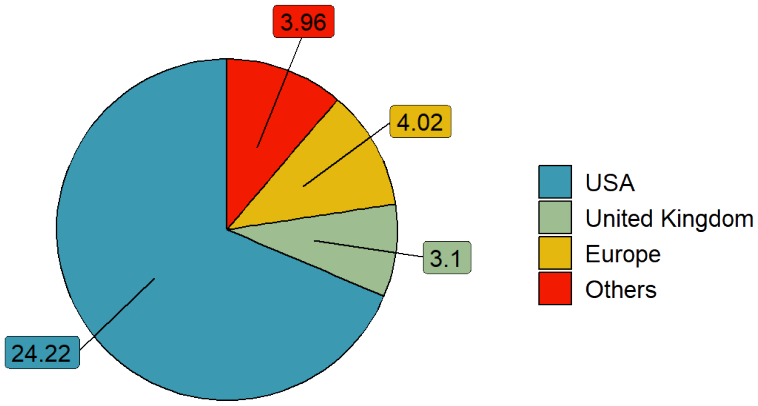

Figure 1. AUM of institutional investors 2020

This figure shows the total AUM of institutional investors domiciled in the US, UK, Europe, and other regions by the end of 2020. The numbers are in terms of trillions of USD and the source is FactSet.

Institutional investors invest more globally compared to other types of investors (Chaieb, Errunza, and Lu, 2023), therefore their preference for sustainable investment at home and abroad determines whether firms with better ESG performance have improved access to international risk-sharing. This is particularly important in emerging markets (EMs), which compared to developed markets (DMs), are subject to greater investment barriers (Bekaert and Harvey, 1995; Carrieri, Errunza, and Hogan, 2007) and lower efficiency (Bartram and Grinblatt, 2021), making it more difficult for foreign institutions to take into account non-financial performance such as ESG metrics.

The finance literature has shown that different types of institutional investors with different origins, investment horizons, investment mandates, and styles may perceive and incorporate ESG outcomes differently.[1] Hence, we focus along three dimensions. First, how the revealed

[1]Starks, Venkat, and Zhu, 2023 show significant differences in ESG preferences across institutions with different investment horizons. Dyck et al., 2019 and Gibson Brandon et al., 2022 show considerable heterogeneity across regions. Institutions based in countries with higher E&S norms are more likely to engage with E&S policies, report full ESG incorporation, and exhibit better ESG portfolio-level scores. But US institutions "do not walk the ESG talk". Ferreira and Matos, 2008 show substantial diversity in the revealed stock preferences

preferences vary across investors of different origins: US, UK, and Europe. Second, how revealed preferences vary across different investment destinations. Past studies show that there are cross-country differences in the link between environmental and social performance and institutional ownership (See Dyck et al., 2019), and cross-country differences in the portfolio ESG scores between institutions based in the U.S. and other regions (see, Gibson Brandon et al., 2022). Hence, it is important to differentiate among institutional investors' origins as well as investment destinations. Our focus is on whether institutional investors from different origins show heterogeneous preferences when they invest at home versus abroad as well as across DMs versus EMs. Third, we study the preference for different ESG performance metrics including overall ESG performance (ESG) and its components i.e. Environmental (E), Social (S), and Governance (G).

Our main results can be summarized as follows. First, we perform analyses of institutional ownership aggregated at the firm level. Based on pooled panel regression of institutional ownership on firm-level ESG performance metrics, other firm characteristics, and country-time fixed effects, we find that the link between ESG performance and firm-level institutional ownership varies across institutional origins and the geographic location of the investment. To further study this heterogeneity, we conduct country-by-country analysis using the double-selection least absolute shrinkage and selection operator (LASSO) technique (henceforth double-LASSO) to estimate the marginal effect of ESG metrics across 48 countries. There is rich heterogeneity in the marginal effect of ESG. For example, the marginal effect of E on foreign US institutional ownership is positive and significant in 4 DMs and 3 EMs, whereas the marginal effect is positive and significant in 13 DMs and 4 EMs for European institutional ownership. Overall, the marginal effects of ESG on foreign European and foreign UK ownership are positive and significant in more markets than the number for foreign US ownership. In addition, ESG matters more for foreign institutional ownership in more DMs than EMs.

of institutional investors depending on their geographic origin and type.

Despite the significant heterogeneity in sustainability investment decisions, firm-level analysis is unsuitable for examining the difference between domestic and foreign investment preferences for a given institution. For this purpose, we need a more granular institution-stock level analysis.

Second, we run institution-firm level regressions to see how the weight of a firm in an institution's portfolio relates to its ESG performance. In particular, we include in our regression the interaction between ESG performance and dummies indicating whether the investment is in foreign DMs or foreign EMs. We find that institutional investors only tilt their portfolio towards high ESG firms when they invest at home. For US institutions, one standard deviation increase in ESG predicts an increase in the weight of a domestic firm by 1.6 bps, or 22% expressed as a percentage of the average portfolio weight of domestic firms. In contrast, a one standard deviation increase in ESG predicts a reduction in the weight of a foreign DM firm by 4 bps or 46% expressed as a percentage of the average weight and a reduction in the weight of a foreign EM firm by 2 bps or 60% expressed as a percentage of the average weight. Similar results hold for UK and European institutions. The lack of ESG preference when investing abroad is most pronounced for European institutional investors whose preference for ESG when investing at home is the strongest. We refer to the tendency of institutions to only exhibit ESG preference at home as *the ESG home bias*. In fact, the lack of ESG preference in foreign investment is stronger in EMs. Emerging markets have more opaque information environments, which increases the difficulty for institutional investors to assess firms' ESG performance. Our results suggest that as responsible investing becomes an important tenet of global institutional investment, uncertainty about ESG performance constitutes a novel form of implicit barrier to international investment.

Third, we investigate the economic mechanisms through which institutions exhibit different ESG preferences across countries. We develop three hypotheses regarding the ESG home bias. The first hypothesis states that institutional investors' ESG preference is weaker

in markets with more noisy ESG information. We use country-level ESG noisiness constructed from Avramov et al., 2022 firm-level uncertainty measure. We find for US institutions, foreign high ESG firms in a country with no uncertainty in ESG measurement should not suffer from lower investment relative to US domestic high ESG firms. European institutions prefer to tilt more towards domestic high ESG firms even if foreign firms are based in a country with no uncertainty in ESG measurement. ESG noisiness increases the bias against foreign firms. The second hypothesis tests whether the relationship between institution portfolio weights and firms' ESG performance varies with the strength of the destination country's sustainability values. We find a weaker ESG tilt within a highly sustainability-aware country, indicating a substitute relationship between firm and country ESG performance. The third hypothesis tests whether differential ESG factor discount explains the ESG home bias. The predictive regressions of portfolio returns on lagged portfolio ESG scores show evidence of an ESG discount but the difference is only significant for US institutions who face a larger ESG discount in their EM investment.

Our work is related to the literature about the link between sustainability and institutional investment. Starks, Venkat, and Zhu, 2023 show that long-term US institutional investors have greater preferences for high-ESG firms. Gibson Brandon, Krueger, and Mitali, 2020 show that US investors with longer investment horizons have better portfolio-level ESG scores. Lopez, McCahery, and Pudschedl, 2022 find that governance is the most important factor in attracting 13F institutions' portfolio allocation to US firms. Pastor and Taylor, 2023 estimate US institutions' ESG-related portfolio tilts controlling for the tilt due to other firm characteristics and show an upward trend in ESG tilts.

Two complementary studies by Groen-Xu and Zeume, 2021a and Adriaan Boermans and Galema, 2023a also uncover different versions of home bias in sustainability investment. Groen-Xu and Zeume, 2021a find that the abnormal returns after ESG incidents are more negative when these incidents occur at home rather than abroad. They define ESG home

bias differently from us as the domestic-foreign return gap in post-ESG-incident abnormal returns. Adriaan Boermans and Galema, 2023a show that European investors invest more in carbon-intensive firms from the home market. We have a more general interest in sustainability investment across all of the E, S, and G dimensions, and our sample has a broader geographical span covering US, UK, and European institutional investors. Their justification for carbon emission home bias is also different. They argue that European investors actively engage in pushing domestic firms to reduce their carbon emissions and divest from carbon-intensive foreign firms. We show US, UK, and European institutional investors exhibit a strong preference for high ESG firms based at home but not abroad. ESG noisiness, the substitution between country-level E&S norms, and ESG return performance could explain the observed ESG home bias.

Section II describes the data. Section III examines whether ESG performance predicts firm-level institutional ownership. Section IV investigates how ESG performance affects institutional investors' portfolio choices. Section V discusses potential economic mechanisms. Section VI concludes.

II. Data

Our sample covers 48 markets in the FTSE All-World Index, which includes 9,591 firms in developed markets (DMs) and 3,556 firms in emerging markets (EMs). We use two main types of data: institution holdings data and firm-level data. Different data sources are explained below. Appendix A details the data construction process.

A. Institution Holdings Data

We obtain institutions' security holdings from FactSet. FactSet provides global institutional ownership collected from regulatory reports, stock exchange announcements, company

annual reports, and interviews with fund managers. Raw positions are reported at the 13F reporting entity and fund levels. We correct for known errors in FactSet (Appendix A.II) and follow the procedure of Ferreira and Matos, 2008 to aggregate holdings at these two levels to the FactSet institution level to get quarterly institution-security holdings. At the firm level, we calculate firm-level institutional ownership (IO) as the ratio of the USD market cap of ordinary shares (EQ), preferred shares (PF), and depository receipts (AD) held by a given type of investors to the firm's total USD market cap. We focus on ownership by institutions from three different origins: US institutions, UK institutions, and European institutions[2]. We calculate at the firm-level ownership by domestic institutions (IO^{Dom}), foreign US institutional ownership (IO^{US}), foreign UK institutional ownership (IO^{UK}), and foreign European institutional ownership (IO^{EU}). European institutional ownership is calculated as the aggregated ownership by institutions from European countries.

In addition to firm-level institutional ownership, we also compute the institution-firm level portfolio weights. We keep only holdings in the primary securities of firms and calculate each institution's portfolio weights as its dollar investment in each security divided by the total dollar asset under management (AUM). Using the portfolio weights, we calculate the following investor-level characteristics: active share (AS), churn ratio (CR), lag returns ($LagRet$), the Herfindahl-Hirschman Index (HHI), and normalized home bias (HB^{norm}). We apply several filters to the institution-quarter observations. We exclude institutions that do not invest globally and whose portfolios are too small or concentrated. These filters help us reduce the influence of reporting errors and outliers. Details about calculating institution characteristics and the filters applied are explained in Appendix A.III. Our final sample covers 4,370 institutions that are domiciled in the US, UK, and Europe.

[2]European institutions are institutions domiciled in Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Italy, Netherlands, Norway, Portugal, Spain, Sweden, and Switzerland.

B. Firm-level Data

To construct the global firm sample, we start from the WorldScope universe, excluding financial firms (SIC codes 6000-6999) and applying standard name filters suggested by Griffin, Kelly, and Nardari, 2010 and Chaieb, Langlois, and Scaillet, 2020 to exclude non-equity entries. For each firm, we keep only the primary security listing. Then, we collect stock market returns (USD) and calculate annual firm characteristics using data from Datastream and WorldScope.

We obtain ESG ratings from three major rating providers: Refinitiv (formerly Asset 4), MSCI IVA, and Sustainalytics. MSCI has the earliest coverage starting in 1999, with Refinitiv starting in 2002 and Sustainalytics starting in 2009.[3] We collect the overall ESG score as well as the pillar scores of each sub-field: environmental(E), social (S), and governance (G). To make ratings comparable across providers and over time, we follow Gibson Brandon, Krueger, and Mitali, 2020 and standardize the scores of a given investor in a given year to have a mean of zero and a standard deviation of one. We denote the standardized MSCI ESG score for firm f at time t by $z_t(ESG_{MSCI,f})$, the standardized Refinitiv ESG score by $z_t(ESG_{A4,f})$, and the standardized Sustainalytics ESG score by $z_t(ESG_{Sust,f})$. Then, we calculate the ESG score of a given firm f at time t as the average available standardized scores from the three providers:

$$ESG_{f,t} = \frac{\mathbb{I}_{MSCI,ft} z_t(ESG_{MSCI,f}) + \mathbb{I}_{A4,ft} z_t(ESG_{A4,f}) + \mathbb{I}_{Sust,ft} z_t(ESG_{Sust,f})}{\mathbb{I}_{MSCI,ft} + \mathbb{I}_{A4,ft} + \mathbb{I}_{Sust,ft}}$$

where $\mathbb{I}_{MSCI,ft}$, $\mathbb{I}_{A4,ft}$ and $\mathbb{I}_{Sust,ft}$ are indicators for the availability of each rating. The average environmental score (E), social score (S), and governance score (G) are calculated

[3]We download Sustainalytics ratings from Morningstar direct. Sustainalytics changed its methodology starting in 2019 to reflect risk rather than performance, therefore we flip the sign of Sustainalytics ratings after 2019 following Berg, Koelbel, and Rigobon, 2020

in the same way. Taking the average across different providers could partially address the rating disagreement known in the literature (Berg, Koelbel, and Rigobon, 2022).

To measure ESG disagreement, we calculate a rating uncertainty measure similar to the one in Avramov et al., 2022. For each firm f and each rater pair $A, B \in \mathcal{R}$ of available rating providers $\mathcal{R} = \{MSCI, A4, Sust\}$, the pairwise rating uncertainty is calculated as $\sigma^{ESG}_{f,AB,t} = \frac{|z_{f,A,t} - z_{f,B,t}|}{\sqrt{2}}$, where $z_{f,A,t}$ is the standardized Z-score of the rating of firm f by provider A at time t. Then, we compute firm-level rating uncertainty in a given year t as the average pairwise rating uncertainty across all rater pairs $\sigma^{ESG}_{f,t} = \frac{1}{|\mathcal{R}|_{f,t}(|\mathcal{R}|_{f,t}-1)/2} \sum_{A,B \in \mathcal{R}} \sigma^{ESG}_{f,AB,t}$, where $|\mathcal{R}|_{f,t}$ is the number of raters covering firm f at time t. Because calculating rating uncertainty requires the coverage of at least two providers on the given firm, we could only compute rating disagreement for a limited number of firm-year observations. We then aggregate rating uncertainty at the country level by taking the average of firm-level rating uncertainty. For a given country C in a given year t, the country-level ESG uncertainty is calculated as the simple average of ESG uncertainty at the individual firm-level across the set $\mathcal{C}_t$ of all $N_{C,t}$ firms in the country whose ESG uncertainty measure is available: $\sigma_{C,t} = \frac{1}{N_{C,t}} \sum_{f \in \mathcal{C}_t} \sigma^{ESG}_{f,t}$. For each country, we then calculate the time-invariant country-level ESG uncertainty as $\sigma_C = \frac{1}{T} \sum_t \sigma^{ESG}_{C,t}$.

Because many firm characteristics affect both ESG and institutional ownership, we need to control for them when investigating the link between ESG performance and institutional investment. We calculate an extensive set of firm-level variables using data from Datastream and WorldScope. These firm-level covariates 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 ($Invest$), 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. Detailed definitions of firm-level variables are provided in Table A1. Firm-level ratios are winsorized at the bottom and top 1% for each country. We control for size, liquidity, momentum, idiosyncratic volatility, value, profitability, and growth in our firm-level and investor-firm level panel regressions, and we use all firm-level covariates when we estimate the marginal effect of ESG on firm-level ownership using rigorous-LASSO for each destination market.

III. ESG and Firm-level Institutional Ownership

This section investigates how firms' environmental, social, and governance performance links to equity holdings of institutional investors worldwide. The literature shows different types of institutional investors (depending on their horizon or geographical origin) care differently about E&S outcomes (see Matos (2020) for a review of the literature on the link between institutional investment and E&S outcomes). We examine differences in the revealed ESG-preferences of institutional investors of different origins when they invest at home versus abroad. First, we examine whether ESG and its components predict institutional ownership and how this differs when they invest in domestic vs foreign firms based in DMs and EMs. To this end, we run pooled panel regressions at the firm level. Second, we investigate differences in institutional investors' ESG preferences across destination countries. We estimate the marginal effect of ESG ratings on institutional holdings in their domestic market and each type of foreign (DM and EM) market. Because many confounders affect both ESG and

institutional ownership, we use the double-LASSO technique to pin down the marginal effect of ESG, controlling for other firm-level covariates.

A. Pooled regression analyses

This section investigates the ESG preferences of domestic versus foreign institutions at the firm level. We examine whether a firm's ESG performance predicts institutional stock ownership. We focus on US-based, UK-based, and Europe-based institutions. For each group, we run firm-level pooled panel regressions of annual institutional ownership on lagged ESG performance for domestic, foreign DM-based, and foreign EM-based firms. In the case of European institutions, we run predictive regressions of domestic institutional ownership on ESG for the set of European firms and interpret the result as the average effect of ESG on domestic ownership by European institutions. Our main specification includes firm-level variables and country-time fixed effects.

Our baseline regression is specified as,

$$IO_{f,t}^{g\in\mathcal{G}} = \beta_1 ESG_{f,t-1} + X_{f,t-1}\beta + \alpha_{C,t} + \epsilon_t \tag{1}$$
$$\mathcal{G} = \{Dom, US, UK, EU\}$$

where $IO_{f,t}^{g\in\mathcal{G}}$ is the firm-level ownership of firm f at year t aggregated by institutional investors from different origins: domestic, foreign US institutions, foreign UK institutions, and foreign European institutions. $ESG_{f,t-1}$ is firms' ESG performance metrics that can be the overall ESG performance (ESG), environmental (E), social (S), or governance (G) performance. $X_{f,t-1}$ is a vector of firm-level controls, including log market capitalization ($Logmv$), book-to-market ratio (BM), transaction cost (FHT), momentum (Mom), idiosyncratic volatility ($Ivol$), ROE, and Investment ($Invest$).

Table 1 reports the summary statistics on institutional ownership and ESG metrics for

domestic, foreign-DM, and foreign-EM firms from the perspective of US, UK, and European institutions. For European institutions, the sample of domestic firms includes all firms domiciled in European countries and IO represents the domestic institutional ownership (IO^{Dom}) of each firm rather than the ownership by European institutional investors as a whole. The average total institutional ownership by US institutions is 8% for non-U.S. firms based in DMs and is around 5% for foreign firms based in EMs. The average foreign institutional ownership by UK institutions and European institutions are similar at around 2.6% in DM-based firms and 1.6% in EM-based firms. US, UK, and European institutions' holdings reflect the equity home bias, with domestic ownership higher than foreign ownership. Table 1 also reports the summary statistics on firm-level control variables for firms that are based in US, DMs, and EMs independent of investor perspective. The average DM and EM firms in the sample are similar in size and other firm characteristics. The average firm is large in both DM and EM, with a market capitalization of US $ 2.4 billion and US $ 2.6 billion, respectively. The average EM firm is more illiquid than the average DM firm. The ESG performance of UK and European firms is higher than that of US or EM firms.

Table 2 reports the results for the firm-level predictive regressions of institutional ownership by US, UK, and European institutions in domestic, foreign DM, and foreign EM firms on firms' ESG performance. These results provide suggestive evidence that ESG performance predicts firm-level institutional ownership, but the effect of each dimension (E, S, or G) differs depending on the geographic location of the institutional investor and of the firm.

For US institutions, firm overall ESG performance positively and significantly predicts their ownership in domestic and foreign EM firms. One standard deviation increase in domestic firms' ESG predicts an increase in US institutional ownership by 70 bps (0.009×0.786), whereas one standard deviation increase in ESG leads to 44 bps (0.005×0.888) higher ownership in foreign EM firms. Regarding ESG sub-fields, we find no evidence that E or S attracts more investment, but governance matters for US and non-US firms. One standard

deviation increase in G is associated with an increase in ownership of 226 bps (0.027×0.837) in domestic firms, 25 bps (0.003×0.838) in foreign DM firms and 85 bps (0.01×0.85) in EM firms. The size of the effect of G on domestic firms (226 bps) expressed as a fraction of the average ownership (0.712) is about 3% and is similar to the size of the effect on foreign DM firms (25 bps) as a fraction of the average ownership of non-US DM firms (0.084). However, the size of the effect on foreign EM firms (85 bps) as a fraction of the average ownership (0.047) is much larger at 18%. In summary, firm-level results suggest that US institutions only care about governance.

ESG also positively and significantly predicts UK and European institutions' ownership in foreign DM and EM firms. Although the coefficient of ESG for their domestic ownership is higher than that of foreign ownership, there is no statistical significance. This could be related to the smaller sample of domestic firms for these two groups of institutions. In addition, UK and European institutions tend to invest more in foreign firms with higher environmental performance in DMs and EMs. They both have a significant preference for S in EM firms. However, only European institutions invest significantly more in high-S firms in DMs. The pooled panel regressions provide no evidence that these institutions prefer environmentally or socially friendly domestic firms. This could result from the limited number of domestic firms and the limited coverage of the ESG performance of these firms in the data. In contrast to the ambiguity of E and S preference, both UK and European institutions prefer well-governed firms in both domestic and foreign markets. As is the case with US institutions, they exhibit a stronger preference for good governance at home than abroad. For UK institutions, one standard deviation increase in G predicts an increase of their ownership by 131 bps (0.016×0.821) in domestic firms, compared to 17 bps (0.002×0.834) in foreign DM firms and 44 bps (0.005×0.888) in foreign EM firms. The economic magnitude of these effects is similar for European institutions.

This first-step regression analysis reveals interesting heterogeneity in the ESG preference

across institutional investors from different geographical locations for domestic and foreign firms. To further uncover the heterogeneity across investment destinations, we next estimate how ESG predicts institutional ownership separately for each destination market.

B. Country-by-country evidence

In Section III.A, we find evidence that institutional investors' preference for high-ESG firms varies when they invest in domestic, foreign-DM, or foreign-EM firms. We also find interesting differences across US, UK, and European institutional investors. This suggests that pooled regressions could mask considerable heterogeneity across countries. We expect the materiality of the E, S, and G dimensions to differ across destination countries.[4] We examine whether the marginal effect of ESG performance metrics varies across investment destinations. Ordinary least square regressions could not cleanly identify the marginal effect of ESG performance metrics on firm-level institutional ownership because many firm-level covariates affect both ESG and institutional ownership. For example, the size of a company has an influence on both institutional ownership and the assessment of the firm's sustainability. Larger firms may receive better ESG scores because they can dedicate greater resources to preparing and publishing ESG disclosures and controlling reputational risk (see Matos, 2020). Specifically, we consider the following model in which both institutional ownership and ESG performance are determined by a set of unknown firm-level covariates $X_{f,t-1}$,

$$IO_{f,t}^{g\in\mathcal{G}} = \beta ESG_{t-1} + X'_{f,t-1}\theta_X \tag{2}$$

$$ESG_{f,t} = X'_{f,t-1}\pi_X \tag{3}$$

$$\mathcal{G} = \{Dom, US, UK, EU\} \tag{4}$$

[4] As argued by Amel-Zadeh and Serafeim (2018) "which information is material probably varies systematically among countries (e.g., a country where water pollution is a serious issue versus a country where corruption is a more serious issue), and industries (e.g., an industry affected dramatically by climate change versus an industry affected by violations of human rights in the supply chain)"

Regressing institutional ownership on ESG induces omitted variable bias if we do not control for the relevant covariates. Because there is a large set of firm-level variables as candidate covariates, we invoke the double-LASSO technique that is used in many recent studies[5] to select control variables that best predict ESG and institutional ownership. This framework accommodates uncertainty about the exact set of variables that are important confounders and searches for optimal controls from a broad set of covariates. This allows us to test the marginal effect of ESG performance on institutional ownership beyond what can be explained by a high-dimensional set of firm characteristics. The method is also suitable for our objective to estimate the marginal effect of ESG country-by-country, given the limited number of firms in many countries and the large set of firm-level covariates. Belloni, Chernozhukov, and Hansen, 2014b provide a valid inference of the post double-LASSO estimator.

