Carbon Home Bias[1]

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Abstract

Do institutional investors favor domestic over foreign stocks of companies with high carbon emissions? We undertake a global analysis of institutional investor portfolios and find widespread underweighting of companies with higher carbon emissions. This underweighting is largely driven by underinvestment in foreign companies with high carbon emissions, both at the intensive (tilting) and extensive (exclusion) margins. Domestic firms with similar characteristics (except for their location) are overweighted but by a smaller magnitude. Also, the divestment of foreign polluters has increased since 2015. These results reveal the presence of a carbon home bias for domestic companies with high carbon emissions.

JEL codes: G12, G23, G30, D62.

Keywords: carbon emissions, divestment, foreign institutional ownership, home bias.

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1. Introduction

There is increasing urgency in cutting down carbon emissions, as the remaining carbon budget consistent with a 1.5^0 C or 2^0 C warming limit is quickly running out (see IPCC, 2021). Large corporate emitters are under growing pressure to decarbonize their operations, giving rise to material carbon transition risk (Bolton and Kacperczyk, 2021 and 2023). Institutional investors play an important role in hedging and pricing this transition risk. Given the size of their assets under management and their prominence in the global investment community, they can affect the transition to a low-carbon economy through their investment allocation decisions or their engagement and shareholder voting. To be sure, the evidence to date already reveals that institutional investors have taken corporate carbon emissions and ESG ratings into account in their portfolio decisions (see e.g., Gibson et al., 2022). They have also increasingly engaged with companies to prod them to reduce their carbon emissions (see e.g., Krueger, Sautner, and Starks, 2020). Little is known, however, at a more granular level about how institutional investors make different portfolio allocation decisions between companies with similar carbon emissions. In this paper, we explore one important dimension that could significantly affect their choice: the company's location, specifically whether it is a domestic or foreign firm. Using granular equity portfolio-level data of institutional investors worldwide, we examine whether domestic companies are screened differently than foreign companies based on their carbon emissions.

From a portfolio diversification or carbon-transition risk hedging perspective, the location of a company *per se* should not matter; only the exposure to carbon-transition risk should be relevant. Stocks of companies with similar emissions should have similar covariances with underlying risk factors, controlling for other firm-specific risk characteristics, irrespective of their location. One exception to this principle potentially could be differences in current and future expected regulations across countries. There could be tighter expected future emission regulations in some countries, that could increase the carbon-transition risk of companies with high carbon emissions in those locations. Risk-averse investors may seek to hedge that risk by reducing their exposure to companies with high emissions based in these countries. This would be true, however, of both domestic and foreign investors in these countries. The greater carbon-transition risk in a given country does not per se give rise to a home bias.

Another consideration that has been emphasized by the home bias literature (see e.g., Coval and Moskowitz, 1999, and Huberman, 2001) is that investors may prefer (or have greater familiarity with) local companies. Investors may accordingly prefer to invest in domestic companies, even if these companies have high emissions. Note, however, that a familiarity-based home bias does not necessarily result in a specific positive tilt in domestic companies *with high emissions*, or a negative tilt in foreign companies with high emissions.

A third consideration affecting portfolio choice are behavioral biases, such as salience and overreaction (see e.g., Kahneman and Tversky, 1992 and Barberis, 2013). As Alok, Kumar, and Wermers (2020) have shown, institutional investors are more likely to divest or go underweight stocks of companies hit by a natural disaster, when they are located close to the disaster. They attribute this finding to a salience bias, arguing that local investors tend to overweight the likelihood of another natural disaster relative to investors that are far away. This finding suggests that investors could also overweight carbon-transition risk in companies that are located nearby, and by extension overweight risk in domestic rather than foreign companies.

A fourth consideration is politics. Investor ideology or political calculus may affect both corporate behavior and portfolio choice. Wu and Zechner (2024) argue that companies partly align themselves politically through their operating choices and energy mix, and investors may "tilt their portfolios towards firms with political stances that are close to their own preferences." This line of analysis suggests both that more environmentally minded investors may overweight investments in companies with low carbon emissions, and anti-woke investors may overweight companies with high emissions. The aggregate tilt towards or away companies with high emissions would then be determined by the relative weights of the two investor clienteles. If the anti-woke investor clientele is larger, then we should see overweighting of companies with high emissions in the aggregate. If one overlays this analysis with the familiarity-based home bias, then one should see overweighting of domestic companies with high emissions. Note, however, that these considerations do not necessarily predict a negative tilt of foreign companies with high emissions. The familiarity-based home bias only predicts a negative tilt for foreign stocks. When overlaid with an anti-woke bias, there should be a stronger negative tilt for foreign companies with high emissions.