The double-LASSO procedure consists of three steps. The first step is a panel cluster-LASSO regression of firm ownership on a large set of firm characteristics.[6] The LASSO estimator is defined as,

$$\hat{\theta} = \arg\min_{\theta} \sum_{f=1}^{n} \sum_{t=1}^{T} (IO_{f,t}^{g \in \mathcal{G}} - \sum_{j=1}^{p} x_{f,j.t-1}\theta_j)^2 + \lambda_1 \sum_{j=1}^{p} |\theta_j| \psi_{1,j}, \tag{5}$$

where $\lambda_1 > 0$ is the over-all "penalty level" and $\psi_{1,j}$ are variable-specific penalty loadings. The penalty loadings are chosen to address heteroskedasticity, clustering and non-normality in model errors (see Belloni, Chernozhukov, and Hansen, 2014a). Belloni et al., 2016 prove that the cluster-LASSO has good model selection properties under approximate sparsity and regulatory conditions. We relegate the details about these theoretically motivated penalty loadings in cluster-LASSO to Appendix B. We denote by $\widehat{I}_1$ the set of selected covariates in the first step. The second step is a cluster-LASSO regression of ESG on the same set of firm characteristics. This step makes the procedure robust to model selection mistakes inherent

[5] See Belloni, Chernozhukov, and Hansen, 2014a; Chernozhukov, Hansen, and Spindler, 2015; Feng, Giglio, and Xiu, 2020

[6] We include all firm-level covariates defined in Table A1.

from the first step. It searches for variables that might have been missed in the first step and may induce large omitted variable bias.

$$\hat{\pi} = \arg\min_{\pi} \sum_{f=1}^{n} \sum_{t=1}^{T} (ESG_{f,t} - \sum_{j=1}^{q} x_{f,j,t}\pi_j)^2 + \lambda_2 \sum_{j=1}^{q} |\pi_j| \psi_{2,j}, \tag{6}$$

We denote by $\widehat{I_2}$ the set of covariates selected in the second step. The third step is an OLS regression using the union of variables selected from both steps. The post-double-LASSO estimator for the marginal effect of ESG, $\hat{\beta}_{ESG}$ is such that:

$$\hat{\beta}_{ESG} = \arg\min_{\beta_{ESG},\beta} \sum_{f=1}^{n} \sum_{t=1}^{T} (IO_{f,t}^{g \in \mathcal{G}} - \beta_{ESG} ESG_{f,t-1} - \sum_{j \in \widehat{I_1} \cup \widehat{I_1}} \beta_j x_{f,j,t-1})^2, \tag{7}$$

As a by-product of our estimation, the first-step LASSO regression chooses the set of variables that best explain firm-level institutional ownership in each country. The selection results for domestic, foreign US, foreign UK and foreign European institutional ownership are presented in Table OA.1-Table OA.4 in the Online Appendix. These variable selection results show that there is some commonality in institutional investors' preference for firm characteristics across markets. Size (e.g. $Logmv$), liquidity (e.g. FHT), and visibility (e.g. $Analyst$) are the most frequently selected variables for each investor group across DMs and EMs. There is also considerable heterogeneity in the determinants of institutional ownership when they invest in different destinations. In addition, there is more sparsity in EMs as fewer covariates are selected. Overall, the LASSO variable selection reveals considerable heterogeneity and sparsity in the firm characteristics that predict firm-level institutional ownership.

We next discuss the marginal effects of ESG on domestic, foreign-US, foreign-UK, and foreign European institutional ownership across investment destinations. Figure 3 presents the marginal effects of E, S, and G on firm-level domestic institutional ownership across DMs and EMs. We present both the point estimates as well as the 90% confidence intervals. Consistent with our earlier simple OLS results, good governance significantly predicts higher ownership

in domestic firms by US and UK institutions. In addition, the results reveal differences in domestic investment preferences across European institutions from different countries, which complements our pooled regressions in Table 2. For example, while we do not find evidence that Danish or Finnish institutions invest more in firms with good governance, institutions from other European countries exhibit a preference for good governance in domestic firms. There is more heterogeneity in the preference for E and S performance, with Italian and Swiss institutions having positive and significant preference for domestic firms with higher E, and only Swiss institutions prefer domestic firms with higher S. Norwegian institutions stand out for having significantly higher ownership in domestic firms that perform better in all three dimensions. Overall, domestic firms' good governance matters in 9 DMs. The marginal effects of ESG on domestic institutional ownership in EMs are not significantly different from zero. This could be due to the small number of firms in these markets and the lack of coverage on their domestic institutions in FactSet.

Figure 4 presents the marginal effect of ESG on foreign US institutional ownership. As a reference point, we show the marginal effect of ESG on US domestic institutional ownership as a horizontal line and its 90% confidence interval in the shaded area. Although US institutions prefer high-G firms across many DMs and EMs, the level of the marginal effect of G on foreign US ownership is not as high as its effect on domestic US ownership though the magnitude is similar when expressed as a fraction of the average investment in the respective countries. Also, we find evidence for a positive marginal effect of E and S when US institutions invest in Brazil, Chile, and Taiwan.

Figure 5 presents the marginal effect of ESG on foreign UK institutional ownership, with the marginal effects of ESG on UK domestic institutional ownership as a reference. Like US institutions, UK institutions have a notably higher preference for good governance in domestic firms than in foreign firms with the exception of Ireland and Mexico. The effect of S on UK domestic ownership is also higher than its effect on UK foreign ownership in most markets.

Figure 6 presents the marginal effect of ESG on foreign European institutional ownership. Overall there is stronger evidence for foreign European institutional invstors' ESG preference in DMs compared to EMs. For example, E positively and significantly predicts foreign European institutional ownership in many developed markets, including Austria, Belgium, Canada, Denmark, Italy, Netherlands, Norway, and Portugal, whereas the effect is only positive and significant in one EM, Taiwan.

FIGURE 4 ABOUT HERE

FIGURE 5 ABOUT HERE

FIGURE 6 ABOUT HERE

These marginal effects are tabulated in Table OA.1 in the Online Appendix. Table 3 summarizes the number of DMs and EMs where E, S, and G positively and significantly predict firm-level foreign US, foreign UK, and foreign European institutional ownership. Overall, the marginal effects of ESG on foreign European and foreign UK ownership are positive and significant in more markets than the number for foreign US ownership. In addition, ESG matters more for foreign institutional ownership in more DMs than EMs. These results from double-LASSO estimations serve as a complement to pooled regressions. The rich heterogeneity we discover suggests that institutions have different ESG preferences when they invest in different destination countries. The firm-level analysis fails to reveal a strong ESG preference in domestic investment, except for G. This approach does not directly compare institutions' ESG preference in domestic versus foreign investments. To better understand how ESG affects institutional investors' portfolio allocation at home and abroad, in the next section, we delve down into the more granular institution-firm level data.

IV. ESG and Institutional Investor Portfolio Choice

In this section, we change our perspective from firms to investors and study whether institutional investors tilt their portfolios toward more sustainable firms when they invest at home and abroad. If investors are ESG-aware and use similar ESG strategies at home and abroad, the ESG performance of domestic and foreign firms should predict institutional investors' demand for these assets similarly. However, investors might not have the same ESG strategies or cannot implement one strategy to the same extent across country borders. For example, Groen-Xu and Zeume (2021) show that investors react more negatively to ESG incidents that occur in their domestic countries. Therefore, we emphasize the comparison between institutions' ESG preference in domestic and foreign investments.

We ask whether institutional investors exhibit different degrees of ESG preference in their domestic versus foreign investments. We first perform an exercise at the investor portfolio level. We follow Gibson Brandon, Krueger, and Mitali (2020) and compute portfolio-level ESG scores for a given institution at a given time. We calculate the ESG scores of institutions' sub-portfolios aggregated separately over three investment destinations: the domestic market, foreign DMs, and foreign EMs. The portfolio-level ESG scores of an institutional investor i's investment in destination D is calculated as the USD holding-weighted average ESG scores of its holdings that have ESG available:

$$ESG_{i,t}^{D} = \sum_{f \in \mathcal{D}_{i,t}} \frac{I_{i,f,t}}{\sum_{f \in \mathcal{D}_{i,t}} I_{i,f,t}} \times ESG_{f,t}, D \in \{Dom, DM, EM\} \tag{8}$$

where $ESG_{i,t}^{D}$ is the portfolio ESG score of institution i over its investment destination D, which can be domestic (Dom), foreign DMs (DM), and foreign EMs (EM); $I_{i,f,t}$ is the USD investment by the investor in firm f at time t. $\mathcal{D}_{i,t}$ is the set of stocks with ESG scores from destination D held by investor i at the end of year t, and $ESG_{f,t}$ is the ESG score

of stock f in year t. For each investor i and year t observation, we end up with the ESG scores of its three sub-portfolios: $ESG_{i,t}^{Dom}$, $ESG_{i,t}^{DM}$, $ESG_{i,t}^{EM}$. We restrict our observations to institutions that are above median active (with an active share greater than 0.5), invest globally (with at least 20% of their AUM diversified internationally), and have at least 300 firms in their overall portfolio with valid average ESG scores across the three rating providers.

Figure 2 presents the ESG performance of US, UK, and European institutions' domestic, foreign DM, and foreign EM portfolios. In particular, the figure compares the ESG performance of domestic, foreign DM, and foreign EM portfolios *within* each institution. The upper panels plot the ESG performance of institutions' domestic portfolios against that of their foreign DM portfolios. Each dot is an institution-year observation, and the horizontal and vertical axes represent the ESG scores of their foreign DM and domestic portfolios, respectively. Therefore, if a dot lies above the 45-degree dashed line, the domestic portfolio is more sustainable than the foreign sub-portfolio of the same invstor-year. The lower panels similarly compare the ESG of institutional investors' domestic versus foreign EM portfolios.

Most observations of US institutional investors' domestic portfolio ESG center around a level greater than zero, which exceeds the average ESG of -0.184 for US domestic firms (Table 1). The domestic portfolio ESG of UK and European institutions also tend to exceed the average ESG of their domestic firms at around 0.3. Comparing domestic and foreign portfolios' ESG, the domestic portfolios of most UK and European institutions are more sustainable than their foreign DM and EM portfolios. On the other hand, US institutions hold domestic portfolios with ESG scores lower than their foreign DM portfolios but slightly better than those of their foreign EM portfolios. The better ESG performance of the domestic portfolios of US, UK, and European institutions relative to that of their foreign EM portfolios is likely to be driven by the fact that EM firms, on average, perform worse in ESG compared to DM firms (Table 1). The relatively lower ESG scores of US domestic portfolios and the relatively higher ESG scores of UK and European domestic portfolios also reflect the better

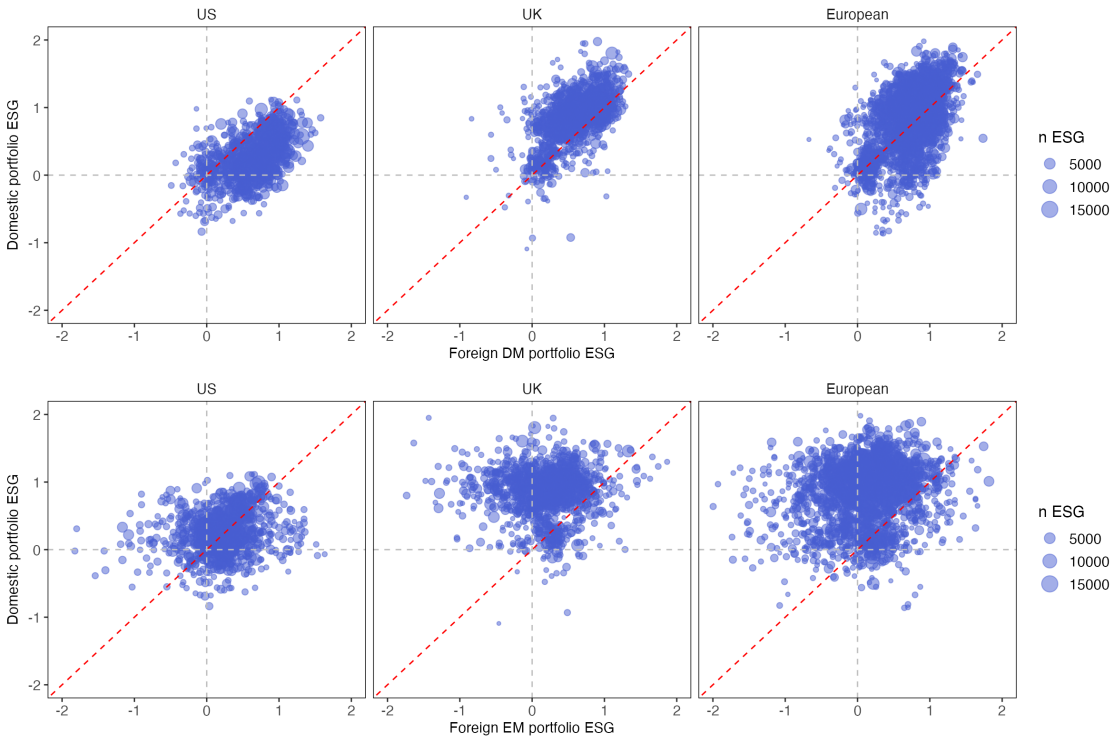

Figure 2. ESG performance of institutional investors' domestic, foreign DM, and foreign EM portfolios.

This figure compares the ESG performance of institutional investors' domestic and foreign portfolios. Each dot is an institution-year observation, the size of which reflects the number of firms in the investor's overall portfolio with average standardized ESG available across three providers (Refinitiv, MSCI, Sustainalytics). The upper panels plot domestic portfolio ESG against that of foreign DM portfolios. The lower panels plot the domestic portfolio ESG against that of foreign EM portfolios. The dashed red line is the 45-degree line crossing the origin.

ESG performance of UK and European firms. This exercise gives us an overview of the ESG performance of institutions' portfolios across investment destinations. To see whether institutions tilt differently towards ESG relative to passive benchmarks at home and abroad, we need to control for firms' size.

To formally test the difference between institutional investors' tilt towards high-ESG firms at home and abroad, we run panel regressions at the institution-firm level of portfolio weights

on ESG.[7]

$$w_{i,f,t} = \beta_1 ESG_{f,t-1} + \beta_2 ESG_{f,t-1} \times \mathbb{I}_{DM} + \beta_3 ESG_{f,t-1} \times \mathbb{I}_{EM} \tag{9}$$
$$+ \gamma_f X_{f,t-1} + \gamma_i X_{i,t-1} + \alpha_{C,t} + FEs + \epsilon_{i,f,t}$$

where $w_{i,f,t}$ is the weight of firm f in investor i's portfolio in year t calculated using USD holdings. $ESG_{f,t-1}$ is firm f's ESG performance at year $t-1$, which can be ESG, E, S, or G. $\mathbb{I}_{DM}$ is a dummy variable that equals one if firm f is domiciled in a foreign DM, and $\mathbb{I}_{EM}$ is a dummy variable that equals one if firm f is located in a foreign EM. Using more granular institution-firm level data and interacting ESG with foreign dummies allow us to test institutional investors' differential preference for ESG when they invest in domestic versus foreign markets. $X_{f,t-1}$ is a vector of firm-level controls, including log market capitalization ($Logmv$), book-to-market ratio (BM), transaction cost (FHT), momentum (Mon), idiosyncratic volatility ($Ivol$), ROE, and Investment ($Invest$). $X_{i,t-1}$ is a vector of institution-level controls, including Log AUM ($Logaum$), active share (AS), churn ratio (CR), and lagged return ($LagRet$).

We include country-year fixed effects $\alpha_{C,t}$ to control for time-varying macroeconomic conditions and characteristics of the destination markets. To mitigate omitted variable bias, we use four combinations of different investor or firm fixed effects (FEs). Our first specification includes the institution fixed effects α_i to control for unobservable institution characteristics. Our second specification controls for firm fixed effects α_f to absorb unobservable firm characteristics. Our third specification includes the investor-firm fixed effects $\alpha_{i,f}$ to absorb geographical, language, or other familiarity preferences by one institution for a given firm. Including firm and firm-institution fixed effects sets a high bar for revealing ESG preference because firm-level ESG scores are persistent over time. In the fourth specification, we include investor-time fixed effects $\alpha_{i,t}$, which absorb time-varying institution characteristics.

[7] See Gibson, Krueger, and Schmidt (2021) for a similar empirical strategy.

Standard errors are clustered at the firm level.

Our main coefficients of interest are β_1, β_2 and β_3. β_1 represents how much institutions tilt their portfolio toward high-ESG firms when they invest at home. Because we control for firms' size ($Logmv$), to some extent, we capture the portfolio ESG tilt with respect to a passive benchmark that uses market capitalization weights. If institutional investors have a preference for good ESG performance at home, we expect β_1 to be positive. β_2 and β_3 measure how much more or less institutional investors tilt toward high ESG firms relative to their domestic investment when they invest in foreign DMs and foreign EMs. Because we control for country-year fixed effects, if β_2 and β_3 are negative, institutions' ESG preference within a given foreign market is weaker than their domestic ESG preference.

Table 4 reports the summary statistics of the institution-firm level regressions, where we also report the summary statistics of institutions' normalized home bias and their portfolio allocations to foreign DMs and foreign EMs as a proportion of their total AUM. All portfolio weights and allocations are expressed in percentage (%) terms. US institutions allocate, on average 11% of their AUM to foreign DMs and only 2% to foreign EMs. In contrast, UK and European institutions invest more than 65% of their total AUM in foreign DMs and more than 5% in foreign EMs. As is explained in Appendix A.III, the normalized home bias takes the value of zero if investors have no home bias and one if investors are fully home-biased. The portfolio allocation across investment destinations is consistent with the higher home bias of US investors (0.789) compared to UK and European institutional investors (around 0.2). Panel B of Table 4 reports the summary statistics of the individual weights of domestic, foreign DM, and foreign EM firms in institutional investors' overall portfolios. The average weight of a domestic firm is also larger than the weight of a foreign firm in the portfolios of US, UK, and European institutions, reflecting their home bias.

Table 5 presents the results of institution-firm level regressions for ESG, E, S, and G. We only report the coefficients of ESG metrics and their interactions with foreign dummies.

For US, UK, and European institutions, we run four specifications: (1) with institution-fixed effects, (2) with firm fixed effects, (3) with institution-firm fixed effects, and (4) with institution-year fixed effects. The full regression results are delegated to Table OA.2-Table OA.5 in the Online Appendix.

First, we find that US, UK, and European institutions tilt their domestic portfolios towards high-ESG firms. Quite impressively, this result is robust across alternative choices of fixed effects. The coefficients of ESG tend to be smaller when we control for firm or investor-firm fixed effects. This is because such specifications capture how change in ESG over time changes investors' investment in a given firm rather than how ESG variations in the cross-section affect investors' portfolio choice in a given year. The relatively muted effect of ESG can be explained by our sample's relatively short time series and the persistence of ESG scores. The only exception is the case of European institutions with institution-firm fixed effects, where the coefficient is negative.European institutions are domiciled in 14 different European countries and could be very heterogeneous. We run the specification with institution-firm fixed effects separately for each European country. The results are reported in Table OA.6 of the Online Appendix. Institutions from major European countries such as France, Germany, and the Netherlands significantly invest more in a domestic firm if its ESG performance improves over time. The effect is muted in their foreign investments as the coefficient of the interaction terms are negative. Since we are interested in how institutions tilt towards high-ESG firms in their portfolio choice, we focus on interpreting the economic magnitude based on the specification with institution-year fixed effects. For US institutions, one standard deviation increase in ESG results in an increase of 1.6 bps ($0.839 \times 0.019\%$) in the portfolio weight of a domestic firm, which is 7% ($\frac{0.016\%}{0.232\%}$) of the average weight of a domestic investment. The economic magnitude is larger for UK institutions. One standard deviation increase in a UK firm's ESG leads to an increase in portfolio weight by 7.5 bps ($0.888 \times 0.084\%$), which is 22% ($\frac{0.075\%}{0.336\%}$) of the average weight of a domestic investment.

For European institutional investors, the effect of a one standard deviation increase in ESG on the weight of domestic investment is an increase by 22 bps ($0.991 \times 0.223\%$), or 22% ($\frac{0.22\%}{1.011\%}$) of the average domestic weight. Table 5 also reports the results when we use E, S, and G sub-metrics. The significance and the economic magnitude of institutional investors' ESG preference at home is consistent and similar across these sub-metrics. In summary, US, UK, and European institutions tilt their domestic portfolio toward high-ESG firms, and such ESG preference is robust across different fixed effects and consistent across performance metrics.

Second, the ESG preference is significantly weaker in foreign DMs and EMs compared to the domestic benchmark. The coefficients of the interaction terms $\mathbb{I}_{DM} \times ESG$ and $\mathbb{I}_{EM} \times ESG$ are significant and negative across all investor groups and specifications except for European institutions with institution-firm fixed effects. The magnitude of these negative coefficients is large enough to revert the positive ESG preference in foreign investments. For US institutions, the effect of one standard deviation increase in a foreign DM firm's ESG is associated with a reduction in its portfolio weight by 4 bps ($0.837 \times (0.19\% - 0.69\%)$)., which is a reduction of -46% ($\frac{-0.04\%}{0.09\%}$) expressed as a percentage of the average portfolio weight in foreign DMs. For a foreign EM firm, the same change would predict a reduction in its portfolio weight by 2 bps ($0.837 \times (0.19\% - 0.047\%)$), which is a reduction of -60% ($\frac{-0.02\%}{0.075\%}$) expressed as a percentage of the average portfolio weight of European institutions in foreign EMs. For UK and European institutional investors, we also find that the coefficients of the interaction terms are significantly negative and large enough in absolute values to offset the domestic ESG preference. The contrast between the ESG preference for domestic and foreign investment is largest for European institutions, which have a stronger ESG preference in their domestic investments. Such asymmetry is consistent across ESG sub-metrics. In summary, we find consistent and strong evidence that US, UK, and European institutional investors do not tilt their portfolios towards high-ESG foreign firms, even though they have

a strong ESG preference at home. We term institutional investors' tendency to tilt towards high-ESG investments at home not abroad as the *"ESG home bias"*.

V. Economic mechanism

In this section, we explore potential economic mechanisms that could explain the "ESG home bias" of institutional investors. If institutional investors' revealed ESG preference differs between domestic and foreign investment, then either it is relatively easier to implement their ESG strategy in one market, or they adopt different ESG strategies at home and abroad. We test three potential mechanisms: information asymmetry, country-level E&S values as a substitute for firm-level ESG performance, and ESG factor-chasing.

A. Information asymmetry and rating disagreement

One obvious reason why it is easier for institutional investors to pursue their ESG strategies at home than abroad is that they are ESG informationally advantaged at home. It is natural to assume that domestic and foreign investors could have different information about the non-financial prospects of domestic stocks. We argue that firms' geographic location or institutions' country of origin may have some bearing on the acquisition of firms' financial and non-financial information. Such asymmetry is particularly relevant to ESG information because the literature has provided strong evidence of disagreement about a firm's ESG performance among ESG providers for both US firms (Chatterji et al., 2016; Gibson, Krueger, and Schmidt, 2021; Avramov et al., 2021) and global firms (Berg, Koelbel, and Rigobon, 2020; Berg et al., 2021; Christensen, Serafeim, and Sikochi, 2022). In particular, if the disagreement is even higher for EM firms, the noisiness of the ESG measures in these markets makes following ESG strategies more complex.[8]

[8]Li and Polychronopoulos, 2020 argues that "the lack of robust data by which ESG ratings are determined is a significant barrier to greater adoption of ESG strategies." Avramov et al., 2021 examine pricing implications

It is *ex-ante* unclear whether institutions have relative ESG information advantages or disadvantages while investing abroad. On the one hand, some studies argue that investors have an information advantage at home. Van Nieuwerburgh and Veldkamp, 2009 model investors that endogenously choose to learn about and specialize in assets in which they have an initial comparative advantage: domestic assets. Other papers provide evidence that foreign investors are better informed than domestic investors. For example, Seasholes, 2004 finds that foreign investors do better than domestic investors in equities of large firms in emerging markets. Kacperczyk, Sundaresan, and Wang, 2021 show that foreign institutional investors improve price efficiency.

Institutional investors' ESG tilt at home and abroad depends on such information advantage. If an investor i is ESG concerned but is at an ESG informational disadvantage in a foreign market relative to their home market, we should see ESG preferences to be associated with i's home investments but not with her cross-border investments. To test the information asymmetry channel, we use the degree of ESG noisiness as a proxy of disagreement about the ESG measure and the complexity of assessing the firm's ESG outcome. We conjecture that the ESG information cost is higher for foreign institutions and firms with greater ESG noisiness. Therefore, our first hypothesis is,

H1 (Information-based channel): Institutional investors' ESG preference is weaker in markets with more noisy ESG information.

We use country-level ESG noisiness σ_C to measure the ease at which foreign investors could process ESG-related information in country C. We first calculate firm-level ESG noisiness, which is explained in Section II, then aggregate across firms and over time at the country level to get the time-invariant country-level ESG noisiness σ_C. Figure 7 presents ESG noisiness for DMs and EMs. On average, ESG information is more noisy in EMs, with

of ESG uncertainty. They also provide empirical evidence that demand for risky assets increases with the ESG score but diminishes with ESG rating uncertainty.

an average ESG uncertainty of about 0.7, compared to DMs, which have an average ESG uncertainty of about 0.6.

FIGURE 7 ABOUT HERE

To test H1, we run the following regression:

$$
\begin{aligned}
w_{i,f,t} = {} & \beta_1 ESG_{f,t-1} + \beta_2 ESG_{f,t-1} \times \mathbb{I}_{DM} + \beta_3 ESG_{f,t-1} \times \mathbb{I}_{EM} \\
& + \eta_1 ESG_{f,t-1} \times \mathbb{I}_{DM} \times \sigma_C + \eta_2 ESG_{f,t-1} \times \mathbb{I}_{EM} \times \sigma_C \\
& + \gamma_f X_{f,t-1} + \gamma_i X_{i,t-1} + \alpha_{C,t} + \alpha_{i,t} + \epsilon_{i,f,t}
\end{aligned} \tag{10}
$$

where we include country-year fixed effects $\alpha_{C,t}$ and institution-year fixed effects $\alpha_{i,t}$.

Table 6 Panel A reports the results of this regression for the US, UK, and European institutions (EU). For US institutions, the coefficients on the interaction terms $ESG \times \mathbb{I}_{DM}$ and $ESG \times \mathbb{I}_{EM}$ are insignificant but the coefficients on the triple interaction terms are both negative and significant. Therefore, US institutions' ESG tilt in a foreign country with no uncertainty in ESG measurement will not be smaller relative to their ESG tilt in domestic firms. Among DMs, ESG uncertainty is the lowest in New Zealand at 0.52 and the highest in Spain at 0.74, and 0.57 in the US. Among EMs, ESG uncertainty is the lowest in Czech Republic at 0.43 and the highest in South Korea at 0.85. Our findings imply that in a country such as Spain, firms will attract 6 bps ($-0.098\% \times 0.837 \times 0.74$) less portfolio allocation from US institutions compared to US firms per unit standard deviation increase in ESG. In a country like South Korea, firms will attract 7 bps ($-0.103\% \times 0.837 \times 0.85$) less portfolio allocation from US institutions compared to US firms per unit standard deviation increase in ESG. We find weak evidence of the role of ESG noisiness for UK institutions. The coefficients on the triple interaction terms are negative but insignificant. For European

institutions, the coefficient on $ESG \times \mathbb{I}_{DM}$ is negative and significant. A European investor will allocate 16 bps ($-0.285\% \times 0.911 \times 0.6$) less in foreign DM firms relative to domestic firms per standard deviation increase in ESG. The coefficient on $ESG \times \mathbb{I}_{EM}$ is negative but insignificant. European countries are heterogeneous regarding their level of economic and financial development and degree of global integration. We run the analysis for each country separately. The results are tabulated in Table OA.7 in the Online Appendix. The coefficients on the triple interaction terms with the foreign DM dummy are negative and significant in four European countries, whereas the triple interaction terms with foreign EM dummies is only negatively significant in France.

B. Country-level ESG awareness as a substitute to firm-level ESG

When they invest internationally, institutions could consider sustainability awareness at the country level rather than at the firm level. The preference for high ESG firms when these are based at home but not abroad could then result from the substitution between corporate sustainability and country sustainability. Similar to the "bonding hypothesis" (see Coffee Jr, 2002), corporate environmental, social, and governance attributes may play a stronger bonding role in countries with lower sustainability values. Doidge, Karolyi, and Stulz, 2007 argue that countries' state investor protection influences the costs that firms incur to bond themselves to good governance and the benefits from doing so. To test whether the link between institution portfolio weights and a firm's ESG performance is dependent on country sustainability values, we postulate the following null hypothesis,

H2 (Country-level values as a substituting mechanism): The relationship between institution portfolio weights and firms' ESG performance does not vary with the strength of the host country sustainability values.

The rejection of this hypothesis and the identification of a weaker ESG tilt in a highly sustainability-aware country would suggest the existence of a substitute relationship between

firm and country ESG outcome. We use the World Value Survey E&S Index in Dyck et al., 2019 to measure a country's awareness of sustainability issues. Figure 8 shows the E&S values for DMs and EMs.

FIGURE 8 ABOUT HERE

Our specification is:

$$\begin{aligned} w_{i,f,t} = {} & \beta_1 ESG_{f,t-1} + \beta_2 ESG_{f,t-1} \times \mathbb{I}_{DM} + \beta_3 ESG_{f,t-1} \times \mathbb{I}_{EM} \\ & + \theta_1 ESG_{f,t-1} \times \mathbb{I}_{DM} \times Value_C + \theta_2 ESG_{f,t-1} \times \mathbb{I}_{EM} \times Value_C \\ & + \gamma_f X_{f,t-1} + \gamma_i X_{i,t-1} + \alpha_{C,t} + \alpha_{i,t} + \epsilon_{i,f,t} \end{aligned} \tag{11}$$

where $Value_C$ is the country-level World Value E&S Index of country C. We include country-year fixed effects $\alpha_{C,t}$ and institution-year fixed effects $\alpha_{i,t}$.

Table 6 panel B reports the results of this regression for US, UK, and European institutions. For US institutions, the coefficients on the double interaction terms are insignificant. But the coefficient on the triple interaction term $ESG \times \mathbb{I}_{DM} \times Value_C$ is negative and significant, implying a weaker ESG tilt in a highly sustainability-aware foreign DM. In DMs, $Value_C$ ranges between 0.38 for Singapore and 0.71 for Sweden, and it is 0.53 in US. In EMs, $Value_C$ ranges between 0.34 for India and 0.51 for the Czech Republic. The effect of one standard deviation increase in ESG on investment allocation by US institutions in firms based in a country like Sweden is 6 bps ($-0.099\% \times 0.837 \times 0.71$) less than the effect of the same change on their allocation to domestic firms. For European institutions, the coefficients on the double interaction terms are negative and significant. Also, the coefficients on the triple interaction terms are negative and significant. Hence, European institutions seem to have a stronger ESG tilt within their investment in domestic firms than foreign firms in a hypothetical destination

market with an E&S Value Index of zero. The bias widens by 15 bps ($-0.225\% \times 0.911 \times 0.71$) for firms based in a country with high E&S norms like Sweden.

To see which of the two explanations dominates, information or country-level awareness, we also run the following specification that includes both noisiness and value:

$$\begin{aligned} w_{i,f,t} = &\beta_1 ESG_{f,t-1} + \beta_2 ESG_{f,t-1} \times \mathbb{I}_{DM} + \beta_3 ESG_{f,t-1} \times \mathbb{I}_{EM} \\ &+ \eta_1 ESG_{f,t-1} \times \mathbb{I}_{DM} \times Value_C + \eta_2 ESG_{f,t-1} \times \mathbb{I}_{EM} \times Value_C \\ &+ \theta_1 ESG_{f,t-1} \times \mathbb{I}_{DM} \times \sigma_C + \theta_2 ESG_{f,t-1} \times \mathbb{I}_{EM} \times \sigma_C \\ &+ \gamma_f X_{f,t-1} + \gamma_i X_{i,t-1} + \alpha_{C,t} + \alpha_{i,t} + \epsilon_{i,f,t} \end{aligned} \tag{12}$$

Table 6 Panel C reports the results of this regression. The coefficients on the triple interaction terms with σ_C retain their sign, significance, and size for US, UK, and EU institutions. The coefficient on the triple interaction term $ESG_{f,t-1} \times \mathbb{I}_{DM} \times Value_C$ retains its sign, significance, and size. But the coefficient on $ESG_{f,t-1} \times \mathbb{I}_{EM} \times Value_C$ loses its marginal significance for both US and European institutions. This suggests that ESG uncertainty dominates ESG value as a more important channel that explains differential ESG preference across investment destinations.

C. ESG Factor-chasing

A large body of literature examined the relationship between a firm's ESG performance and stock returns with mixed evidence. Hong and Kacperczyk, 2009 show that stocks belonging to sin industries (alcohol, tobacco, and gaming) outperform similar stocks from other industries. Bolton and Kacperczyk, 2021 find a significant carbon risk premium with high-emission stocks outperforming low-emission ones. Pedersen, Fitzgibbons, and Pomorski, 2021 find weak return predictability of the overall ESG rating. (Pástor, Stambaugh, and Taylor, 2021; Pastor, Stambaugh, and Taylor, 2021) provide theoretical and empirical validation for an ESG risk

factor that captures investors' tastes for green assets and shows U.S. green stocks outperform brown ones as climate concerns strengthened.

To test the ESG factor chasing hypothesis, We run pooled predictive regressions at the institution portfolio level. We regress investor sub-portfolio excess returns on lagged portfolio ESG scores and the Fama-French four factors that correspond to each sub-portfolio.[9]. For US investors, we use the US factors for their domestic portfolio. For UK and European investors, we use European factors for their domestic portfolios. We use developed market (emerging market) factors for the foreign DM (foreign EM) portfolios of all institutions.

$$Ret_{i,t}^{Dom,DM,EM} = \alpha + \beta_1 ESG_{i,t-1} + \beta_2 X_{i,t-1} + \beta_3 Ret_{M,t} + \beta_4 SMB_t + \beta_5 HML_t + \beta_6 HML_t + \beta_7 WML_t + \epsilon_{i,t} \quad (13)$$

$Ret_{i,t}$ is the portfolio excess return of the investor i. All of the portfolio returns and Fama French factor returns are in US dollar terms. $X_{i,t-1}$ is a vector of institution-level controls, including log AUM ($logaum$), active share (AS), and churn ratio (CR). All specifications include investor-fixed effects. Adriaan Boermans and Galema, 2023b use a similar approach to test whether differential carbon premiums explain the carbon home bias they uncover for European investors. The coefficient β_1 on $ESG_{i,t-1}$ could be interpreted as the ESG factor return (see Lioui and Tarelli, 2022).

Table 7 reports results for the ESG factor-chasing channel. Excess returns are negatively and significantly related to the portfolio's ESG scores for US and European institutions but not for UK institutions. For US institutions, a one-standard deviation increase in US firms' ESG score is associated with 2.7% ($0.837 \times 0.008 \times 4$) lower domestic portfolio returns per annum. The ESG factor discount is about 1.7% per annum for their foreign DM portfolio and 5.4% per annum for their foreign EM portfolio. The ESG factor discount on the foreign EM portfolio is double the domestic ESG factor discount and could explain, to some extent,

[9]The Fama-French factors are from Kenneth French's website (French, 2023)

the ESG home bias for US institutions.

For European institutions, the coefficient on ESG is negative and significant for the three portfolios and is of similar size. The magnitude of the ESG factor discount at home is about 2.0% ($0.911 \times 0.005 \times 4$) on an annual basis, which is similar to the annual ESG factor discount in foreign DMs at 1.6% and the annual discount in foreign DMs at 2.4%. Therefore, the ESG factor discount does not seem to explain the ESG home bias for European institutions.

The predictive regressions of portfolio returns on lagged portfolio ESG scores show evidence of an ESG factor discount. Interestingly, the ESG factor discount is of comparable size for US domestic and foreign DM portfolios and for European domestic and foreign DM portfolios. If markets are integrated, we would expect the ESG factor to be priced similarly. The different pricing of ESG for the EM foreign portfolio is consistent with the partial segmentation of EMs.

VI. Conclusion

We study how ESG performance affects US, UK, and European institutional investors' portfolio allocation within different investment destinations. We contribute to the existing literature by showing that institutional investors exhibit a stronger ESG preference for high ESG firms when they invest at home than abroad. We perform a series of analyses to answer these questions. First, we study how firm-level institutional ownership is affected by ESG performance. Our country-by-country double LASSO estimation reveals rich heterogeneity in firm-level variables that determine ESG performance and those that determine institutional ownership. Second, we perform firm-institution level analysis to study how institutional portfolio weight is affected by ESG. We find that institutional investors tilt towards high ESG firms only when they invest at home not abroad. We term this lack of ESG preference in foreign investment as the ESG home bias. The ESG home bias is the strongest among Euro-

pean institutional investors. Third, we study how ESG affects institutional investors' portfolio rebalancing during normal and crisis periods. We find that institutional investors are more patient towards high-ESG firms when they invest at home but less patient with their foreign investment, even if foreign firms have good ESG performance. Institutional investors are even less patient during crisis periods, meaning that good ESG performance does not slow down capital outflows.

Appendices

A. Data construction

We start constructing our stock universe with companies from 48 countries that are covered in the FTSE All-World Index.

I. WorldScope stock universe

We retrieve WorldScope (WS) country lists of 48 markets and apply the standard filters in the literature as in Griffin, Kelly, and Nardari, 2010 and Chaieb, Langlois, and Scaillet, 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, Kelly, and Nardari, 2010 and Chaieb, Langlois, and Scaillet, 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, Langlois, and Scaillet, 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 Table A1. 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, Langlois, and Scaillet, 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 A1 Definition and sources of variables

Variable	**Definition**
Panel A: Firm-level ownership	
IO^{Dom}	Domestic institutional ownership
IO^{US}	Foreign US institutional ownership
IO^{UK}	Foreign UK institutional ownership

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Variable	Definition
IO^{EU}	Foreign institutional ownership by institutions from Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Italy, Netherlands, Norway, Portugal, Spain, Sweden and Switzerland.
Panel B: 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
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, Holden, and Trzcinka, 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.

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Variable	Definition
Amihud	Monthly Amihud, 2002 illiquidity measure averaged over 12 months calculated using Compustat Global returns in local currency. $Amihud = Average\left(\frac{\lvert r_t \rvert}{Dollar\ Volume_t}\right)$, where r_t is the stock return on day t and $DollarVolume_t$ is the US dollar value of volume on day t and the average is computed over positive volume days.
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).
Invest	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).
PPE	Ratio of property, plant and equipment (WC02501) to total assets (WC02999)
PE	Price to earnings ratio P/EPS

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Variable	Definition
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).

Panel C: Firm-level ESG ratings

ESG	The average of available standardized ESG scores across Refinitiv (TRESGS), MSCI (Weighted_Average_Score), and Sustainalytics (ESG_Risk_Score)
E	The average of available standardized E scores across Refinitiv (ENSCORE), MSCI (Environmental_Pillar_Score), and Sustainalytics (Environmental_Risk_Score)
S	The average of available standardized S scores across Refinitiv (SOSCORE), MSCI (Social_Pillar_Score), and Suatainalytics (Social_Risk_Score)
G	The average of available standardized G scores across Refinitiv (CGSCORE), MSCI (Governance_Pillar_Score), and Sustainalytics (Governance_Risk_Score).

II. FactSet ownership

FactSet contains two sources of ownership information: from 13F reports and from fund reports. For 13F holdings, we follow Koijen, Richmond, and Yogo, 2022 and exclude two FactSet entity identifiers (0FSVG4-E and 000V4B-E), which contain known errors in com-

parison with the EDGAR13F filings. For fund-level holdings, we remove holdings by FactSet fund 04B9J7-E in security C7R70B-S, which clearly contains an outlier. We follow Ferreira and Matos, 2008 and merge holdings from these two sources at the FactSet institution level (buy or sell-side institutions as defined by FactSet), which gives us a panel of institution-security-quarter holdings by institutional investors.

III. Institution-level control variables and filters

For each investor i, we calculate its active share as the sum of absolute deviations of its portfolio from a market-weighted portfolio, based on the same securities as the ones held by the investor, divided by two.[10]

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

where $\omega_{i,f,t}$ is the weight of investment in firm f in investor i's portfolio, $\omega_{f,t} = \frac{M_f}{\sum_{k \in \mathcal{C}_i} M_k}$ is the market-capitalization weight of security j in investor i's choice set $\mathcal{C}_i$.

We calculate the Herfindahl-Hirschman Index (HHI) of investor i's portfolio at time t as:

$$HHI_{i,t} = \sum_{f \in \mathcal{C}_i} \omega_{i,f,t}^2$$

We follow Gaspar, Massa, and Matos, 2005 and calculate the churn ratio of an institution i at time t:

$$CR_{i,t} = \frac{\sum_{f \in \mathcal{C}_i} |N_{f,i,t}P_{f,t} - N_{f,i,t-1}P_{i,t-1} - N_{f,i,t-1}\Delta P_{f,t}|}{\sum_{f \in \mathcal{C}_i} (N_{f,i,t}P_{f,t} + N_{f,i,t-1}P_{f,t-1})/2}$$

where $\mathcal{C}_i$ is the set of securities held by investor i and $N_{f,i,t}$ is the number of firm f held by

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

investor i at time t. Our regression analyses use the moving average churn ratio over the past four quarters. We follow Starks, Venkat, and Zhu, 2023 and calculate the churn ratio for a given investor quarter as the moving-average churn ratio of the four trailing quarters. Lastly, we calculate the past-year return $LagRet_{i,t}$ of an institution as the value-weighted return of securities in its portfolio over the past 12 months.

We calculate the normalized home bias of institutional investors as:

$$HB_{i,t}^{norm} = \frac{\omega_{i,C_i,t} - \omega_{C_i,t}}{1 - \omega_{C_i}}$$

where $\omega_{i,C_i,t}$ is institution i's actual portfolio weight in its home country at time t, and $\omega_{C_i,t}$ is the market capitalization weight of investor i's home country in the world market portfolio at time t. When the investor has no home bias, $\omega_{i,C_i,t} = \omega_{C_i,t}$, then $HB^{norm} = 0$. When the investor is fully home-biased, $\omega_{i,C_i,t} = 1$, $HB^{norm} = 1$.

We apply the following filters as in (Camanho, Hau, and Rey, 2022) to our institution-quarter observations to limit the role of reporting errors:

- Keep only global portfolios with more than five domestic securities and more than five foreign securities.
- Keep investors that are not too small and not too concentrated (HHI less than 20%)
- AUM needs to be larger than 10 million USD
- Keep only investors with at least two periods of consecutive reports in FactSet.

B. Rigorous-LASSO variable selection

This section 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,

$$\hat{\boldsymbol{\beta}} = \arg\min_{\beta} \sum_{i=1}^{n}\sum_{t=1}^{T}(y_{it} - \sum_{j=1}^{p} x_{ijt}\beta_j)^2 + \lambda \sum_{j=1}^{p} |\beta_j|\psi_j. \tag{14}$$

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.

$$\begin{aligned} &\lambda = 2c\sqrt{nT}\Phi^{-1}(1-\gamma/(2p)) \\ &c = 1.1, \quad \gamma = \frac{0.1}{log(n)}. \end{aligned} \tag{15}$$

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 being chosen will be higher than a conventional confidence level. Cluster-LASSO is a data-dependent way of choosing the penalty loadings:

$$\begin{aligned} \psi_j &= \sqrt{\frac{1}{nT}\sum_{i=1}^{n} u_{ij}^2} \\ u_{ij} &= \sum_{t=1}^{T} x_{ijt}\epsilon_{it}. \end{aligned} \tag{16}$$

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 loadings

until convergence.

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Table 1 Summary statistics of firm-level analyses

This table reports mean, standard deviation, 10th percentile, median, 90th percentile, and number of observations (N) of variables for the sample of firm-year observations from the perspective US, UK, and European institutional investors. Panel A reports the summary statistics of institutional ownership (IO) and ESG measures for domestic, foreign DM firms, and foreign EM firms. Panel B reports the summary statistics for firm-level control variables for US, non-US DM firms and EM firms. All variables are as defined in Table A1 in Appendix A. The sample period is from 2000 to 2020.