A fifth consideration is the interest of some asset managers (particularly the largest ones) in catering to multiple investor clienteles to maintain and grow their assets under management. These institutional investors could taut their green credential by pointing to their overall negative tilt companies with high emissions, and at the same time accommodate their anti-woke clientele with a positive tilt towards domestic companies with high emissions. These asset managers are also likely to have related business with local companies (underwriting, pension fund management, etc.), which may be at risk if they reduce their stock holdings of these companies. This latter set of considerations could result in a *carbon home bias*; that is, a revealed preference for domestic brown companies combined with an aversion for foreign brown companies.

We examine how portfolio choices of investors reflect these considerations using global data on institutional investor portfolios over the period 2005-2022. We begin our analysis by examining whether institutional investors prefer companies with lower carbon footprints in the aggregate. Our main finding is that institutional investors significantly reduce their exposure to

companies that have a high carbon footprint, both in terms of their carbon intensity and the level of their emissions. Previous research has found that U.S. based institutional investors do use exclusionary screens based on carbon intensity (see e.g., Bolton and Kacperczyk, 2021). We confirm this finding and in addition establish that institutional investors worldwide apply such exclusionary screens. Somewhat surprisingly, we further find that institutional investors also base their exclusionary screens on the level of corporate emissions, not just intensity.

These findings are driven to a large extent by cross-industry differences in carbon emissions rather than by within-industry differences in carbon exposures of different companies. They are consistent with the dual hypothesis that carbon emissions are a risk factor to be avoided, and that institutional investors respond to public pressure to decarbonize their portfolios.

In a second step, we break down institutional investors' portfolios into local vs. foreign firm holdings. Our main finding here is that, controlling for other firm characteristics, country-fixed effects, and industry-fixed effects, institutional investors in the aggregate are more likely to tilt away from foreign rather than domestic companies with a higher carbon footprint, both in terms of levels and intensity. Notably, we find that the tilting effect is mostly driven by underweighting of foreign stocks. In comparison, there is little to no underweighting of domestic companies. If anything, institutional investors sometimes overweight domestic companies with high carbon footprints. These latter findings are most consistent with the hypothesis that institutional investors seek to cater to multiple clienteles, both green and anti-woke. They contradict the carbon-transition risk hedging hypothesis, for cross-country differences in carbon transition risk cannot be systematically mapped into a simple domestic versus foreign country classification. They also contradict the salience and overreaction hypothesis, which predicts that investors would tilt away more from domestic companies with high emissions than foreign companies.

We next investigate portfolio decisions at a more granular investor-firm level. Our analysis is twofold: 1) we analyze the intensive margin using institutional investor portfolio allocation shares that add up to 100 percent for each institution-time pair; and, 2) we analyze the extensive margin using an indicator variable for whether an institution holds a position in a firm in its investment opportunity set, which includes (following Koijen and Yogo, 2019) any stock that the institution has held at some point in the last three years. Several notable results emerge from this analysis. First, controlling for time fixed effects, firm characteristics, and aggregate portfolio home bias, we find that institutions tend to overweight domestic firms with higher carbon emissions at the intensive margin, and tilt away from foreign companies with similar characteristics. The foreign underweighting exceeds the domestic overweighting, thereby resulting in a combined lower carbon footprint of the portfolio. Remarkably, when we use institution-time fixed effects, which control

for time-varying institutional investor characteristics such as size, industry mandates, and location, as well as outside investor flows, the coefficients are virtually unchanged. At the extensive margin, we similarly find strong evidence of a preference for divestment of foreign firms with high emissions, but in contrast to the intensive margin results, domestic firms are also screened based on their emissions levels. In a third test, we further add firm-time fixed effects. These additionally absorb all time-varying firm-level characteristics, including industry and country affiliation. This allows us to zoom in on the combined effects of corporate location abroad and carbon emissions. The coefficients of the interaction term between location and emissions are significantly negative, both at the intensive and extensive margin, which is evidence against the null hypothesis that portfolio decisions only reflect stock-specific risk and firm characteristics, excluding the country location of the company. Notably, we also find that, while the coefficients of emission levels continue to be statistically significant with firm-time fixed effects, the significance of scope 1+2 emission intensity weakens considerably. Finally, we estimate the model with institution-time and institution-firm fixed effects, to account for the possibility of institution-specific stock selection policies. The findings for this specification are much weaker. At the extensive margin, institutional investors tend to reduce their exposures to stocks with higher carbon emissions, albeit with no differential effect between foreign and domestic firms.

The unexplained heterogeneity in the sensitivity of portfolio holdings to emissions measures calls for further explanations. As a first step, we investigate the exclusionary screening policies of the largest asset managers. Specifically, in each quarter and each region, we select the top-3 asset managers by their equity assets under management (AUM). The regions we consider are North America, Europe, and Asia. We focus on the portfolio choices of these nine large institutions. Several intriguing findings emerge from this analysis. First, the largest institutional investors significantly overweight local companies with a high carbon footprint relative to all other institutional investors. In sharp contrast, they underweight their holdings of foreign companies with a high carbon footprint significantly more than other institutional investors. Overall, the biggest asset managers display an even stronger carbon home bias than other institutions. These choices are consistent with the view that these asset managers are catering to multiple clienteles with different preferences and contradict general portfolio diversification goals. These findings may also reflect political pressures on the largest asset managers to hold local companies with a high carbon footprint. A notable recent example of such pressures is the decision by the Vanguard Investment Group to withdraw from the Net-Zero Investor Alliance in the charged political context in the U.S., where 15 state legislatures passed anti-ESG bills, including Texas, West

Virginia, and Florida.[1] A possible alternative explanation could be that the choices of large asset managers are simply dictated by economic interest, with more fee income coming from large domestic companies that also have a greater carbon footprint. The strong overweighting (underweighting) of domestic (foreign) polluters by the largest institutions in terms of their AUMs is consistent with this economic interest hypothesis.

We also find that the carbon home bias is stronger for institutions in North America, consistent with the hypothesis that political lobbying may be strongest in this region. Importantly, however, the carbon home bias remains significant even when U.S. institutions are excluded. Furthermore, the difference between U.S. and non-U.S. institutions is much smaller when it comes to divestment: institutions in all regions show clear divestment of foreign high-emission companies.

The carbon home bias appears to increase over time, e.g., following the Paris Climate Agreement of December 2015. This latter finding suggests that climate-related pressures on institutional investors may have intensified following this milestone. However, the effect is more robust on the extensive (divestment) than intensive margin, suggesting that more institutional investors have adopted exclusionary restrictions for carbon-related companies following the Paris Climate Agreement. This could be either because their clients changed their attitudes towards climate change or because of greater policy pressure.

Finally, triple difference tests around the closely contested 2016 U.S. presidential election provide additional evidence that national climate policy could be an important driver of portfolio tilts. Indeed, following the surprise election of Donald Trump, U.S. institutions significantly increased (decreased) their ownership of domestic (foreign) firms with higher emissions relative to non-U.S. institutions.

Overall, these findings paint a consistent picture of a growing divestment and underweighting by institutional investors worldwide of foreign companies with high carbon emissions. To the extent that the overwhelmingly largest portion of the asset management industry is based in the U.S., these findings imply that the carbon transition mainly exposes non-U.S. companies with high emissions to underinvestment risk. There are growing concerns that an unintended effect of the rise of ESG funds could be a drying up of capital flows to emerging markets.[2] Our findings are consistent with these concerns when it comes to stocks of companies with high carbon emissions, but not necessarily for other companies in emerging markets.

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[1] See Kerber and Hussein, *Vanguard quits net zero climate effort, citing need for independence*, Reuters, 7 December 2022. Their article highlights that "Top investors including Pennsylvania-based Vanguard, face mounting pressure from Republican U.S. politicians over their use of environmental, social and governance (ESG) factors in picking and managing securities".

[2] See Simon Mundy and Patrick Temple-West "How ESG strategies hurt emerging markets," *Financial Times* Moral Money, June 17, 2022.