Panel A: Institutional Ownership and ESG

US

	Dom					**DM**					**EM**				
	mean	sd	p10	p50	p90	mean	sd	p10	p50	p90	mean	sd	p10	p50	p90
IO	0.712	0.227	0.398	0.769	0.935	0.084	0.118	0.006	0.054	0.167	0.047	0.062	0.001	0.032	0.104
E	-0.247	0.774	-1.123	-0.358	0.874	0.102	0.872	-1.035	0.053	1.306	-0.141	0.791	-1.148	-0.187	0.928
S	-0.124	0.764	-1.047	-0.168	0.862	0.036	0.879	-1.091	0.020	1.185	-0.233	0.909	-1.389	-0.271	0.971
G	-0.056	0.837	-1.159	-0.017	0.999	0.042	0.838	-1.075	0.069	1.115	-0.216	0.850	-1.334	-0.198	0.897
ESG	-0.184	0.786	-1.115	-0.262	0.888	0.122	0.909	-1.057	0.083	1.353	-0.249	0.888	-1.345	-0.288	0.932
N	20114					30397					10499				

UK

	Dom					**DM**					**EM**				
	mean	sd	p10	p50	p90	mean	sd	p10	p50	p90	mean	sd	p10	p50	p90
IO	0.211	0.137	0.027	0.198	0.396	0.026	0.032	0.001	0.016	0.061	0.016	0.027	0.000	0.006	0.044
E	0.189	0.812	-0.844	0.120	1.349	-0.060	0.853	-1.103	-0.157	1.151	-0.141	0.791	-1.148	-0.187	0.928
S	0.188	0.825	-0.837	0.196	1.227	-0.049	0.837	-1.085	-0.092	1.054	-0.233	0.909	-1.389	-0.271	0.971
G	0.321	0.821	-0.739	0.359	1.305	-0.029	0.834	-1.131	-0.002	1.042	-0.216	0.850	-1.334	-0.198	0.897
ESG	0.309	0.837	-0.758	0.277	1.436	-0.031	0.873	-1.104	-0.103	1.172	-0.249	0.888	-1.345	-0.288	0.932
N	4622					45889					10499				

European

	Dom					**DM**					**EM**				
	mean	sd	p10	p50	p90	mean	sd	p10	p50	p90	mean	sd	p10	p50	p90
IO	0.073	0.086	0.002	0.045	0.175	0.027	0.024	0.002	0.022	0.055	0.016	0.019	0.000	0.010	0.038
E	0.351	0.868	-0.867	0.393	1.470	-0.132	0.821	-1.123	-0.238	1.036	-0.141	0.791	-1.148	-0.187	0.928

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S	0.348	0.907	-0.864	0.382	1.485	-0.120	0.794	-1.097	-0.151	0.905	-0.233	0.909	-1.389	-0.271	0.971
G	0.205	0.842	-0.934	0.260	1.262	-0.046	0.831	-1.140	-0.020	1.016	-0.216	0.850	-1.334	-0.198	0.897
ESG	0.454	0.923	-0.773	0.461	1.652	-0.111	0.826	-1.128	-0.170	1.010	-0.249	0.888	-1.345	-0.288	0.932
N	9947					40564					10499				

Panel B: Firm Characteristics

	US					**DM(ex-US)**					**EM**				
	mean	sd	p10	p50	p90	mean	sd	p10	p50	p90	mean	sd	p10	p50	p90
Logmv	21.777	1.642	19.693	21.762	23.882	21.593	1.570	19.655	21.598	23.570	21.705	1.436	19.796	21.798	23.416
FHT	0.001	0.002	0.000	0.000	0.002	0.003	0.006	0.000	0.001	0.006	0.003	0.004	0.000	0.002	0.008
Mom	0.145	0.423	-0.319	0.102	0.617	0.108	0.410	-0.345	0.074	0.563	0.105	0.439	-0.344	0.034	0.599
Ivol	0.042	0.019	0.022	0.038	0.069	0.040	0.019	0.022	0.035	0.065	0.042	0.020	0.023	0.038	0.064
BM	0.468	0.384	0.117	0.372	0.913	0.707	0.645	0.182	0.538	1.371	0.826	1.030	0.145	0.546	1.692
ROE	0.051	0.443	-0.278	0.109	0.324	0.102	0.267	-0.072	0.103	0.286	0.129	0.354	-0.008	0.123	0.308
Invest	0.095	0.102	0.017	0.064	0.205	0.069	0.062	0.011	0.054	0.142	0.063	0.051	0.010	0.051	0.131
N	20114					30397					10499				

Table 2 Does ESG predict firm-level institutional ownership?

This table reports the annual pooled regression of firm-level institutional ownership by US, UK, and European institutions in domestic, foreign DM and foreign EM firms on ESG from 2000-2020. All specifications include country-time fixed effects $\alpha_{C,t}$ and firm-level control variables. Standard errors are clustered at the firm level. t statistics in parentheses. * p<0.10, ** p<0.05, *** p<0.010.

$$IO_{f,t} = \beta_1 \mathcal{S}_{f,t-1} + X_{f,t-1}\beta + \alpha_{C,t},\ \mathcal{S} \in \{ESG,\ E,\ S,\ G\}$$

	Dom				DM				EM			
Panel A:US institutions												
ESG	0.009*				-0.001				0.005***			
	(1.653)				(-0.450)				(3.430)			
E		-0.006				-0.004**				0.000		
		(-1.138)				(-2.125)				(0.011)		
S			0.003				-0.001				0.002	
			(0.624)				(-0.709)				(1.600)	
G				0.027***				0.003**				0.010***
				(6.066)				(2.028)				(6.909)
Adjusted R^2	0.112	0.101	0.104	0.113	0.321	0.322	0.321	0.321	0.172	0.162	0.157	0.173
Observations	21131	20870	20132	20129	33148	31379	30407	30409	12403	10500	10449	10449
Panel B: UK institutions												
ESG	0.008				0.001***				0.003***			
	(1.635)				(3.896)				(5.295)			
E		-0.002				0.001***				0.001*		
		(-0.309)				(3.001)				(1.922)		
S			0.003				-0.000				0.002***	
			(0.658)				(-0.031)				(3.264)	
G				0.016***				0.002***				0.005***
				(3.527)				(6.444)				(6.863)
Adjusted R^2	0.259	0.257	0.243	0.250	0.185	0.180	0.181	0.183	0.183	0.164	0.163	0.180
Observations	5134	5041	4628	4628	49145	47208	45911	45910	12403	10500	10449	10449
Panel C: European institutions												
ESG	0.002				0.002***				0.002***			
	(1.004)				(7.495)				(5.455)			
E		-0.003				0.002***				0.001*		
		(-1.459)				(5.397)				(1.834)		
S			-0.001				0.001***				0.001**	
			(-0.415)				(3.809)				(2.506)	
G				0.008***				0.002***				0.003***
				(4.808)				(7.357)				(7.083)
Adjusted R^2	0.469	0.493	0.493	0.499	0.251	0.246	0.243	0.246	0.202	0.198	0.196	0.208
Observations	10787	10219	9947	9948	43492	42030	40592	40590	12403	10500	10449	10449

Table 3 Number of countries in which the marginal effect of ESG on foreign US, foreign UK, and foreign European institutional ownership is positive and significant at the 5% level.

	US		**UK**		**Europe**	
	DM	EM	DM	EM	DM	EM
E	4	3	9	5	13	4
S	12	7	10	7	16	5
G	7	6	4	4	8	2

Table 4 Summary statistics of institution-firm level portfolio weight regressions

This table reports the summary statistics of the panel regression of annual institution-firm portfolio weight for US, UK, and European institutional investors. We also report the summary statistics for the normalized home bias (HB^{norm}), percentage of total AUM allocated to foreign DMs ($Alloc_{DM}$), and percentage of total AUM allocated to foreign EMs ($Alloc_{EM}$). Portfolio weights and allocations are reported in percentage (%) terms.

	US					UK					Europe				
	Mean	SD	P10	P50	P90	Mean	SD	P10	P50	P90	Mean	SD	P10	P50	P90
Panel A: Summary statistics of regression variables															
w_f	0.195	0.605	0.000	0.022	0.493	0.159	0.500	0.000	0.014	0.382	0.258	0.708	0.001	0.032	0.677
$\mathbb{I}_{DM}$	0.206	0.404	0.000	0.000	1.000	0.737	0.440	0.000	1.000	1.000	0.840	0.366	0.000	1.000	1.000
$\mathbb{I}_{EM}$	0.040	0.195	0.000	0.000	0.000	0.110	0.313	0.000	0.000	1.000	0.073	0.261	0.000	0.000	0.000
HB^{norm}	0.789	0.266	0.494	0.892	0.964	0.218	0.224	-0.006	0.147	0.552	0.249	0.210	0.015	0.204	0.546
$Alloc_{DM}$	11.203	13.425	2.267	6.356	25.480	65.847	20.899	36.589	67.995	90.922	69.062	19.513	41.635	72.629	91.249
$Alloc_{EM}$	1.942	5.087	0.000	0.202	5.127	9.371	10.725	0.518	5.781	21.429	5.387	8.691	0.000	2.195	13.645
ESG	0.107	0.837	-0.928	0.036	1.243	0.252	0.888	-0.890	0.221	1.441	0.439	0.911	-0.773	0.455	1.631
E	0.036	0.854	-1.045	-0.043	1.227	0.212	0.876	-0.937	0.186	1.396	0.394	0.883	-0.842	0.441	1.530
S	0.074	0.783	-0.885	0.031	1.107	0.174	0.835	-0.877	0.159	1.261	0.331	0.856	-0.772	0.335	1.433
G	0.096	0.766	-0.928	0.148	1.043	0.137	0.793	-0.915	0.180	1.131	0.217	0.790	-0.825	0.257	1.201
$Logmv$	8.909	1.586	6.906	8.859	11.018	8.849	1.489	6.982	8.791	10.856	9.292	1.403	7.550	9.233	11.183
FHT	0.001	0.002	0.000	0.000	0.002	0.001	0.003	0.000	0.001	0.003	0.001	0.002	0.000	0.000	0.002
Mom	0.155	0.418	-0.237	0.117	0.539	0.142	0.418	-0.256	0.106	0.536	0.139	0.392	-0.246	0.108	0.515
$Ivol$	0.035	0.017	0.019	0.030	0.056	0.035	0.016	0.019	0.031	0.054	0.032	0.015	0.018	0.029	0.050
BM	0.515	0.642	0.128	0.406	0.980	0.598	0.631	0.149	0.458	1.143	0.591	1.362	0.153	0.456	1.119
ROE	0.183	4.590	-0.025	0.129	0.337	0.183	2.999	0.003	0.130	0.325	0.186	2.928	0.015	0.135	0.323
$Invest$	0.069	0.081	0.002	0.051	0.150	0.062	0.071	0.002	0.048	0.135	0.062	0.065	0.001	0.050	0.131
$Logaum$	8.728	2.359	5.487	8.850	11.565	9.278	1.893	6.692	9.594	11.395	7.890	2.067	4.925	8.130	10.462
AS	0.468	0.159	0.276	0.473	0.666	0.519	0.130	0.358	0.519	0.688	0.520	0.144	0.327	0.525	0.697
CR	0.216	0.190	0.055	0.162	0.459	0.197	0.141	0.076	0.172	0.320	0.188	0.099	0.079	0.170	0.311
$LagRet$	0.100	0.157	-0.075	0.118	0.279	0.085	0.184	-0.134	0.104	0.282	0.084	0.193	-0.145	0.097	0.292
N	8366441					1595420					3413548				
Panel B: Summary statistics of portfolio weights by destination															
$w_{f\in Dom}$	0.232	0.658	0.001	0.035	0.612	0.336	0.785	0.002	0.055	0.935	1.011	1.582	0.022	0.414	2.705
$w_{f\in DM}$	0.090	0.402	0.000	0.005	0.169	0.136	0.438	0.000	0.013	0.320	0.196	0.518	0.001	0.028	0.515
$w_{f\in EM}$	0.039	0.224	0.000	0.002	0.053	0.068	0.268	0.000	0.004	0.146	0.075	0.290	0.001	0.009	0.154

Table 5 Do institutions tilt their portfolios toward high-ESG firms at home and abroad?

$$w_{i,f,t} = \beta_1 ESG_{f,t-1} + \beta_2 ESG_{f,t-1} \times \mathbb{I}_{DM} + \beta_3 ESG_{f,t-1} \times \mathbb{I}_{EM} + \gamma_f X_{f,t-1} + \gamma_i X_{i,t-1} + \epsilon_{i,f,t}$$

All specifications include country-time fixed effects. $X_{f,t-1}$ controls for firm characteristics and $X_{i,t-1}$ controls for institution characteristics. The coefficients of control variables are not reported here but delegated to the Online Appendix Table OA.2-Table OA.5. Standard errors are clustered at the firm level. * p<0.10, ** p<0.05, *** p<0.010.

	US				**UK**				**Europe**			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
ESG	0.019**	0.007	0.012**	0.019**	0.087***	0.052***	0.062***	0.084***	0.227***	0.216***	-0.039**	0.223***
	(2.431)	(1.126)	(2.076)	(2.394)	(3.876)	(2.580)	(2.971)	(3.782)	(8.204)	(8.246)	(-2.453)	(8.180)
$\mathbb{I}_{DM} \times ESG$	-0.070***	-0.011*	-0.015**	-0.069***	-0.104***	-0.053***	-0.059***	-0.100***	-0.246***	-0.235***	0.055***	-0.243***
	(-6.398)	(-1.852)	(-2.504)	(-6.391)	(-4.197)	(-2.608)	(-2.765)	(-4.114)	(-8.219)	(-8.297)	(3.536)	(-8.188)
$\mathbb{I}_{EM} \times ESG$	-0.049***	-0.011*	-0.015***	-0.047***	-0.100***	-0.054***	-0.065***	-0.095***	-0.251***	-0.223***	0.031*	-0.245***
	(-5.131)	(-1.846)	(-2.599)	(-4.970)	(-4.146)	(-2.643)	(-3.069)	(-4.044)	(-8.591)	(-8.424)	(1.934)	(-8.526)
Adjusted R^2	0.229	0.195	0.715	0.251	0.335	0.239	0.695	0.371	0.380	0.304	0.714	0.414
Observations	8564278	8564102	7881085	8566790	1644339	1643951	1541276	1644513	3489053	3488578	3246110	3490190
E	0.019***	-0.000	0.006	0.018***	0.091***	0.034*	0.042**	0.087***	0.237***	0.228***	-0.028	0.232***
	(2.872)	(-0.014)	(0.874)	(2.787)	(4.849)	(1.681)	(1.961)	(4.778)	(8.391)	(8.355)	(-0.975)	(8.325)
$\mathbb{I}_{DM} \times E$	-0.070***	-0.004	-0.009	-0.069***	-0.106***	-0.031	-0.037*	-0.102***	-0.262***	-0.248***	0.038	-0.257***
	(-8.252)	(-0.632)	(-1.354)	(-8.281)	(-4.841)	(-1.519)	(-1.697)	(-4.774)	(-8.636)	(-8.632)	(1.372)	(-8.568)
$\mathbb{I}_{EM} \times E$	-0.048***	-0.003	-0.008	-0.046***	-0.104***	-0.035*	-0.041*	-0.100***	-0.261***	-0.232***	0.023	-0.255***
	(-6.444)	(-0.406)	(-1.239)	(-6.314)	(-4.976)	(-1.709)	(-1.903)	(-4.905)	(-8.794)	(-8.454)	(0.787)	(-8.682)
Adjusted R^2	0.229	0.195	0.715	0.252	0.335	0.239	0.695	0.371	0.380	0.304	0.714	0.415
Observations	8505800	8505687	7834219	8508311	1627591	1627340	1528427	1627765	3469719	3469412	3232785	3470855
S	0.019**	0.008**	0.011***	0.018**	0.086***	0.051***	0.056***	0.082***	0.219***	0.214***	-0.007	0.214***
	(2.445)	(2.033)	(3.086)	(2.373)	(3.279)	(3.020)	(3.114)	(3.197)	(6.668)	(6.728)	(-0.473)	(6.574)
$\mathbb{I}_{DM} \times S$	-0.066***	-0.013***	-0.015***	-0.065***	-0.101***	-0.053***	-0.054***	-0.097***	-0.240***	-0.234***	0.017	-0.235***
	(-6.546)	(-2.673)	(-3.490)	(-6.541)	(-3.599)	(-3.159)	(-3.006)	(-3.518)	(-6.876)	(-6.764)	(1.204)	(-6.773)
$\mathbb{I}_{EM} \times S$	-0.044***	-0.009**	-0.011***	-0.042***	-0.096***	-0.049***	-0.054***	-0.092***	-0.240***	-0.215***	0.004	-0.234***
	(-4.935)	(-2.090)	(-2.813)	(-4.795)	(-3.524)	(-2.863)	(-2.957)	(-3.439)	(-7.082)	(-6.755)	(0.275)	(-6.961)
Adjusted R^2	0.229	0.196	0.719	0.251	0.336	0.236	0.699	0.372	0.381	0.304	0.715	0.416
Observations	8368266	8368162	7701669	8370692	1595642	1595390	1497099	1595810	3413838	3413533	3178855	3414770
G	0.007	0.006	0.009**	0.007	0.072***	0.032**	0.034**	0.070***	0.222***	0.200***	0.015	0.219***

Continue on the next page

	US				UK				Europe			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	(1.260)	(1.328)	(1.982)	(1.246)	(2.961)	(2.331)	(2.424)	(2.919)	(7.414)	(7.181)	(0.957)	(7.385)
$\mathbb{I}_{DM} \times G$	-0.043***	-0.005	-0.008*	-0.043***	-0.081***	-0.034**	-0.033**	-0.079***	-0.229***	-0.215***	-0.007	-0.227***
	(-4.688)	(-1.048)	(-1.685)	(-4.734)	(-3.183)	(-2.470)	(-2.287)	(-3.151)	(-7.345)	(-7.289)	(-0.469)	(-7.317)
$\mathbb{I}_{EM} \times G$	-0.017**	-0.007	-0.010**	-0.016**	-0.076***	-0.036**	-0.039***	-0.074***	-0.231***	-0.202***	-0.017	-0.227***
	(-2.377)	(-1.611)	(-2.278)	(-2.232)	(-3.071)	(-2.561)	(-2.665)	(-3.031)	(-7.558)	(-7.220)	(-1.117)	(-7.520)
Adjusted R^2	0.228	0.196	0.719	0.251	0.335	0.236	0.699	0.371	0.380	0.302	0.715	0.414
Observations	8368051	8367947	7701418	8370477	1595640	1595389	1497093	1595808	3413844	3413540	3178855	3414776
Inst FE	✓				✓				✓			
Firm FE		✓				✓				✓		
Inst-Firm FE			✓				✓				✓	
Inst-Time FE				✓				✓				✓

Table 6 The ESG Home Bias: Economic Mechanisms

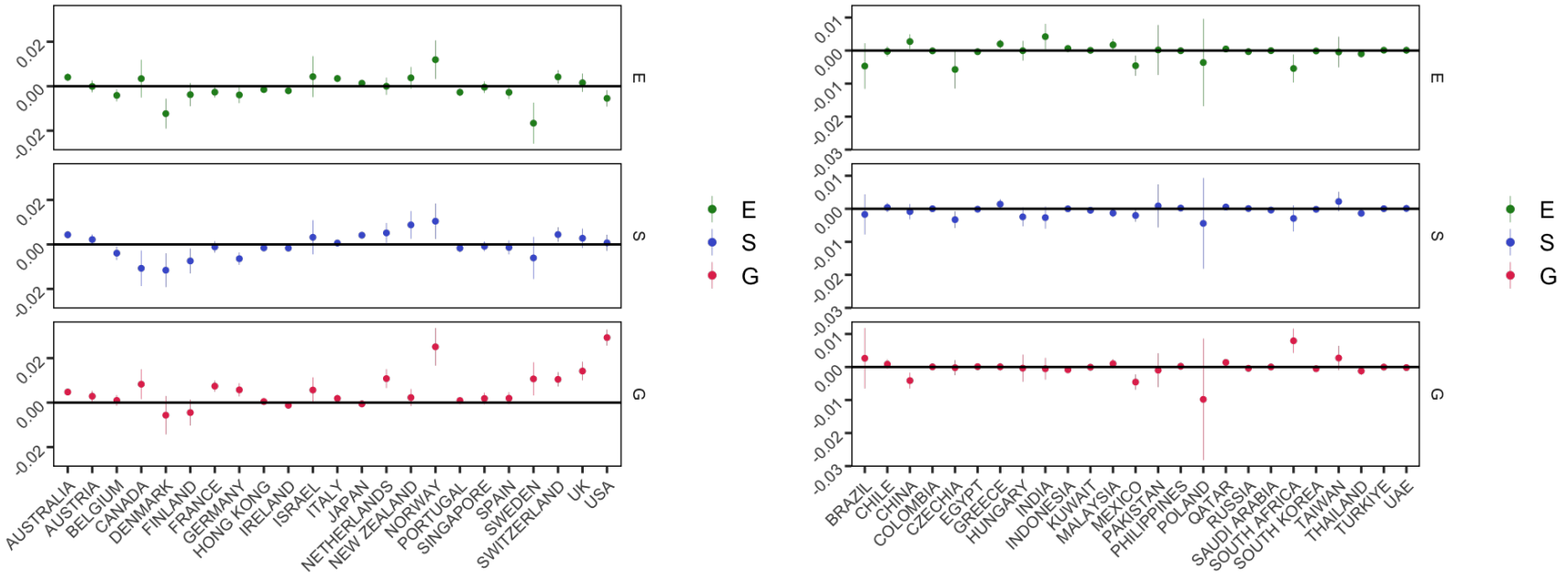
This table reports the panel regressions of annual portfolio weights on firm-level ESG performance, its interactions with foreign investment dummies $\mathbb{I}_{DM}$ and $\mathbb{I}_{EM}$, and their interaction with the ESG noisiness (σ_C) or the ESG awareness ($Value_C$) of the destination market, or both. All specifications include country-year and investor-year fixed effects.

	A: Noisiness			**B: Value**			**C: Both**		
	(1) US	(2) UK	(3) EU	(4) US	(5) UK	(6) EU	(7) US	(8) UK	(9) EU
ESG	0.019**	0.084***	0.356***	0.018**	0.083***	0.361***	0.018**	0.083***	0.357***
	(2.392)	(3.782)	(11.406)	(2.357)	(3.770)	(11.166)	(2.354)	(3.770)	(11.469)
$\mathbb{I}_{DM} \times ESG$	-0.010	-0.066*	-0.225***	-0.017	-0.087***	-0.279***	0.058*	-0.046	-0.004
	(-0.384)	(-1.839)	(-2.723)	(-1.008)	(-2.927)	(-5.049)	(1.848)	(-0.960)	(-0.043)
$\mathbb{I}_{EM} \times ESG$	0.027	-0.090*	-0.348***	0.006	-0.077	-0.332***	0.027	-0.079	-0.322***
	(1.262)	(-1.765)	(-9.908)	(0.193)	(-1.424)	(-7.830)	(0.907)	(-1.266)	(-7.673)
$\sigma_C \times \mathbb{I}_{EM} \times ESG$	-0.098**	-0.058	-0.285*				-0.108***	-0.063	-0.378**
	(-2.347)	(-1.305)	(-1.816)				(-2.712)	(-1.344)	(-2.445)
$\sigma_C \times \mathbb{I}_{EM} \times ESG$	-0.103***	-0.007	-0.041				-0.123***	0.012	-0.033
	(-3.384)	(-0.093)	(-1.305)				(-3.125)	(0.168)	(-0.894)
$Value_C \times \mathbb{I}_{DM} \times ESG$				-0.099***	-0.024	-0.225***	-0.118***	-0.030	-0.311***
				(-3.223)	(-0.691)	(-3.047)	(-3.750)	(-0.812)	(-4.618)
$Value_C \times \mathbb{I}_{EM} \times ESG$				-0.131*	-0.043	-0.123*	0.033	-0.060	-0.083
				(-1.818)	(-0.326)	(-1.675)	(0.399)	(-0.749)	(-1.079)
$Logmv$	0.094***	0.074***	0.086***	0.095***	0.075***	0.088***	0.095***	0.075***	0.089***
	(9.590)	(11.612)	(14.326)	(9.527)	(11.574)	(14.429)	(9.527)	(11.576)	(14.265)
FHT	6.685***	2.632***	5.027***	8.116***	3.731***	7.897***	8.133***	3.724***	7.811***
	(4.651)	(3.613)	(3.229)	(5.278)	(5.843)	(6.082)	(5.277)	(5.843)	(6.080)
Mom	-0.003	-0.003	0.002	-0.003	-0.003	0.001	-0.003	-0.003	0.001
	(-1.043)	(-1.159)	(0.756)	(-1.098)	(-1.220)	(0.432)	(-1.098)	(-1.214)	(0.398)
$Ivol$	0.679***	0.402***	-0.395**	0.668***	0.383***	-0.451***	0.670***	0.384***	-0.434***
	(2.826)	(3.570)	(-2.467)	(2.770)	(3.398)	(-2.697)	(2.775)	(3.405)	(-2.625)
BM	0.007**	0.009**	0.002*	0.007*	0.010**	0.002	0.007*	0.010**	0.002
	(1.979)	(2.462)	(1.648)	(1.855)	(2.351)	(1.535)	(1.855)	(2.360)	(1.498)
ROE	-0.000	-0.000*	-0.000	-0.000	-0.000*	-0.000	-0.000	-0.000*	-0.000
	(-1.574)	(-1.878)	(-0.748)	(-1.471)	(-1.843)	(-0.583)	(-1.470)	(-1.852)	(-0.842)
$Invest$	0.107***	0.084**	0.143**	0.107**	0.087**	0.147**	0.107**	0.088**	0.152**
	(2.581)	(2.271)	(2.348)	(2.564)	(2.328)	(2.378)	(2.569)	(2.341)	(2.434)
Adjusted R^2	0.251	0.371	0.404	0.252	0.371	0.406	0.252	0.371	0.406
Observations	8566790	1644513	3490190	8390558	1590521	3396397	8388076	1590343	3395284

Table 7 Portfolio excess returns and portfolio ESG score

This table reports the panel regressions of the quarterly excess returns of domestic, foreign DM, and foreign EM portfolios on the ESG scores of these sub-portfolios for US, UK, and European institutions. We control for Fama and French five factors (FF5). For US institutions' domestic portfolios, we use the US FF5; for UK and European institutions' domestic portfolios, we use European FF5. For foreign DM and EM portfolios, we use DM FF5 and EM FF5, respectively. All specifications include investor FE. t statistics in parentheses, * p<0.10, ** p<0.05, *** p<0.010.