Our study offers novel empirical evidence on the different treatment of domestic and foreign companies when it comes to managing carbon-transition risk. It is related to the literature on divestment spawned by Hong and Kacperczyk (2009) and to the portfolio diversification literature on the home bias following French and Poterba (1991). Several recent studies have found that institutional investors underweight U.S. firms with higher emission intensities (see e.g., Bolton and Kacperczyk, 2021, Pedersen et al., 2021). As for the differential underweighting of foreign stocks, Bolton and Kacperczyk (2020) offer some early evidence of the possible presence of a carbon home bias. Boermans and Galema (2023) find additional evidence that European institutional investors tend to underweight foreign companies relative to domestic companies with the same carbon intensity. Pastor et al. (2023) also find that in 2021, only 6%[3] of the investment industry's assets under management were tilted towards ESG criteria among U.S. stocks, with underweighting being a materially stronger effect than divestment. Consistent with this finding, Krueger et al. (2020) survey institutional investors on climate preferences and document a preference for risk management, ESG integration, and engagement as opposed to divestment or exclusionary screening. Importantly, a significant number of institutions believe that climate risks have material financial implications. The Global Sustainable Investment Review has found a remarkable shift from negative/exclusionary screening as the main strategy in 2016 and 2018, to ESG integration being the most common strategy in 2020.[4] Gibson et al. (2022) find that global investors who have signed the UN Principles for Responsible Investment have significantly higher portfolio-level ESG scores. In contrast, U.S. signatories have at best similar scores to non-signatories, raising greenwashing questions.

Several studies have documented the important role of foreign institutional investors as independent investors with fewer business ties (Gillian and Starks, 2003), as effective monitors (Ferreira and Matos, 2008), as promoters of investment and innovation (Bena et al. (2017), Luong et al. (2017)), and as improving price informativeness (Kacperczyk et al., 2021). Also, Dyck et al. (2017) find that foreign investors from countries with stronger environmental and social norms are active in driving firms to increase their E&S performance. Azar et al. (2021) have examined the global portfolios of the three largest U.S. asset managers (BlackRock, Vanguard, State Street) and document a negative relationship between their level of ownership and subsequent firm-level carbon emissions. Ownership by other, smaller institutions has no such relationship. Recently, Cao et al. (2023) show that foreign institutions reduce the emissions of their portfolio companies through active engagement.

[3] This figure compares with 76% of the authors' total sample AUM belonging to signatories of the UN PRI.
[4] https://www.gsi-alliance.org/wp-content/uploads/2021/08/GSIR-20201.pdf

Finally, our paper is also related to the large literature on the well-documented investor preferences for domestic equities. French and Poterba (1991) reveal a significant home bias in the world's largest stock markets and find evidence that the lack of global diversification is driven by investor decisions as opposed to institutional constraints. Familiarity and information asymmetry are key determinants in foreign investors' investment decisions and may in part help explain the home bias (see e.g., Chan et al., 2005). The home bias extends to within-country equity preferences, which correlate with investor performance and suggests informational advantages of investing locally (Coval and Moskowitz, 1999; 2001).

The remainder of the paper is organized as follows. Section 2 describes the data and provides summary statistics. Section 3 discusses the results on portfolio decisions of institutional investors with respect to corporate carbon footprints of the firms in their portfolios. Section 4 concludes.

2. Data

2.1 Data sources and variables definitions

Our global sample covers the 2005 to 2022 period. We combine essentially three data sources: 1) Firm-level carbon emissions from Trucost; 2) Institutional investor portfolio holdings from FactSet; and 3) Stock returns and corporate balance sheets from CRSP and Compustat. We augment this data with MSCI ACWI constituent information. We match the different data sets using ISIN and GVKEY as the main identifiers.

Trucost reports annual firm-level carbon and greenhouse gas emissions data for scope 1, 2, and 3 emissions in units of tons of CO2 equivalent. Scope 1 emissions are direct emissions from operations of affiliates that are owned or controlled by the company. Scope 2 emissions are those that come from the generation of purchased heat, steam, and electricity used by the company. Scope 3 emissions are indirect emissions caused by the company's operations and the use of its products. These include emissions from the production of purchased materials, product use, waste disposal, and outsourced activities. To assess upstream scope 3 emissions requires a detailed analysis of the share of emissions of producers in the supply chain that is attributable to the company's input purchases. This involves estimating an input-output model with sector-level emission factors. We only consider upstream scope 3 emissions as downstream emissions data is only available from 2017 onwards. We use the following variables in our empirical tests: *LOGS12TOT* and *LOGS3TOT* stand for the natural logarithm of, respectively, firm-level scope 1&2 and 3 (upstream) total carbon emissions, and *S12INT* and *S3INT* stand for firm-level scope

1&2 and 3 emission intensity variables defined as the level of emission divided by firm sales. We lag the data by four months and winsorize the intensity measures at the 2.5% level.

FactSet is a leading provider of institutional investor portfolio holdings information for a diverse array of institutions, including mutual funds, hedge funds, bank trusts, pension funds, insurance companies, and sovereign wealth funds. Ferreira and Matos (2008) use this data to study institutional investors around the world. Our data, updated quarterly, covers the period from 2005 to and including 2022. For U.S. equities, the ownership data is based on mandatory disclosures, such as SEC 13F and N-SAR filings. For non-U.S. equities, ownership information is gathered from a wide variety of sources, including regulatory agencies, company filings, stock exchange announcements, and mutual fund directories. Despite some cross-country differences, Kacperczyk, Nosal, and Wang (2023) show that the data covers a large fraction of all ordinary equity across individual countries.

Global accounting data is from Compustat, and we follow Jensen et al. (2023) to maximize variable coverage. We use the most recently reported data, and assume a four-month lag between the fiscal period end and public data availability. Return data for U.S. stocks are from CRSP and non-U.S. return data are from Compustat. We restrict our focus to common stocks identified as the primary security of the underlying firm. We remove nano-cap stocks with a market capitalization below the 1st percentile of the NYSE stocks at each point in time. Further, we exclude financials, investment trusts, and real estate companies. The final merged sample comprises 15,531 distinct firms and 11,788 institutional portfolios across 48 countries included in the MSCI ACWI Index as of May 2022.[5] We refer to Appendix Table A.1 for an overview of the number of firms in each country.

We determine institutional ownership at both the firm and investor-firm levels. At the firm level, total foreign institutional ownership ($IO\_FOR_{j,t}$) is defined as the fraction of firm *j*'s shares held at time *t* by institutions located in a different country than where the stock is listed. If a stock is not owned by any foreign institution, but is held by at least one domestic institution, $IO\_FOR_{j,t}$ is set to zero. Conversely, domestic institutional ownership ($IO\_DOM_{j,t}$) is defined as the fraction of firm *j*'s shares held at time *t* in relation to the firm's total outstanding shares by all institutions based in the same country where the stock is listed. If a stock is not owned by any domestic institution but is held by at least one foreign institution, $IO\_DOM_{j,t}$ is set to zero. Firm-level total institutional ownership ($IO_{j,t}$) is the sum of $IO\_DOM_{j,t}$ and $IO\_FOR_{j,t}$. At the investor-firm level, institutional ownership is denoted as $IO_{i,j,t}$ and given by institution *i's* ownership of firm *j*'s shares

[5] The MSCI All Country World Index (ACWI) captures large and mid-cap listings across 23 developed and 24 emerging markets. We additionally include Russia as it was excluded near the end of our sample period.

at time *t*. For each institution, we calculate the fraction of the portfolio AUM allocated to each sample firm on a quarterly basis and denote this PF_Share$_{i,j,t}$. Portfolio shares sum to 100% for each institution-time pair and this is our main dependent variable in studying the intensive margin.

To study the extensive margin, we follow Koijen and Yogo (2019) by defining an institution's investment universe as any stock a given institution has held at some point in the last 12 quarters. Stocks in the investment universe that are currently held are given a value of one and those no longer held but still in the investment universe are given a value of zero. We scale this binary variable by 100 for visual purposes. As we require three years of rolling data for the extensive margin analysis, this sample starts in 2008. An indicator variable, *FOR*, is assigned a value of one when an institution and a firm in its portfolio are based in different countries; otherwise, it is assigned the value zero. In both samples, we restrict the universe of institutions to those with at least 10 stocks in their portfolio, of which at least one holding must be domestic, and one must be foreign. Finally, we exclude institutions (holding companies) with 50% or more of their AUM allocated to a single firm. Appendix Table A.1 shows an overview of the number of unique sample institutions by country.

The main corporate characteristics we keep track of are: i) *LOGSIZE* which stands for the natural logarithm of a listed company's market capitalization (price times shares outstanding) in million $; ii) *B/M* which is the firm's book value divided by the most recent market cap; iii) *LEVERAGE* which is the ratio of gross debt to book value of assets; iv) momentum, *MOM*, which is given by the most recent 12 month returns on stock *j*, excluding month *t-1*; v) *ROE* which is given by the ratio of firm *j*'s net yearly income divided by the value of its book equity; vi) *RETVOL* which is the annualized standard deviation of daily returns over the past 12 months; vii) *BETA* which is the market beta of individual companies calculated over the preceding 12-month period using daily data; viii) capital expenditure, *INVEST/A*, which is the firm's capital expenditures divided by the book value of its assets; ix) MSCI, which is an indicator variable equal to one if a stock is part of the MSCI ACWI index at time *t*, and zero otherwise. To mitigate the impact of outliers we winsorize *B/M*, *LEVERAGE*, *MOM, ROE, RETVOL*, *BETA*, and *INVEST/A* at the 2.5% level in both tails of the distribution.