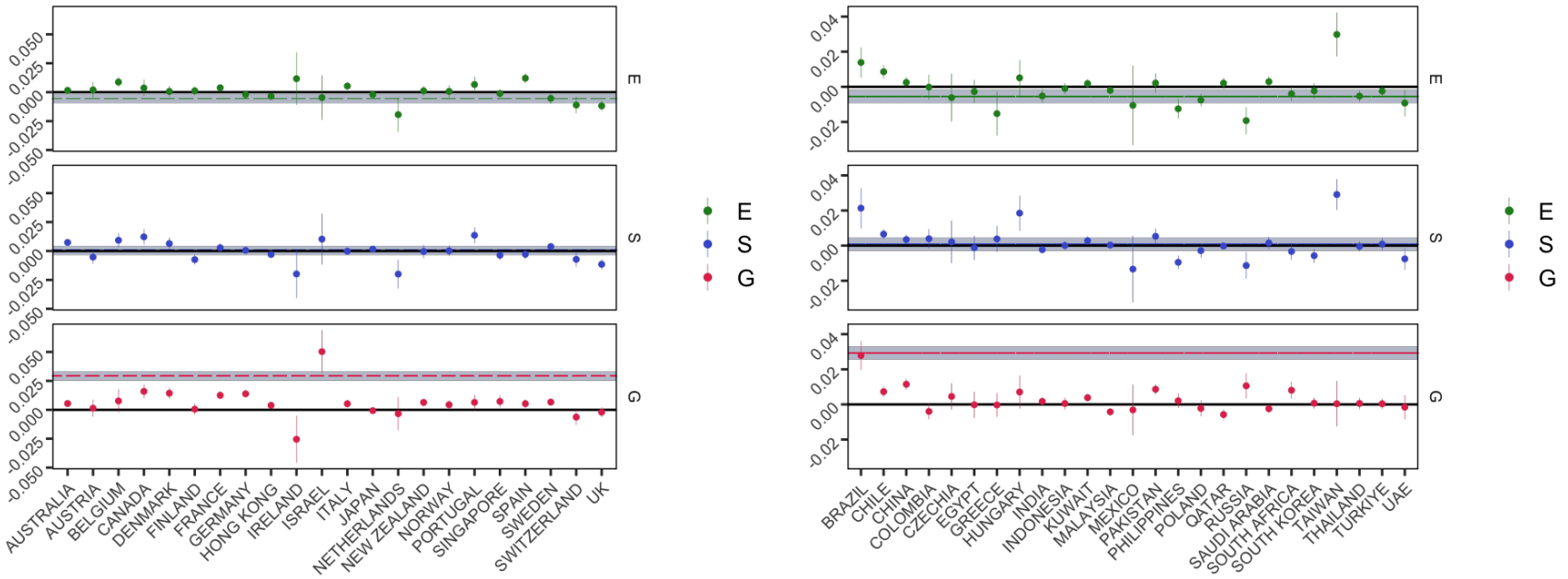
	US			**UK**			**Europe**		
	Dom	**DM**	**EM**	**Dom**	**DM**	**EM**	**Dom**	**DM**	**EM**
ESG	-0.008***	-0.005***	-0.016***	0.002	0.000	-0.003	-0.005***	-0.004***	-0.006***
	(-11.026)	(-6.858)	(-9.446)	(0.992)	(0.121)	(-1.081)	(-6.005)	(-4.520)	(-2.626)
$Mkt - Rf$	0.993***	1.087***	1.035***	0.935***	1.081***	1.051***	1.090***	1.110***	0.970***
	(387.925)	(245.801)	(107.799)	(153.059)	(122.410)	(81.591)	(182.141)	(278.605)	(96.758)
SMB	0.094***	-0.069***	-0.159***	0.210***	-0.002	-0.042	0.103***	-0.120***	-0.243***
	(16.389)	(-5.554)	(-6.266)	(9.167)	(-0.094)	(-1.350)	(8.862)	(-11.047)	(-9.468)
HML	0.018***	0.127***	-0.274***	0.203***	0.013	-0.078**	-0.090***	0.052***	0.049
	(4.138)	(12.279)	(-10.518)	(9.107)	(0.645)	(-1.994)	(-4.691)	(5.594)	(1.536)
RMW	0.023***	-0.048***	-0.088**	0.303***	-0.002	-0.042	-0.153***	-0.091***	-0.527***
	(4.899)	(-3.524)	(-2.246)	(12.512)	(-0.095)	(-0.786)	(-8.076)	(-8.928)	(-10.965)
CMA	-0.005	-0.439***	-0.456***	-0.253***	-0.153***	-0.216***	0.101***	-0.131***	-0.484***
	(-0.810)	(-28.026)	(-11.238)	(-11.345)	(-4.650)	(-3.936)	(6.287)	(-10.761)	(-9.992)
$Logaum$	-0.003***	-0.004***	-0.008***	-0.003***	-0.004***	-0.004***	-0.003***	-0.003***	-0.000
	(-11.032)	(-9.878)	(-6.037)	(-4.233)	(-6.957)	(-3.077)	(-7.335)	(-8.328)	(-0.083)
$Activeshare$	0.001	0.004	-0.003	0.003	-0.007	0.008	0.009***	0.009***	0.020**
	(0.376)	(1.174)	(-0.287)	(0.546)	(-1.249)	(0.573)	(2.860)	(3.649)	(2.010)
CR	0.001	0.002	0.012	0.019**	0.010**	0.011	0.001	0.005**	-0.007
	(0.532)	(0.679)	(1.135)	(2.268)	(2.097)	(0.773)	(0.506)	(2.151)	(-0.685)
Adjusted R-squared	0.841	0.640	0.468	0.762	0.792	0.648	0.817	0.854	0.555
Observations	109480	108500	35899	15653	15614	11824	50510	50752	27011



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

Figure 3. The marginal effect of ESG on domestic institutional ownership

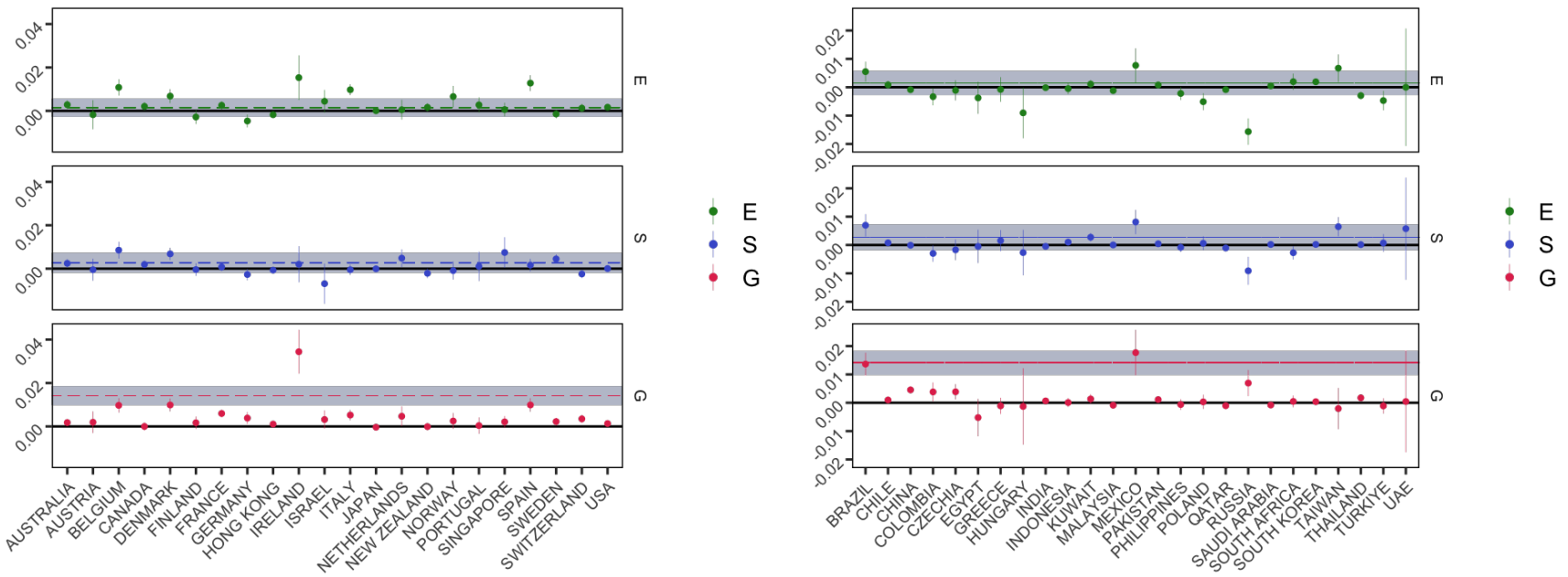
This figure shows the point estimates and 90% confidence intervals of the marginal effect of ESG on domestic institutional ownership (IO) estimated using the rigorous LASSO double selection method for each market. We include 25 firm-level covariates including measures for size, liquidity, growth, value, profitability, investment, visibility, and other controls. The estimation procedure is explained in Appendix B.



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

Figure 4. The marginal effect of ESG on foreign US institutional ownership

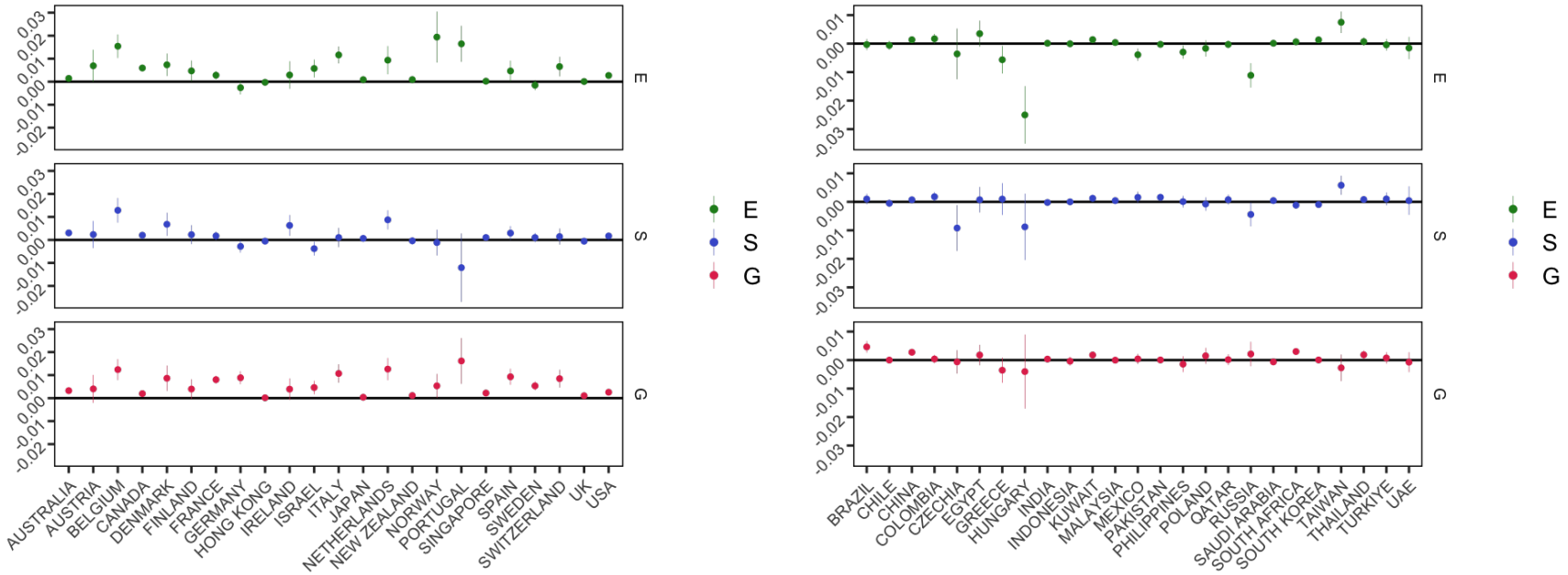
This figure shows the point estimates and 90% confidence intervals of the marginal effect of ESG on foreign US institutional ownership (IO) estimated using the rigorous LASSO double selection method for each market. The horizontal line and the shaded areas represent the point estimates of E, S, and G on US domestic institutional ownership and their 90% confidence intervals. We include 25 firm-level covariates including measures for size, liquidity, growth, value, profitability, investment, visibility, and other controls. The estimation procedure is explained in Appendix B.



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

Figure 5. The marginal effect of ESG on foreign UK institutional ownership

This figure shows the point estimates and 90% confidence intervals of the marginal effect of ESG on foreign UK institutional ownership (IO) estimated using the rigorous LASSO double selection method for each market. The horizontal line and the shaded areas represent the point estimates of E, S, and G on UK domestic institutional ownership and their 90% confidence intervals. We include 25 firm-level covariates including measures for size, liquidity, growth, value, profitability, investment, visibility, and other controls. The estimation procedure is explained in Appendix B.



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

Figure 6. The marginal effect of ESG on foreign European institutional ownership

This figure shows the point estimates and 90% confidence intervals of the marginal effect of ESG on foreign European institutional ownership (IO) estimated using the rigorous LASSO double selection method for each market. We include 25 firm-level covariates including measures for size, liquidity, growth, value, profitability, investment, visibility, and other controls. The estimation procedure is explained in Appendix B.

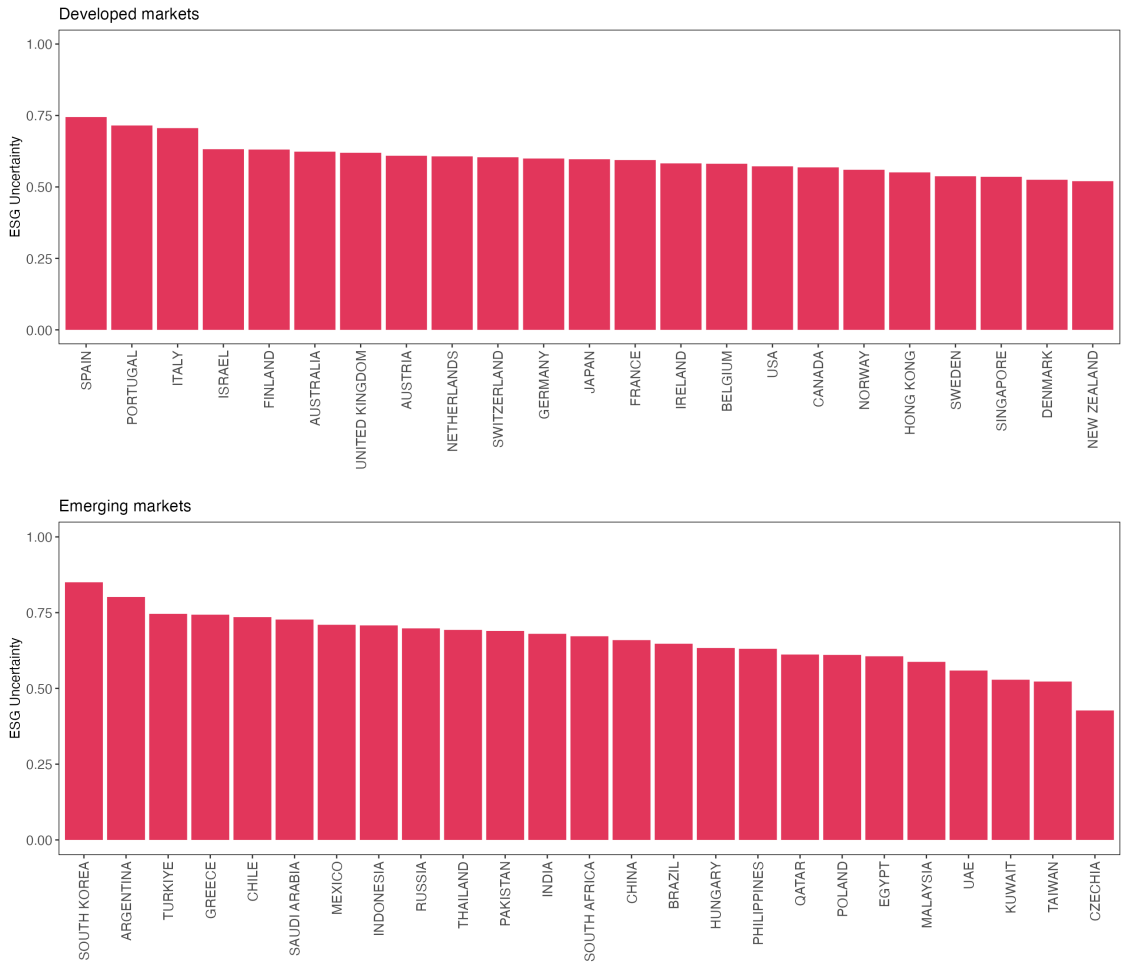


Figure 7. Country-level ESG noisiness

This figure shows the country-level ESG noisiness measure σ_C. Its calculation is explained in Section II

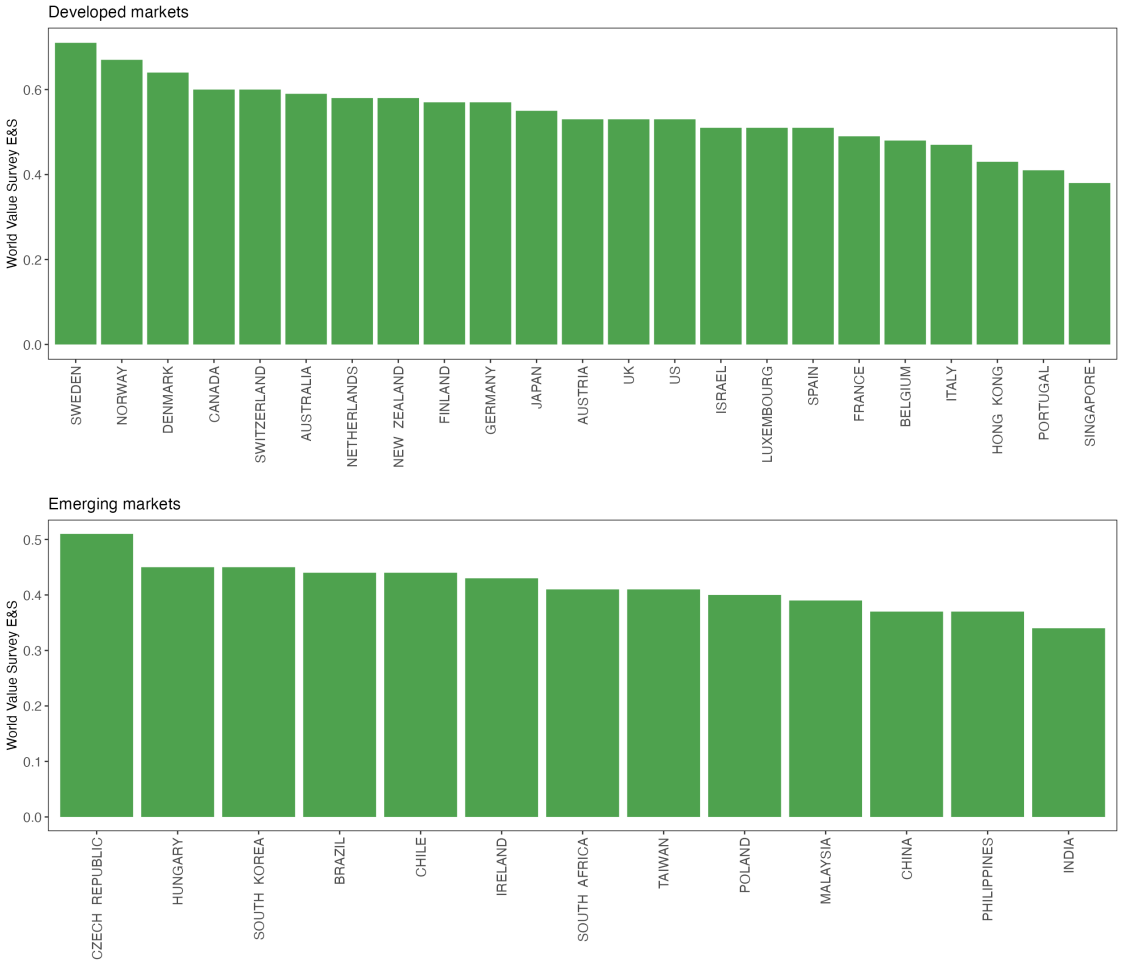


Figure 8. World Value E&S Index

This figure shows the World Value E&S Index from Dyck et al., 2019

Online Appendix for
Sustainable Investing Home and Abroad

Ines Chaieb
University of Geneva
Swiss Finance Institute

Vihang Errunza
McGill University

Lucie Y. Lu
University of Melbourne

(Not for publication)

This Online Appendix presents supplementary materials and results not included in the main body of the paper.

A. Additional results of the Rigorous LASSO regressions

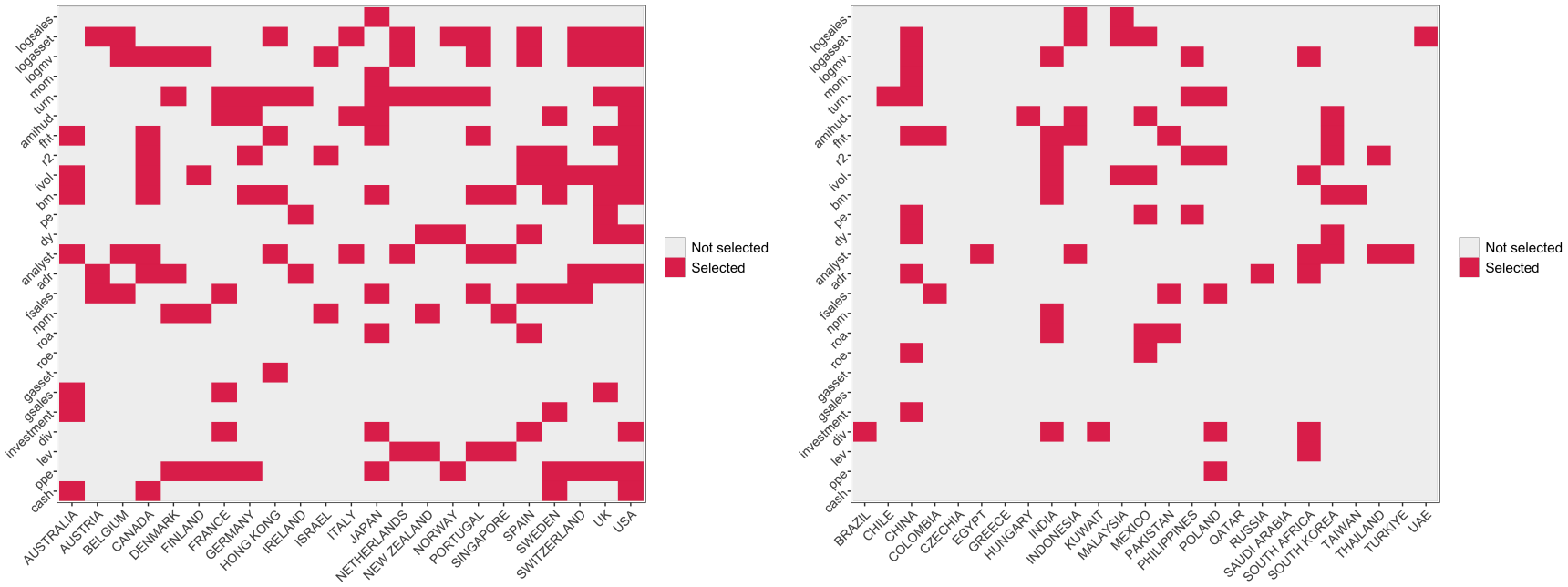
This section reports additional results from country-by-country double-LASSO estimations for the marginal effect of ESG.

A.1. Determinants of foreign institutional ownership

The first-step LASSO selects the most important firm-level variables that determine firm-level institutional ownership. Figure OA.1 shows the heat map of variables selected to explain domestic institutional ownership. Figure OA.2 shows the variable selection results for foreign US institutional ownership. Figure OA.3 presents the variable selection results for foreign UK institutional ownership. Figure OA.4 presents the variables selected to determine foreign European IO.

A.2. Marginal effects estimates

This subsection tabulates the point estimates of the marginal effects of ESG, E, S, and G on US, UK, and European institutions across 23 DMs and 25 EMs.

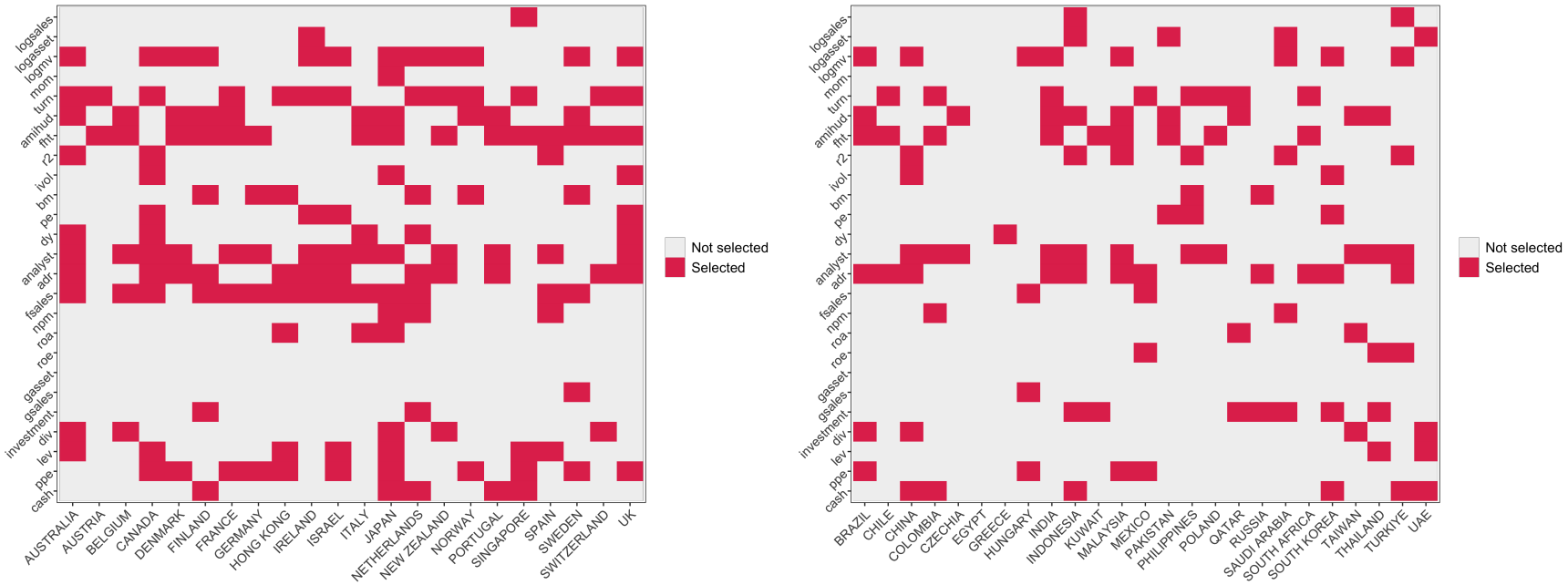


(a) Developed markets

(b) Emerging markets

Figure OA.1. Determinants of domestic institutional ownership

This figure shows the variable selection result of the first-pass LASSO of domestic institutional ownership (IO) on firm-level covariates for each market. We include 25 firm-level variables including measures for size, liquidity, growth, value, profitability, investment, visibility, and other controls.

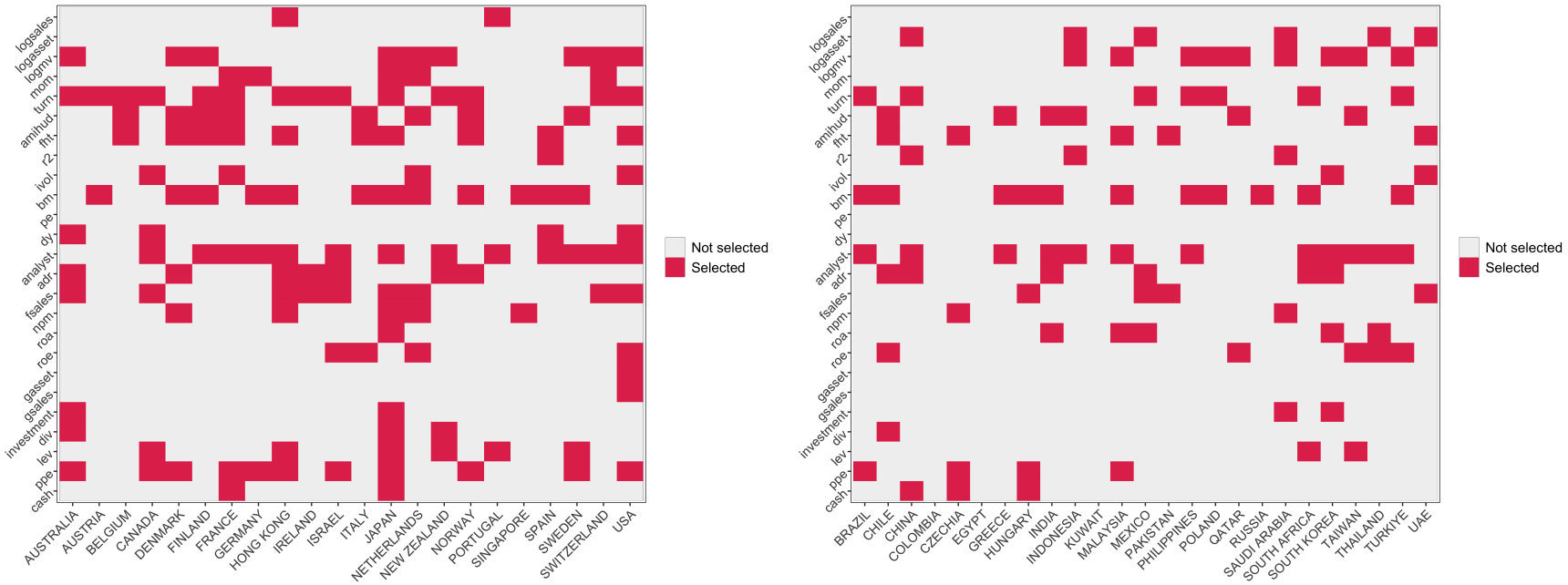


(a) Developed markets

(b) Emerging markets

Figure OA.2. Determinants of foreign US institutional ownership

This figure shows the variable selection result of the first-pass LASSO of foreign US institutional ownership (IO) on firm-level covariates for each market. We include 25 firm-level variables including measures for size, liquidity, growth, value, profitability, investment, visibility, and other controls.

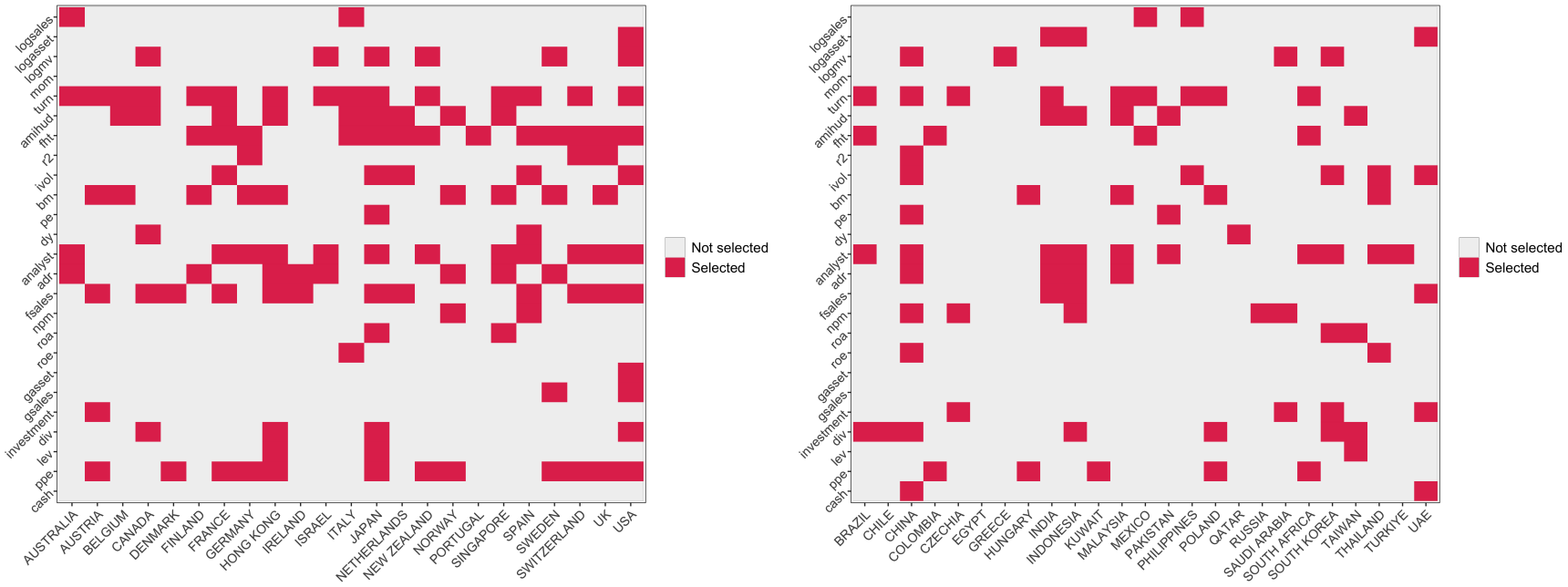


(a) Developed markets

(b) Emerging markets

Figure OA.3. Determinants of foreign UK institutional ownership

This figure shows the variable selection result of the first-pass LASSO of foreign UK institutional ownership (IO) on firm-level covariates for each market. We include 25 firm-level variables including measures for size, liquidity, growth, value, profitability, investment, visibility, and other controls.



(a) Developed markets

(b) Emerging markets

Figure OA.4. Determinants of foreign European institutional ownership

This figure shows the variable selection result of the first-pass LASSO of foreign European institutional ownership (IO) on firm-level covariates for each market. We include 25 firm-level variables including measures for size, liquidity, growth, value, profitability, investment, visibility, and other controls.

Table OA.1 Estimates of the marginal effect of ESG on US, UK and foreign European institutional ownership.

This table reports the rigorous LASSO estimates of the marginal effects of ESG on US, UK, and foreign European institutional ownership by market. The first line reports the marginal effect, the second line reports the t-statistics and the third line reports the number of observations in the estimation.

	US				UK				Europe			
	ESG	**E**	**S**	**G**	**ESG**	**E**	**S**	**G**	**ESG**	**E**	**S**	**G**
AUSTRALIA	0.006***	0.002	0.007***	0.005***	0.006***	0.002	0.007***	0.005***	0.004***	0.001***	0.003***	0.003***
	(3.843)	(0.871)	(4.167)	(3.861)	(3.843)	(0.871)	(4.167)	(3.861)	(7.241)	(2.735)	(5.577)	(6.927)
	2002	2002	1987	1987	2002	2002	1987	1987	2002	2002	1987	1987
AUSTRIA	0	0.002	-0.005	0.001	0	0.002	-0.005	0.001	0.005	0.007	0.002	0.004
	(-0.083)	(0.479)	(-1.505)	(0.308)	(-0.083)	(0.479)	(-1.505)	(0.308)	(1.608)	(1.636)	(0.657)	(1.093)
	210	205	205	205	210	205	205	205	210	205	205	205
BELGIUM	0.013***	0.009***	0.009**	0.008	0.013***	0.009***	0.009**	0.008	0.015***	0.015***	0.013***	0.012***
	(3.894)	(3.306)	(2.443)	(1.235)	(3.894)	(3.306)	(2.443)	(1.235)	(4.441)	(4.964)	(3.960)	(4.478)
	314	296	290	290	314	296	290	290	314	296	290	290
BRAZIL	0.017***	0.014***	0.021***	0.028***	0.017***	0.014***	0.021***	0.028***	0.002**	0	0.001	0.005***
	(3.691)	(2.641)	(3.054)	(5.521)	(3.691)	(2.641)	(3.054)	(5.521)	(2.151)	(-0.280)	(0.879)	(3.722)
	396	390	389	389	396	390	389	389	396	390	389	389
CANADA	0.018***	0.004	0.012***	0.016***	0.018***	0.004	0.012***	0.016***	0.005***	0.006***	0.002***	0.002***
	(4.253)	(0.842)	(2.967)	(4.391)	(4.253)	(0.842)	(2.967)	(4.391)	(7.741)	(8.449)	(3.226)	(3.612)
	1993	1988	1930	1930	1993	1988	1930	1930	1993	1988	1930	1930
CHILE	0.007***	0.009***	0.007***	0.007***	0.007***	0.009***	0.007***	0.007***	-0.001	-0.001	-0.001	0
	(3.575)	(3.648)	(3.794)	(3.947)	(3.575)	(3.648)	(3.794)	(3.947)	(-1.191)	(-0.633)	(-0.617)	(-0.010)
	213	213	213	213	213	213	213	213	213	213	213	213
CHINA	0.006***	0.003	0.003**	0.011***	0.006***	0.003	0.003**	0.011***	0.001***	0.001**	0.001	0.003***
	(3.540)	(1.379)	(1.977)	(6.003)	(3.540)	(1.379)	(1.977)	(6.003)	(3.229)	(2.568)	(1.382)	(6.182)
	2502	2123	2123	2123	2502	2123	2123	2123	2502	2123	2123	2123
COLOMBIA	0.003	0	0.004	-0.004	0.003	0	0.004	-0.004	0.002	0.002	0.002	0
	(0.787)	(-0.045)	(1.182)	(-1.492)	(0.787)	(-0.045)	(1.182)	(-1.492)	(1.922)	(1.627)	(1.863)	(0.436)
	77	77	77	77	77	77	77	77	77	77	77	77

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	US				UK				Europe			
	ESG	**E**	**S**	**G**	**ESG**	**E**	**S**	**G**	**ESG**	**E**	**S**	**G**
CZECHIA	-0.009	-0.006	0.002	0.005	-0.009	-0.006	0.002	0.005	-0.003	-0.004	-0.009	-0.001
	(-1.191)	(-0.746)	(0.290)	(0.993)	(-1.191)	(-0.746)	(0.290)	(0.993)	(-0.999)	(-0.668)	(-1.881)	(-0.257)
	44	39	36	36	44	39	36	36	44	39	36	36
DENMARK	0.005	0.001	0.006**	0.014***	0.005	0.001	0.006**	0.014***	0.011***	0.007**	0.007**	0.009***
	(1.727)	(0.221)	(2.044)	(5.202)	(1.727)	(0.221)	(2.044)	(5.202)	(4.064)	(2.472)	(2.219)	(2.581)
	369	356	350	350	369	356	350	350	369	356	350	350
EGYPT	0	-0.003	-0.001	0	0	-0.003	-0.001	0	0.005	0.003	0.001	0.002
	(0.028)	(-0.674)	(-0.301)	(-0.050)	(0.028)	(-0.674)	(-0.301)	(-0.050)	(1.386)	(1.263)	(0.273)	(0.807)
	83	72	72	72	83	72	72	72	83	72	72	72
FINLAND	-0.004	0.001	-0.007***	0.001	-0.004	0.001	-0.007***	0.001	0.006**	0.005	0.002	0.004
	(-1.876)	(0.523)	(-2.811)	(0.205)	(-1.876)	(0.523)	(-2.811)	(0.205)	(2.349)	(1.715)	(0.913)	(1.523)
	462	434	425	425	462	434	425	425	462	434	425	425
FRANCE	0.008***	0.004**	0.003	0.013***	0.008***	0.004**	0.003	0.013***	0.005***	0.003***	0.002	0.008***
	(4.245)	(2.150)	(1.281)	(6.201)	(4.245)	(2.150)	(1.281)	(6.201)	(4.704)	(2.621)	(1.577)	(7.797)
	1544	1456	1401	1401	1544	1456	1401	1401	1544	1456	1401	1401
GERMANY	0.005***	-0.002	0.001	0.014***	0.005***	-0.002	0.001	0.014***	0.001	-0.003	-0.003	0.009***
	(2.703)	(-0.954)	(0.333)	(7.665)	(2.703)	(-0.954)	(0.333)	(7.665)	(0.814)	(-1.444)	(-1.703)	(5.207)
	1197	1172	1131	1131	1197	1172	1131	1131	1197	1172	1131	1131
GREECE	-0.004	-0.015**	0.004	0	-0.004	-0.015**	0.004	0	-0.005	-0.006	0.001	-0.004
	(-0.765)	(-2.019)	(0.845)	(-0.078)	(-0.765)	(-2.019)	(0.845)	(-0.078)	(-1.725)	(-1.924)	(0.290)	(-1.331)
	179	169	163	163	179	169	163	163	179	169	163	163
HONG KONG	-0.002	-0.004**	-0.003**	0.004**	-0.002	-0.004**	-0.003**	0.004**	0	0	-0.001	0
	(-0.955)	(-1.989)	(-2.007)	(2.565)	(-0.955)	(-1.989)	(-2.007)	(2.565)	(-0.995)	(-0.539)	(-1.286)	(0.299)
	1567	1513	1499	1499	1567	1513	1499	1499	1567	1513	1499	1499
HUNGARY	0.012**	0.005	0.018***	0.007	0.012**	0.005	0.018***	0.007	-0.021***	-0.025***	-0.009	-0.004
	(2.151)	(0.832)	(3.029)	(1.235)	(2.151)	(0.832)	(3.029)	(1.235)	(-3.514)	(-4.086)	(-1.244)	(-0.512)
	46	46	42	42	46	46	42	42	46	46	42	42
INDIA	-0.004***	-0.005**	-0.002**	0.002	-0.004***	-0.005**	-0.002**	0.002	0	0	0	0
	(-2.860)	(-2.163)	(-2.072)	(1.411)	(-2.860)	(-2.163)	(-2.072)	(1.411)	(0.391)	(0.337)	(-0.519)	(0.787)
	1552	1222	1218	1218	1552	1222	1218	1218	1552	1222	1218	1218
INDONESIA	0.001	-0.001	0	0.001	0.001	-0.001	0	0.001	0	0	0	0

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	US				UK				Europe			
	ESG	**E**	**S**	**G**	**ESG**	**E**	**S**	**G**	**ESG**	**E**	**S**	**G**
	(0.539)	(-0.525)	(0.023)	(0.247)	(0.539)	(-0.525)	(0.023)	(0.247)	(0.754)	(-0.058)	(0.004)	(-0.418)
	300	282	282	282	300	282	282	282	300	282	282	282
IRELAND	-0.01	0.012	-0.02	-0.025**	-0.01	0.012	-0.02	-0.025**	0.008**	0.003	0.006**	0.004
	(-0.795)	(0.845)	(-1.571)	(-2.070)	(-0.795)	(0.845)	(-1.571)	(-2.070)	(2.568)	(0.801)	(2.276)	(1.371)
	395	391	383	383	395	391	383	383	395	391	383	383
ISRAEL	0.014	-0.005	0.01	0.050***	0.014	-0.005	0.01	0.050***	0.001	0.006**	-0.004**	0.005***
	(1.259)	(-0.400)	(0.764)	(4.457)	(1.259)	(-0.400)	(0.764)	(4.457)	(0.672)	(2.437)	(-2.086)	(2.613)
	221	200	200	200	221	200	200	200	221	200	200	200
ITALY	0.004**	0.005***	0	0.005**	0.004**	0.005***	0	0.005**	0.008***	0.012***	0.001	0.011***
	(2.359)	(2.740)	(-0.107)	(2.572)	(2.359)	(2.740)	(-0.107)	(2.572)	(4.222)	(5.179)	(0.417)	(4.405)
	630	588	582	582	630	588	582	582	630	588	582	582
JAPAN	0	-0.002***	0.002**	-0.001	0	-0.002***	0.002**	-0.001	0.001***	0.001***	0.001***	0.000**
	(-0.201)	(-3.446)	(2.453)	(-0.868)	(-0.201)	(-3.446)	(2.453)	(-0.868)	(5.989)	(4.839)	(4.063)	(1.999)
	7271	6440	6307	6307	7271	6440	6307	6307	7271	6440	6307	6307
KUWAIT	0.008***	0.002	0.003	0.004***	0.008***	0.002	0.003	0.004***	0.008	0.001***	0.001	0.002***
	(4.067)	(1.185)	(1.723)	(2.866)	(4.067)	(1.185)	(1.723)	(2.866)	(1.894)	(2.939)	(1.808)	(2.578)
	42	40	40	40	42	40	40	40	42	40	40	40
MALAYSIA	-0.001	-0.002	0	-0.004***	-0.001	-0.002	0	-0.004***	0.001	0	0	0
	(-0.809)	(-1.571)	(0.312)	(-3.785)	(-0.809)	(-1.571)	(0.312)	(-3.785)	(1.293)	(0.737)	(0.988)	(-0.067)
	597	517	517	517	597	517	517	517	597	517	517	517
MEXICO	-0.02	-0.011	-0.013	-0.003	-0.02	-0.011	-0.013	-0.003	-0.001	-0.004***	0.002	0
	(-1.790)	(-0.769)	(-1.159)	(-0.357)	(-1.790)	(-0.769)	(-1.159)	(-0.357)	(-0.430)	(-2.974)	(1.312)	(0.378)
	223	215	208	208	223	215	208	208	223	215	208	208
NETHERLANDS	-0.016**	-0.019**	-0.020***	-0.003	-0.016**	-0.019**	-0.020***	-0.003	0.011***	0.009**	0.009***	0.013***
	(-1.965)	(-2.138)	(-2.636)	(-0.383)	(-1.965)	(-2.138)	(-2.636)	(-0.383)	(3.961)	(2.512)	(3.450)	(4.294)
	528	519	503	503	528	519	503	503	528	519	503	503
NEW ZEALAND	0.001	0.001	0	0.006***	0.001	0.001	0	0.006***	0	0.001	0	0.001
	(0.377)	(0.440)	(-0.123)	(3.264)	(0.377)	(0.440)	(-0.123)	(3.264)	(0.337)	(1.139)	(-0.406)	(1.645)
	307	306	303	303	307	306	303	303	307	306	303	303
NORWAY	0.003	0.001	0	0.004	0.003	0.001	0	0.004	0.010**	0.019***	-0.001	0.005
	(1.214)	(0.204)	(0.055)	(1.808)	(1.214)	(0.204)	(0.055)	(1.808)	(2.474)	(2.882)	(-0.339)	(1.692)

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	US				UK				Europe			
	ESG	**E**	**S**	**G**	**ESG**	**E**	**S**	**G**	**ESG**	**E**	**S**	**G**
	402	379	376	376	402	379	376	376	402	379	376	376
PAKISTAN	0.003	0.002	0.005**	0.009***	0.003	0.002	0.005**	0.009***	0	0	0.002***	0
	(1.555)	(0.628)	(1.976)	(4.941)	(1.555)	(0.628)	(1.976)	(4.941)	(0.836)	(-0.410)	(2.622)	(0.089)
	63	44	44	44	63	44	44	44	63	44	44	44
PHILIPPINES	-0.007**	-0.013***	-0.010***	0.002	-0.007**	-0.013***	-0.010***	0.002	-0.002	-0.003**	0	-0.001
	(-2.484)	(-3.675)	(-4.110)	(0.855)	(-2.484)	(-3.675)	(-4.110)	(0.855)	(-1.071)	(-2.120)	(0.066)	(-0.842)
	286	254	254	254	286	254	254	254	286	254	254	254
POLAND	-0.003	-0.008***	-0.003	-0.002	-0.003	-0.008***	-0.003	-0.002	-0.001	-0.002	-0.001	0.001
	(-1.740)	(-3.510)	(-1.181)	(-0.826)	(-1.740)	(-3.510)	(-1.181)	(-0.826)	(-0.969)	(-0.964)	(-0.541)	(0.873)
	238	220	218	218	238	220	218	218	238	220	218	218
PORTUGAL	0.010**	0.007	0.014***	0.006	0.010**	0.007	0.014***	0.006	0.017***	0.016***	-0.012	0.016***
	(2.427)	(1.627)	(3.338)	(1.697)	(2.427)	(1.627)	(3.338)	(1.697)	(3.160)	(3.461)	(-1.335)	(2.671)
	150	145	143	143	150	145	143	143	150	145	143	143
QATAR	0	0.002	0	-0.006***	0	0.002	0	-0.006***	0.001	0	0.001	0
	(0.092)	(1.082)	(-0.268)	(-3.103)	(0.092)	(1.082)	(-0.268)	(-3.103)	(1.327)	(-0.344)	(0.716)	(0.122)
	56	40	40	40	56	40	40	40	56	40	40	40
RUSSIA	-0.008	-0.019***	-0.011**	0.011**	-0.008	-0.019***	-0.011**	0.011**	-0.006**	-0.011***	-0.004	0.002
	(-1.735)	(-4.099)	(-2.466)	(2.423)	(-1.735)	(-4.099)	(-2.466)	(2.423)	(-1.998)	(-4.280)	(-1.740)	(0.814)
	335	330	328	328	335	330	328	328	335	330	328	328
SAUDI ARABIA	0	0.003	0.002	-0.002	0	0.003	0.002	-0.002	0	0	0	-0.001
	(-0.016)	(1.551)	(0.713)	(-1.637)	(-0.016)	(1.551)	(0.713)	(-1.637)	(-0.501)	(0.282)	(0.904)	(-1.499)
	104	95	95	95	104	95	95	95	104	95	95	95
SINGAPORE	0.002	-0.001	-0.004	0.007**	0.002	-0.001	-0.004	0.007**	0.001***	0	0.001	0.002***
	(1.047)	(-0.558)	(-1.460)	(2.370)	(1.047)	(-0.558)	(-1.460)	(2.370)	(2.588)	(0.344)	(1.723)	(3.125)
	648	597	583	583	648	597	583	583	648	597	583	583
SOUTH AFRICA	0.003	-0.004	-0.003	0.008***	0.003	-0.004	-0.003	0.008***	0.001	0.001	-0.001	0.003***
	(0.976)	(-1.575)	(-1.158)	(2.768)	(0.976)	(-1.575)	(-1.158)	(2.768)	(1.935)	(0.913)	(-1.568)	(4.565)
	796	792	792	792	796	792	792	792	796	792	792	792
SOUTH KOREA	-0.003	-0.002	-0.006**	0.001	-0.003	-0.002	-0.006**	0.001	0.001	0.001**	-0.001**	0
	(-1.354)	(-0.887)	(-2.354)	(0.388)	(-1.354)	(-0.887)	(-2.354)	(0.388)	(1.326)	(2.292)	(-1.978)	(0.074)
	1472	1038	1020	1020	1472	1038	1020	1020	1472	1038	1020	1020

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	US				UK				Europe			
	ESG	**E**	**S**	**G**	**ESG**	**E**	**S**	**G**	**ESG**	**E**	**S**	**G**
SPAIN	0.005**	0.012***	-0.003	0.005**	0.005**	0.012***	-0.003	0.005**	0.006***	0.005	0.003	0.009***
	(2.062)	(4.697)	(-1.082)	(2.416)	(2.062)	(4.697)	(-1.082)	(2.416)	(3.049)	(1.702)	(1.600)	(4.361)
	594	582	573	573	594	582	573	573	594	582	573	573
SWEDEN	0.002	-0.005	0.004**	0.007***	0.002	-0.005	0.004**	0.007***	0.003**	-0.002	0.001	0.005***
	(0.653)	(-1.799)	(2.120)	(3.719)	(0.653)	(-1.799)	(2.120)	(3.719)	(2.500)	(-1.153)	(0.855)	(4.613)
	1131	1036	1020	1020	1131	1036	1020	1020	1131	1036	1020	1020
SWITZERLAND	-0.007	-0.011**	-0.007	-0.006	-0.007	-0.011**	-0.007	-0.006	0.007***	0.007**	0.001	0.008***
	(-1.939)	(-2.546)	(-1.837)	(-1.532)	(-1.939)	(-2.546)	(-1.837)	(-1.532)	(2.754)	(2.544)	(0.685)	(3.596)
	1091	1078	1003	1003	1091	1078	1003	1003	1091	1078	1003	1003
TAIWAN	0.012**	0.030***	0.029***	0	0.012**	0.030***	0.029***	0	0	0.007***	0.006***	-0.003
	(2.465)	(3.926)	(5.454)	(0.048)	(2.465)	(3.926)	(5.454)	(0.048)	(0.115)	(3.268)	(2.857)	(-0.959)
	170	93	93	93	170	93	93	93	170	93	93	93
THAILAND	-0.002	-0.005***	0	0.001	-0.002	-0.005***	0	0.001	0.002**	0.001	0.001	0.002**
	(-1.027)	(-2.697)	(-0.265)	(0.290)	(-1.027)	(-2.697)	(-0.265)	(0.290)	(2.452)	(0.814)	(1.223)	(2.084)
	450	376	372	372	450	376	372	372	450	376	372	372
TURKIYE	0	-0.002	0.001	0	0	-0.002	0.001	0	0.002	0	0.001	0.001
	(0.152)	(-1.179)	(0.394)	(0.218)	(0.152)	(-1.179)	(0.394)	(0.218)	(1.939)	(-0.346)	(0.747)	(0.620)
	313	292	289	289	313	292	289	289	313	292	289	289
UAE	-0.002	-0.009**	-0.008**	-0.002	-0.002	-0.009**	-0.008**	-0.002	-0.001	-0.002	0	-0.001
	(-0.522)	(-1.993)	(-2.002)	(-0.376)	(-0.522)	(-1.993)	(-2.002)	(-0.376)	(-0.335)	(-0.647)	(0.143)	(-0.347)
	68	56	56	56	68	56	56	56	68	56	56	56
UK	-0.008***	-0.012***	-0.012***	-0.002	0.008***	0.002	0.003	0.014***	0.002***	0	-0.001	0.001
	(-3.164)	(-4.287)	(-4.274)	(-0.808)	-3.361	-0.616	-1.06	-5.611	(3.356)	(0.110)	(-0.753)	(1.408)
	4650	4581	4235	4235	4650	4581	4235	4235	4650	4581	4235	4235
USA	0.008***	-0.005**	0.001	0.029***	-0.008***	-0.012***	-0.012***	-0.002	0.003***	0.003***	0.002***	0.003***
	-3.446	(-2.425)	-0.322	-13.301	(-3.164)	(-4.287)	(-4.274)	(-0.808)	(14.587)	(12.723)	(8.219)	(13.734)
	16156	16057	15425	15423	4650	4581	4235	4235	16156	16057	15425	15423

B. Complete regression results

Table OA.2 Do institutions tilt their portfolios toward high-ESG firms at home and abroad?
This table reports the panel regressions of annual institution-firm portfolio weight on firm-level ESG performance from 2000 to 2020.

$$w_{i,f,t} = \beta_1 ESG_{f,t-1} + \beta_2 ESG_{f,t-1} \times \mathbb{I}_{DM} + \beta_3 ESG_{f,t-1} \times \mathbb{I}_{EM} + \gamma_f X_{f,t-1} + \gamma_i X_{i,t-1} + \epsilon_{i,f,t}$$

All specifications include country-time fixed effects. Standard errors are clustered at the firm level. * p<0.10, ** p<0.05, *** p<0.010.

	US				**UK**				**Europe**			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
ESG	0.019**	0.007	0.012**	0.019**	0.087***	0.052***	0.062***	0.084***	0.227***	0.216***	-0.039**	0.223***
	(2.431)	(1.126)	(2.076)	(2.394)	(3.876)	(2.580)	(2.971)	(3.782)	(8.204)	(8.246)	(-2.453)	(8.180)
$\mathbb{I}_{DM} \times ESG$	-0.070***	-0.011*	-0.015**	-0.069***	-0.104***	-0.053***	-0.059***	-0.100***	-0.246***	-0.235***	0.055***	-0.243***
	(-6.398)	(-1.852)	(-2.504)	(-6.391)	(-4.197)	(-2.608)	(-2.765)	(-4.114)	(-8.219)	(-8.297)	(3.536)	(-8.188)
$\mathbb{I}_{EM} \times ESG$	-0.049***	-0.011*	-0.015***	-0.047***	-0.100***	-0.054***	-0.065***	-0.095***	-0.251***	-0.223***	0.031*	-0.245***
	(-5.131)	(-1.846)	(-2.599)	(-4.970)	(-4.146)	(-2.643)	(-3.069)	(-4.044)	(-8.591)	(-8.424)	(1.934)	(-8.526)
Logmv	0.094***	0.092***	0.090***	0.094***	0.074***	0.056***	0.058***	0.074***	0.095***	0.089***	0.101***	0.094***
	(9.661)	(5.509)	(6.079)	(9.590)	(11.759)	(8.744)	(7.583)	(11.618)	(14.855)	(11.027)	(11.976)	(14.802)
FHT	6.985***	3.144***	2.648***	6.673***	2.716***	0.778*	0.032	2.634***	4.626***	1.448**	1.089**	4.387***
	(4.689)	(2.901)	(2.778)	(4.651)	(3.587)	(1.666)	(0.065)	(3.613)	(3.078)	(2.399)	(2.024)	(3.117)
Mom	-0.004	-0.004	-0.006	-0.003	-0.003	0.004*	0.002	-0.003	0.000	0.001	-0.002	0.001
	(-1.195)	(-0.649)	(-1.175)	(-1.042)	(-1.391)	(1.669)	(0.638)	(-1.173)	(0.010)	(0.226)	(-0.818)	(0.477)
Ivol	0.713***	-0.194	-0.255**	0.678***	0.407***	-0.253**	-0.258**	0.402***	-0.223	-0.275**	-0.127	-0.237
	(2.930)	(-1.482)	(-1.981)	(2.823)	(3.530)	(-2.070)	(-2.034)	(3.556)	(-1.351)	(-1.992)	(-0.869)	(-1.483)
BM	0.007**	0.014**	0.014***	0.007**	0.009**	0.005	0.004	0.009**	0.001	0.002	0.003	0.001
	(1.995)	(2.277)	(2.599)	(1.975)	(2.409)	(1.232)	(1.048)	(2.450)	(1.090)	(0.978)	(1.282)	(1.094)
ROE	-0.000*	-0.000	-0.000	-0.000	-0.000*	-0.000	0.000	-0.000*	-0.000	0.000**	0.000***	-0.000
	(-1.653)	(-1.105)	(-1.057)	(-1.578)	(-1.847)	(-1.179)	(0.208)	(-1.869)	(-1.575)	(2.239)	(3.596)	(-1.120)
Invest	0.114***	0.067**	0.049**	0.107**	0.090**	-0.005	-0.013	0.084**	0.143**	-0.024	-0.035	0.140**
	(2.678)	(2.353)	(2.015)	(2.572)	(2.380)	(-0.268)	(-0.669)	(2.256)	(2.214)	(-0.827)	(-1.175)	(2.233)
Logaum	-0.018***	-0.034***	-0.015***		-0.036***	-0.073***	-0.029***		-0.053***	-0.083***	-0.042***	

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	US				UK				Europe			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	(-28.762)	(-42.644)	(-21.453)		(-23.057)	(-67.619)	(-19.681)		(-38.997)	(-63.282)	(-25.360)	
AR	-0.053***	0.233***	-0.070***		-0.145***	-0.123***	-0.089***		-0.200***	-0.156***	-0.104***	
	(-4.286)	(12.762)	(-4.421)		(-11.524)	(-11.518)	(-7.737)		(-11.849)	(-8.741)	(-7.119)	
CR	-0.025***	-0.143***	-0.022***		-0.021***	-0.204***	-0.034***		-0.042***	-0.238***	-0.038***	
	(-6.948)	(-21.325)	(-5.979)		(-2.938)	(-22.116)	(-4.536)		(-6.337)	(-14.865)	(-5.364)	
LagRet	-0.045***	-0.018	-0.022		-0.024*	0.089***	-0.009		0.010	0.228***	0.007	
	(-3.038)	(-0.618)	(-1.537)		(-1.719)	(3.990)	(-0.738)		(0.758)	(9.373)	(0.601)	
Adjusted R^2	0.229	0.195	0.715	0.251	0.335	0.239	0.695	0.371	0.380	0.304	0.714	0.414
Firm controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Inst FE	Yes	No	No	No	Yes	No	No	No	Yes	No	No	No
Firm FE	No	Yes	No	No	No	Yes	No	No	No	Yes	No	No
Inst-Firm FE	No	No	Yes	No	No	No	Yes	No	No	No	Yes	No
Inst-Time FE	No	No	No	Yes	No	No	No	Yes	No	No	No	Yes
Country-Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	8564278	8564102	7881085	8566790	1644339	1643951	1541276	1644513	3489053	3488578	3246110	3490190

Table OA.3 Do institutions tilt their portfolios toward high-E firms at home and abroad?

This table reports the panel regressions of annual institution-firm portfolio weight on firm-level E performance from 2000 to 2020.

$$w_{i,f,t} = \beta_1 E_{f,t-1} + \beta_2 E_{f,t-1} \times \mathbb{I}_{DM} + \beta_3 E_{f,t-1} \times \mathbb{I}_{EM} + \gamma_f X_{f,t-1} + \gamma_i X_{i,t-1} + \epsilon_{i,f,t}$$

All specifications include country-time fixed effects. Standard errors are clustered at the firm level. * p<0.10, ** p<0.05, *** p<0.010.

	US				**UK**				**Europe**			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
E	0.019***	-0.000	0.006	0.018***	0.091***	0.034*	0.042**	0.087***	0.237***	0.228***	-0.028	0.232***
	(2.872)	(-0.014)	(0.874)	(2.787)	(4.849)	(1.681)	(1.961)	(4.778)	(8.391)	(8.355)	(-0.975)	(8.325)
$\mathbb{I}_{DM} \times E$	-0.070***	-0.004	-0.009	-0.069***	-0.106***	-0.031	-0.037*	-0.102***	-0.262***	-0.248***	0.038	-0.257***
	(-8.252)	(-0.632)	(-1.354)	(-8.281)	(-4.841)	(-1.519)	(-1.697)	(-4.774)	(-8.636)	(-8.632)	(1.372)	(-8.568)
$\mathbb{I}_{EM} \times E$	-0.048***	-0.003	-0.008	-0.046***	-0.104***	-0.035*	-0.041*	-0.100***	-0.261***	-0.232***	0.023	-0.255***
	(-6.444)	(-0.406)	(-1.239)	(-6.314)	(-4.976)	(-1.709)	(-1.903)	(-4.905)	(-8.794)	(-8.454)	(0.787)	(-8.682)
$Logmv$	0.095***	0.092***	0.090***	0.094***	0.075***	0.057***	0.060***	0.074***	0.098***	0.090***	0.101***	0.097***
	(8.945)	(5.483)	(6.059)	(8.874)	(11.637)	(8.614)	(7.490)	(11.490)	(14.481)	(11.004)	(11.938)	(14.428)
FHT	6.956***	3.143***	2.630***	6.668***	2.761***	0.769	0.028	2.689***	4.803***	1.475**	1.120**	4.556***
	(4.469)	(2.807)	(2.709)	(4.430)	(3.642)	(1.641)	(0.056)	(3.680)	(3.049)	(2.397)	(2.050)	(3.086)
Mom	-0.003	-0.004	-0.006	-0.003	-0.003	0.004	0.001	-0.002	-0.001	0.001	-0.002	0.000
	(-1.010)	(-0.674)	(-1.205)	(-0.860)	(-1.216)	(1.619)	(0.548)	(-1.014)	(-0.337)	(0.167)	(-0.844)	(0.133)
$Ivol$	0.701***	-0.197	-0.257**	0.666***	0.427***	-0.259**	-0.269**	0.422***	-0.222	-0.267*	-0.135	-0.236
	(2.845)	(-1.485)	(-1.968)	(2.738)	(3.702)	(-2.074)	(-2.073)	(3.741)	(-1.348)	(-1.956)	(-0.936)	(-1.481)
BM	0.007**	0.014**	0.014***	0.007**	0.009**	0.005	0.004	0.009**	0.001	0.002	0.003	0.001
	(1.993)	(2.258)	(2.578)	(1.976)	(2.092)	(1.186)	(1.011)	(2.125)	(0.956)	(0.930)	(1.265)	(0.955)
ROE	-0.000*	-0.000	-0.000	-0.000	-0.000**	-0.000	0.000	-0.000**	-0.000	0.000**	0.000***	-0.000
	(-1.699)	(-1.101)	(-1.058)	(-1.622)	(-1.976)	(-1.188)	(0.215)	(-2.018)	(-1.632)	(2.368)	(3.609)	(-1.202)
$Invest$	0.111***	0.065**	0.049**	0.104**	0.093**	-0.005	-0.014	0.086**	0.147**	-0.028	-0.036	0.143**
	(2.595)	(2.359)	(2.026)	(2.487)	(2.400)	(-0.250)	(-0.677)	(2.270)	(2.265)	(-0.959)	(-1.200)	(2.276)
$Logaum$	-0.018***	-0.035***	-0.015***		-0.036***	-0.073***	-0.029***		-0.053***	-0.083***	-0.042***	
	(-29.111)	(-42.656)	(-21.406)		(-23.768)	(-67.566)	(-19.640)		(-38.985)	(-63.145)	(-25.237)	

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	US				UK				Europe			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
AS	-0.052***	0.234***	-0.070***		-0.144***	-0.121***	-0.090***		-0.202***	-0.157***	-0.104***	
	(-4.185)	(12.728)	(-4.419)		(-11.302)	(-11.296)	(-7.694)		(-11.952)	(-8.782)	(-7.147)	
CR	-0.025***	-0.143***	-0.022***		-0.020***	-0.204***	-0.034***		-0.041***	-0.238***	-0.037***	
	(-6.909)	(-21.223)	(-5.987)		(-2.899)	(-22.106)	(-4.539)		(-6.242)	(-14.732)	(-5.332)	
LagRet	-0.045***	-0.016	-0.023		-0.022	0.086***	-0.009		0.010	0.230***	0.008	
	(-3.029)	(-0.543)	(-1.545)		(-1.579)	(3.880)	(-0.693)		(0.748)	(9.473)	(0.670)	
Adjusted R^2	0.229	0.195	0.715	0.252	0.335	0.239	0.695	0.371	0.380	0.304	0.714	0.415
Firm controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Inst FE	Yes	No	No	No	Yes	No	No	No	Yes	No	No	No
Firm FE	No	Yes	No	No	No	Yes	No	No	No	Yes	No	No
Inst-Firm FE	No	No	Yes	No	No	No	Yes	No	No	No	Yes	No
Inst-Time FE	No	No	No	Yes	No	No	No	Yes	No	No	No	Yes
Country-Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	8505800	8505687	7834219	8508311	1627591	1627340	1528427	1627765	3469719	3469412	3232785	3470855

Table OA.4 Do institutions tilt their portfolios toward high-S firms at home and abroad?

This table reports the panel regressions of annual institution-firm portfolio weight on firm-level S performance from 2000 to 2020.

$$w_{i,f,t} = \beta_1 S_{f,t-1} + \beta_2 S_{f,t-1} \times \mathbb{I}_{DM} + \beta_3 S_{f,t-1} \times \mathbb{I}_{EM} + \gamma_f X_{f,t-1} + \gamma_i X_{i,t-1} + \epsilon_{i,f,t}$$

All specifications include country-time fixed effects. Standard errors are clustered at the firm level. * p<0.10, ** p<0.05, *** p<0.010.

	US				**UK**				**Europe**			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
S	0.019**	0.008**	0.011***	0.018**	0.086***	0.051***	0.056***	0.082***	0.219***	0.214***	-0.007	0.214***
	(2.445)	(2.033)	(3.086)	(2.373)	(3.279)	(3.020)	(3.114)	(3.197)	(6.668)	(6.728)	(-0.473)	(6.574)
$\mathbb{I}_{DM} \times S$	-0.066***	-0.013***	-0.015***	-0.065***	-0.101***	-0.053***	-0.054***	-0.097***	-0.240***	-0.234***	0.017	-0.235***
	(-6.546)	(-2.673)	(-3.490)	(-6.541)	(-3.599)	(-3.159)	(-3.006)	(-3.518)	(-6.876)	(-6.764)	(1.204)	(-6.773)
$\mathbb{I}_{EM} \times S$	-0.044***	-0.009**	-0.011***	-0.042***	-0.096***	-0.049***	-0.054***	-0.092***	-0.240***	-0.215***	0.004	-0.234***
	(-4.935)	(-2.090)	(-2.813)	(-4.795)	(-3.524)	(-2.863)	(-2.957)	(-3.439)	(-7.082)	(-6.755)	(0.275)	(-6.961)
$Logmv$	0.095***	0.085***	0.085***	0.095***	0.074***	0.056***	0.058***	0.073***	0.096***	0.088***	0.100***	0.095***
	(9.362)	(7.002)	(7.282)	(9.302)	(12.622)	(9.456)	(8.187)	(12.474)	(14.875)	(11.556)	(12.115)	(14.822)
FHT	6.941***	2.868***	2.446***	6.633***	3.037***	1.142**	0.592	2.979***	4.488***	1.498**	1.267**	4.249***
	(4.489)	(2.859)	(2.728)	(4.451)	(3.370)	(2.283)	(1.403)	(3.408)	(2.902)	(2.367)	(2.125)	(2.938)
Mom	-0.005	-0.001	-0.004	-0.004	-0.004*	0.003	0.000	-0.003	-0.001	0.001	-0.002	0.000
	(-1.611)	(-0.394)	(-1.232)	(-1.472)	(-1.754)	(1.439)	(0.174)	(-1.565)	(-0.324)	(0.254)	(-0.845)	(0.132)
$Ivol$	0.783***	-0.158	-0.235*	0.748***	0.468***	-0.203*	-0.204*	0.463***	-0.172	-0.241*	-0.109	-0.186
	(3.026)	(-1.238)	(-1.857)	(2.928)	(4.171)	(-1.724)	(-1.722)	(4.221)	(-1.054)	(-1.779)	(-0.775)	(-1.175)
BM	0.006*	0.013**	0.013***	0.006*	0.009**	0.005	0.004	0.009**	0.001	0.002	0.003	0.001
	(1.957)	(2.428)	(2.705)	(1.942)	(2.527)	(1.292)	(1.124)	(2.559)	(0.842)	(0.932)	(1.239)	(0.836)
ROE	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	0.000	-0.000	-0.000*	0.000**	0.000***	-0.000
	(-1.629)	(-1.076)	(-1.049)	(-1.550)	(-1.536)	(-0.925)	(0.357)	(-1.577)	(-1.765)	(2.027)	(3.888)	(-1.386)
$Invest$	0.106**	0.069**	0.049**	0.100**	0.097**	-0.001	-0.009	0.089**	0.142**	-0.018	-0.030	0.139**
	(2.505)	(2.278)	(1.969)	(2.400)	(2.481)	(-0.047)	(-0.468)	(2.349)	(2.195)	(-0.665)	(-1.091)	(2.206)
$Logaum$	-0.018***	-0.034***	-0.015***		-0.037***	-0.073***	-0.030***		-0.054***	-0.084***	-0.044***	
	(-28.020)	(-42.374)	(-21.689)		(-23.160)	(-66.554)	(-19.483)		(-39.824)	(-62.980)	(-26.355)	

Continue on the next page

	US				UK				Europe			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
AS	-0.054***	0.234***	-0.068***		-0.139***	-0.122***	-0.086***		-0.206***	-0.159***	-0.108***	
	(-4.291)	(12.665)	(-4.284)		(-11.377)	(-11.546)	(-7.797)		(-12.115)	(-8.765)	(-7.353)	
CR	-0.024***	-0.143***	-0.022***		-0.020***	-0.205***	-0.032***		-0.044***	-0.245***	-0.039***	
	(-6.384)	(-21.272)	(-6.215)		(-2.908)	(-22.229)	(-4.468)		(-6.365)	(-15.340)	(-5.217)	
LagRet	-0.042***	-0.011	-0.016		-0.017	0.094***	-0.002		0.010	0.237***	0.008	
	(-2.971)	(-0.374)	(-1.217)		(-1.240)	(4.212)	(-0.149)		(0.716)	(9.600)	(0.676)	
Adjusted R^2	0.229	0.196	0.719	0.251	0.336	0.236	0.699	0.372	0.381	0.304	0.715	0.416
Firm controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Inst FE	Yes	No	No	No	Yes	No	No	No	Yes	No	No	No
Firm FE	No	Yes	No	No	No	Yes	No	No	No	Yes	No	No
Inst-Firm FE	No	No	Yes	No	No	No	Yes	No	No	No	Yes	No
Inst-Time FE	No	No	No	Yes	No	No	No	Yes	No	No	No	Yes
Country-Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	8368266	8368162	7701669	8370692	1595642	1595390	1497099	1595810	3413838	3413533	3178855	3414770

Table OA.5 Do institutions tilt their portfolios toward high-G firms at home and abroad?

This table reports the panel regressions of annual institution-firm portfolio weight on firm-level ESG performance for European institutions by individual country from 2000 to 2020.

$$w_{i,f,t} = \beta_1 G_{f,t-1} + \beta_2 G_{f,t-1} \times \mathbb{I}_{DM} + \beta_3 G_{f,t-1} \times \mathbb{I}_{EM} + \gamma_f X_{f,t-1} + \gamma_i X_{i,t-1} + \epsilon_{i,f,t}$$

This table reports the panel regressions of annual institution-firm portfolio weight on firm-level G performance from 2000 to 2020.

	US				**UK**				**Europe**			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
G	0.007	0.006	0.009**	0.007	0.072***	0.032**	0.034**	0.070***	0.222***	0.200***	0.015	0.219***
	(1.260)	(1.328)	(1.982)	(1.246)	(2.961)	(2.331)	(2.424)	(2.919)	(7.414)	(7.181)	(0.957)	(7.385)
$\mathbb{I}_{DM} \times G$	-0.043***	-0.005	-0.008*	-0.043***	-0.081***	-0.034**	-0.033**	-0.079***	-0.229***	-0.215***	-0.007	-0.227***
	(-4.688)	(-1.048)	(-1.685)	(-4.734)	(-3.183)	(-2.470)	(-2.287)	(-3.151)	(-7.345)	(-7.289)	(-0.469)	(-7.317)
$\mathbb{I}_{EM} \times G$	-0.017**	-0.007	-0.010**	-0.016**	-0.076***	-0.036**	-0.039***	-0.074***	-0.231***	-0.202***	-0.017	-0.227***
	(-2.377)	(-1.611)	(-2.278)	(-2.232)	(-3.071)	(-2.561)	(-2.665)	(-3.031)	(-7.558)	(-7.220)	(-1.117)	(-7.520)
$Logmv$	0.097***	0.085***	0.085***	0.096***	0.075***	0.056***	0.059***	0.074***	0.095***	0.087***	0.100***	0.094***
	(9.631)	(6.971)	(7.267)	(9.557)	(12.723)	(9.357)	(8.117)	(12.583)	(15.429)	(11.338)	(12.071)	(15.373)
FHT	7.194***	2.878***	2.454***	6.880***	2.809***	1.268**	0.738*	2.764***	4.184***	1.443**	1.301**	3.952***
	(4.484)	(2.857)	(2.726)	(4.448)	(3.329)	(2.362)	(1.656)	(3.374)	(2.866)	(2.322)	(2.142)	(2.900)
Mom	-0.005*	-0.002	-0.004	-0.005	-0.003	0.003	0.001	-0.003	0.001	0.001	-0.002	0.002
	(-1.666)	(-0.412)	(-1.256)	(-1.524)	(-1.524)	(1.542)	(0.244)	(-1.338)	(0.234)	(0.539)	(-0.836)	(0.720)
$Ivol$	0.825***	-0.148	-0.221*	0.789***	0.469***	-0.209*	-0.210*	0.464***	-0.114	-0.237*	-0.104	-0.133
	(3.142)	(-1.113)	(-1.675)	(3.042)	(4.118)	(-1.779)	(-1.772)	(4.162)	(-0.701)	(-1.723)	(-0.739)	(-0.841)
BM	0.006*	0.013**	0.013***	0.005*	0.011***	0.005	0.004	0.011***	0.002	0.002	0.003	0.002
	(1.840)	(2.444)	(2.724)	(1.821)	(2.886)	(1.336)	(1.174)	(2.913)	(1.226)	(1.035)	(1.272)	(1.241)
ROE	-0.000	-0.000	-0.000	-0.000	-0.000*	-0.000	0.000	-0.000*	-0.000*	0.000**	0.000***	-0.000
	(-1.616)	(-1.076)	(-1.045)	(-1.531)	(-1.882)	(-1.166)	(0.243)	(-1.931)	(-1.647)	(2.173)	(3.643)	(-1.277)
$Invest$	0.109**	0.069**	0.050**	0.103**	0.091**	0.002	-0.006	0.084**	0.136**	-0.023	-0.030	0.132**
	(2.539)	(2.297)	(1.991)	(2.436)	(2.278)	(0.105)	(-0.321)	(2.153)	(2.106)	(-0.799)	(-1.086)	(2.121)
$Logaum$	-0.018***	-0.034***	-0.015***		-0.036***	-0.073***	-0.030***		-0.054***	-0.084***	-0.044***	

Continue on the next page

	US				UK				Europe			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	(-27.930)	(-42.381)	(-21.684)		(-23.062)	(-66.497)	(-19.520)		(-39.773)	(-63.022)	(-26.335)	
AS	-0.054***	0.234***	-0.067***		-0.141***	-0.122***	-0.087***		-0.210***	-0.158***	-0.108***	
	(-4.312)	(12.666)	(-4.283)		(-11.429)	(-11.549)	(-7.790)		(-12.317)	(-8.743)	(-7.342)	
CR	-0.024***	-0.143***	-0.022***		-0.020***	-0.205***	-0.032***		-0.043***	-0.241***	-0.038***	
	(-6.326)	(-21.272)	(-6.230)		(-2.868)	(-22.254)	(-4.457)		(-6.358)	(-15.109)	(-5.189)	
LagRet	-0.042***	-0.011	-0.016		-0.018	0.094***	-0.002		0.004	0.228***	0.009	
	(-2.980)	(-0.373)	(-1.209)		(-1.247)	(4.232)	(-0.129)		(0.325)	(9.198)	(0.720)	
Adjusted R^2	0.228	0.196	0.719	0.251	0.335	0.236	0.699	0.371	0.380	0.302	0.715	0.414
Firm controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Inst FE	Yes	No	No	No	Yes	No	No	No	Yes	No	No	No
Firm FE	No	Yes	No	No	No	Yes	No	No	No	Yes	No	No
Inst-Firm FE	No	No	Yes	No	No	No	Yes	No	No	No	Yes	No
Inst-Time FE	No	No	No	Yes	No	No	No	Yes	No	No	No	Yes
Country-Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	8368051	8367947	7701418	8370477	1595640	1595389	1497093	1595808	3413844	3413540	3178855	3414776

C. Additional regression results for individual European countries

Table OA.6 Do European institutions invest more in high-ESG firms controlling for institution-firm fixed effects?

This table reports the panel regressions of annual institution-firm portfolio weight on firm-level ESG performance for European institutions by individual country from 2000 to 2020. All regressions include institution-firm fixed effects.

$$w_{i,f,t} = \beta_1 ESG_{f,t-1} + \beta_2 ESG_{f,t-1} \times \mathbb{I}_{DM} + \beta_3 ESG_{f,t-1} \times \mathbb{I}_{EM} + \gamma_f X_{f,t-1} + \gamma_i X_{i,t-1} + \epsilon_{i,f,t}$$

All specifications include country-time fixed effects. Standard errors are clustered at the firm level. * p<0.10, ** p<0.05, *** p<0.010.

	(1) AT	(2) BE	(3) DK	(4) FI	(5) FR	(6) DE	(7) IE	(8) IT	(9) NL	(10) NO	(11) PT	(12) ES	(13) SE	(14) CH
ESG	0.025	0.042	0.000	0.041	0.052*	0.071*	-0.061	0.087	0.188*	0.002	-0.308**	0.078	0.118*	0.055
	(0.559)	(0.981)	(0.008)	(0.536)	(1.728)	(1.879)	(-1.458)	(1.273)	(1.935)	(0.026)	(-2.147)	(0.976)	(1.783)	(1.327)
$\mathbb{I}_{DM} \times ESG$	-0.020	-0.031	0.004	-0.039	-0.054*	-0.055	0.066	-0.080	-0.177*	-0.005	0.279*	-0.073	-0.117*	-0.051
	(-0.437)	(-0.716)	(0.058)	(-0.507)	(-1.770)	(-1.455)	(1.581)	(-1.173)	(-1.819)	(-0.055)	(1.944)	(-0.913)	(-1.755)	(-1.207)
$\mathbb{I}_{EM} \times ESG$	-0.040	-0.044	-0.002	-0.062	-0.056*	-0.077**	0.059	-0.078	-0.190*	-0.008	0.291**	-0.095	-0.144**	-0.059
	(-0.857)	(-1.018)	(-0.034)	(-0.771)	(-1.836)	(-2.026)	(1.418)	(-1.133)	(-1.952)	(-0.084)	(2.028)	(-1.200)	(-2.117)	(-1.399)
Logmv	0.077***	0.081***	0.050***	0.196***	0.110***	0.123***	0.048***	0.122***	0.080***	0.091***	0.200***	0.210***	0.076***	0.068***
	(9.669)	(10.665)	(7.726)	(5.693)	(10.025)	(8.016)	(8.486)	(10.898)	(9.994)	(7.189)	(5.599)	(4.666)	(6.077)	(11.386)
FHT	1.466*	1.078*	0.928	-6.226	1.593*	1.083	0.608*	0.813	-0.010	-2.529	25.144***	3.378	1.006	0.807
	(1.680)	(1.879)	(1.133)	(-1.047)	(1.901)	(0.948)	(1.818)	(1.115)	(-0.023)	(-1.236)	(2.967)	(1.560)	(0.849)	(1.598)
Mom	-0.005	-0.004	0.010**	-0.009	0.009**	-0.006	-0.003	-0.002	-0.003	0.008*	0.021*	-0.024*	0.001	-0.003
	(-1.092)	(-1.385)	(2.135)	(-0.635)	(2.102)	(-1.168)	(-1.121)	(-0.449)	(-0.896)	(1.924)	(1.687)	(-1.918)	(0.416)	(-1.140)
Ivol	-0.107	-0.245*	-0.386***	0.623	-0.057	-0.265	-0.069	0.750**	0.027	-0.839**	-0.600	0.426	0.012	-0.373
	(-0.556)	(-1.738)	(-3.210)	(1.274)	(-0.210)	(-0.931)	(-0.500)	(2.516)	(0.133)	(-2.233)	(-0.855)	(0.694)	(0.035)	(-1.645)
BM	-0.009	0.006*	0.006**	-0.006	0.001	0.001	0.005*	0.015	0.007	0.022**	0.016	0.004	0.013***	0.002***
	(-1.459)	(1.840)	(2.235)	(-0.371)	(0.338)	(0.307)	(1.734)	(1.549)	(0.893)	(2.433)	(0.831)	(0.210)	(3.123)	(2.730)
ROE	0.000	0.000*	0.000**	0.001***	0.000	0.000	-0.000	0.000**	0.000***	0.000	0.001***	-0.000	0.000	0.000***
	(0.511)	(1.907)	(2.463)	(4.696)	(1.439)	(1.566)	(-1.424)	(1.963)	(3.535)	(1.378)	(3.440)	(-1.138)	(0.631)	(3.629)
Invest	-0.026	-0.069	-0.020	0.011	-0.073	-0.131	-0.001	0.003	0.000	0.145*	-0.048	-0.264	-0.000	0.012
	(-0.445)	(-1.633)	(-0.754)	(0.146)	(-1.628)	(-1.632)	(-0.121)	(0.088)	(0.007)	(1.862)	(-0.586)	(-0.974)	(-0.017)	(0.735)
Logaum	-0.030***	-0.059***	-0.027***	-0.044**	-0.031***	-0.060***	0.009***	-0.097***	-0.035***	-0.004	0.005	-0.044***	-0.036***	-0.042***
	(-3.044)	(-7.576)	(-6.169)	(-2.431)	(-13.990)	(-21.886)	(2.739)	(-16.539)	(-6.816)	(-0.549)	(0.195)	(-4.107)	(-8.096)	(-15.682)
AS	0.175***	-0.085	-0.004	0.000	-0.153***	-0.225***	0.028*	-0.053	0.068	-0.021	-0.512***	-0.129*	0.004	-0.116***
	(3.252)	(-1.091)	(-0.176)	(0.001)	(-7.917)	(-7.794)	(1.746)	(-0.784)	(1.279)	(-0.455)	(-3.065)	(-1.781)	(0.164)	(-3.280)
CR	0.083	-0.027	0.032***	-0.097	-0.067***	-0.054***	0.014*	0.058*	-0.063***	0.001	-0.254***	-0.070	-0.028	-0.070***
	(1.628)	(-0.609)	(2.943)	(-1.553)	(-3.615)	(-3.764)	(1.702)	(1.937)	(-2.621)	(0.011)	(-3.644)	(-1.480)	(-1.426)	(-3.382)
LagRet	0.115**	-0.050	-0.012	0.004	-0.109***	0.098***	-0.059**	0.108**	-0.044	-0.007	0.080	-0.041	-0.030	0.039*

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	(1) AT	(2) BE	(3) DK	(4) FI	(5) FR	(6) DE	(7) IE	(8) IT	(9) NL	(10) NO	(11) PT	(12) ES	(13) SE	(14) CH
	(2.316)	(-0.658)	(-0.553)	(0.089)	(-3.441)	(3.587)	(-2.219)	(2.253)	(-1.007)	(-0.141)	(0.922)	(-0.720)	(-1.007)	(1.732)
Adjusted R^2	0.688	0.736	0.703	0.705	0.703	0.726	0.640	0.616	0.738	0.778	0.639	0.663	0.714	0.768
Observations	96822	129296	184030	75973	481954	511803	193280	176084	153281	102307	28490	246771	327471	524707

Table OA.7 Country-level ESG noisiness and European institutional investors' ESG preference.

This table reports the panel regressions of annual institution-firm portfolio weight on firm-level ESG performance and interactions with destination-market ESG uncertainty for European institutions by individual country from 2000 to 2020. All regressions include institution-year fixed effects.

$$
\begin{aligned}
w_{i,f,t} = {} & \beta_1 ESG_{f,t-1} + \beta_2 ESG_{f,t-1} \times \mathbb{I}_{DM} + \beta_3 ESG_{f,t-1} \times \mathbb{I}_{EM} \\
& + \eta_1 ESG_{f,t-1} \times \mathbb{I}_{DM} \times \sigma_C + \eta_2 ESG_{f,t-1} \times \mathbb{I}_{EM} \times \sigma_C \\
& + \gamma_f X_{f,t-1} + \gamma_i X_{i,t-1} + \alpha_{C,t} + \alpha_{i,t} + \epsilon_{i,f,t}
\end{aligned}
$$

All specifications include country-time fixed effects. Standard errors are clustered at the firm level. * p<0.10, ** p<0.05, *** p<0.010.

	(1) AT	(2) BE	(3) DK	(4) FI	(5) FR	(6) DE	(7) IE	(8) IT	(9) NL	(10) NO	(11) PT	(12) ES	(13) SE	(14) CH
ESG	0.059	0.050	0.246*	0.253*	0.147***	0.207***	-0.013	0.292***	0.294**	0.505***	0.149***	0.339***	0.241***	0.365***
	(0.758)	(0.988)	(1.844)	(1.689)	(4.581)	(4.931)	(-1.184)	(3.473)	(2.538)	(4.158)	(2.732)	(3.250)	(3.098)	(3.251)
$\mathbb{I}_{DM} \times ESG$	-0.159*	-0.273***	-0.180	-0.140	-0.327***	-0.489***	0.033	-0.517***	-0.427***	-0.263*	-0.516***	-0.639***	-0.185**	-0.431***
	(-1.754)	(-3.628)	(-1.311)	(-0.877)	(-6.054)	(-6.025)	(0.810)	(-4.986)	(-3.216)	(-1.778)	(-5.059)	(-4.554)	(-2.257)	(-3.568)
$\mathbb{I}_{EM} \times ESG$	-0.158*	-0.048	-0.207	-0.264*	-0.076*	-0.242***	-0.029	-0.285***	-0.319**	-0.489***	-0.131	-0.341**	-0.247***	-0.339***
	(-1.888)	(-0.861)	(-1.536)	(-1.718)	(-1.699)	(-4.291)	(-0.516)	(-3.102)	(-2.575)	(-4.009)	(-1.341)	(-2.467)	(-3.066)	(-3.252)
$\mathbb{I}_{DM} \times \sigma_C \times ESG$	0.168**	0.368***	-0.118**	-0.290***	0.254***	0.447***	-0.027	0.350***	0.230*	-0.452***	0.576***	0.368**	-0.133**	0.053
	(2.012)	(3.908)	(-2.063)	(-2.829)	(3.232)	(3.707)	(-0.420)	(3.163)	(1.790)	(-3.055)	(3.938)	(2.512)	(-2.068)	(0.969)
$\mathbb{I}_{EM} \times \sigma_C \times ESG$	0.123***	-0.030	-0.063	-0.068	-0.146**	0.021	0.051	-0.049	0.021	-0.056	-0.084	-0.096	-0.024	-0.061
	(2.872)	(-1.053)	(-1.400)	(-0.731)	(-2.466)	(0.366)	(0.619)	(-0.706)	(0.342)	(-1.385)	(-0.786)	(-0.579)	(-0.687)	(-1.452)
$Logmv$	0.075***	0.071***	0.063***	0.115***	0.101***	0.103***	0.055***	0.116***	0.069***	0.081***	0.146***	0.179***	0.086***	0.089***
	(15.366)	(13.837)	(13.877)	(6.377)	(7.667)	(14.781)	(15.852)	(12.140)	(13.465)	(9.475)	(12.760)	(4.996)	(10.064)	(6.419)
FHT	2.836**	4.602***	2.771**	2.846	6.736***	6.350***	2.938***	4.616**	2.416**	-0.911	28.273***	7.078	-0.236	5.653***
	(2.254)	(3.326)	(2.328)	(0.430)	(2.794)	(4.064)	(2.745)	(2.265)	(2.074)	(-0.481)	(2.977)	(1.399)	(-0.187)	(2.749)
Mom	0.011**	0.003	0.010**	0.001	0.006	0.006	-0.004*	-0.003	0.007*	0.019***	0.042***	-0.032*	-0.001	-0.006
	(2.453)	(1.085)	(2.497)	(0.038)	(0.995)	(1.136)	(-1.877)	(-0.440)	(1.918)	(2.723)	(2.947)	(-1.907)	(-0.111)	(-1.600)
$Ivol$	-0.152	-0.449***	-0.256	-0.311	-0.150	-0.470*	0.072	0.609*	0.033	-1.000**	-1.392**	-0.772	0.324	-0.157
	(-0.776)	(-3.180)	(-1.612)	(-0.505)	(-0.427)	(-1.751)	(0.672)	(1.922)	(0.230)	(-1.985)	(-2.483)	(-1.094)	(0.802)	(-0.600)
BM	0.004	0.006	0.013***	-0.028*	0.001	0.001	0.009***	0.020**	0.020***	0.014	-0.021	0.006	0.010	0.001*
	(0.955)	(1.638)	(3.044)	(-1.777)	(0.595)	(0.984)	(4.487)	(1.970)	(2.741)	(1.198)	(-1.450)	(0.797)	(0.897)	(1.677)
ROE	-0.000	-0.000*	0.000	0.000	-0.000	-0.000	-0.000	-0.000	0.000	-0.000	0.000**	-0.001	-0.000	0.000
	(-0.041)	(-1.943)	(0.802)	(0.436)	(-0.600)	(-0.903)	(-1.081)	(-0.302)	(0.392)	(-0.219)	(2.244)	(-1.433)	(-0.167)	(1.051)
$Invest$	0.091	0.032	0.016	0.148	0.100	0.133	0.043*	0.158	0.090	0.189**	0.117	0.243	0.146*	0.270**
	(1.557)	(0.651)	(0.253)	(0.676)	(0.800)	(1.423)	(1.729)	(1.431)	(1.595)	(2.055)	(0.902)	(0.851)	(1.919)	(2.208)

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	(1) AT	(2) BE	(3) DK	(4) FI	(5) FR	(6) DE	(7) IE	(8) IT	(9) NL	(10) NO	(11) PT	(12) ES	(13) SE	(14) CH
Adjusted R^2	0.393	0.511	0.358	0.409	0.412	0.529	0.262	0.368	0.390	0.478	0.383	0.326	0.418	0.391
Observations	103672	134993	195162	82098	517220	557803	203057	192800	161336	106536	31041	267769	345786	573851
	102307	28490	246771	327471	524707									