2.2 *Aggregate portfolio data*

To provide some context we begin by indicating some trends in institutional investor ownership over our sample period, aggregated both at the global and at the country level. Figure 1 presents the findings. The top two panels illustrate the trends for total institutional ownership. The left panel displays the total institutional ownership shares on an equal-weighted basis and the right panel the shares on a market cap-weighted basis. We observe that average institutional ownership

has declined slightly over our sample period. This is particularly true for the equal-weighted measures of ownership. The value weighted measures have been quite stable, which suggests that on average institutions have been tilting their portfolios more towards larger stocks. There are significant differences across countries. As expected, we observe that the U.S. has the highest fraction of institutional ownership, followed by the U.K., and then Germany and France. Notably, the equal-weighted averages are lower than value-weighted averages. While average institutional ownership shares in the U.S., Germany, and France have declined, institutional ownership has increased in the U.K.

We further break down institutional ownership into domestic and foreign institutional investors. A few patterns emerge. First, domestic institutional ownership is larger than foreign ownership, which is another manifestation of home bias. Second, domestic ownership shares are stable, with even a slight decline in some countries. In contrast, foreign ownership shares have risen, especially in the U.K. This is most evident for value-weighted ownership shares. Finally, we observe that U.S. domestic ownership shares are very high while foreign ownership shares are relatively small, even smaller than in France, Germany, and the U.K.

2.3 Summary statistics

We report mean, median, standard deviation, minimum, and maximum values, as well as 25th and 75th percentiles of each individual distribution for the main variables in our analysis. In Table 1, Panel A, we report these statistics based on a firm-level aggregation and quarterly frequency. Average institutional ownership in our sample is 29.1% but it is highly heterogenous with a standard deviation of about 30.7%. Domestic investors make up about two thirds of the total institutional ownership, but there is a large variation across firms and countries. We summarize the differences between domestic and foreign ownership using two variables. First, *IO_FOR_DIFF* is defined as the difference between *IO_FOR* and *IO_DOM*. This variable is expressed in the same units as its individual components. Second, one can express the relative contribution of each investor type using the ratio of foreign institutional ownership to total ownership. We define this variable as *IO_FOR_RATIO*. In our sample, the average (median) value of *IO_FOR_DIFF* equals -9.2% (0.5%) while the average (median) value of *IO_FOR_RATIO* equals 53.6% (57.8%). These metrics reveal that while on average domestic ownership far exceeds foreign ownership, foreign ownership is greater than domestic ownership for more than half of the sample firms.

Next, we summarize the variables related to carbon emissions. The average values of *LOGS12TOT* and *LOGS3TOT* are 11.39 and 12.07, respectively, corresponding to 88 and 175 thousand metric tons of CO2 equivalent per year, which underscores the importance of scope 3

emissions, despite the difficulty in estimating them. The respective median values are comparable to the mean values, revealing a low degree of skewness. In contrast, the measures of emission intensity, *S12INT* and *S3INT*, are highly skewed and 45% larger for scope 1&2 emissions than scope 3 emissions.

Finally, we report summary statistics for other firm characteristics. The average firm-level market capitalization in our sample equals $1.59 billion while the median value is only slightly lower at $1.54 billion. The average B/M is about 0.73, a significantly higher value than the median of 0.53. Among other characteristics, average book leverage is about 23%, average ROE equals 8%, average annual stock return volatility is 40%, and the average and median market beta is approximately 1. 29% of observations in our sample are stocks included in the MSCI ACWI index.

In Panel B, we report the same statistics but now aggregated at the institutional level. We observe that the average portfolio share is approximately 0.459% with a large standard deviation of 1.37%. The natural logarithm of the portfolio share variable is approximately normally distributed with a mean value close to the median. Unreported statistics reveal that this variable has skewness close to zero and kurtosis close to three. Portfolio shares of domestic firms are several times larger than those of foreign firms. Naturally, the summary statistics for most of our variables will be skewed towards companies that are held more by institutions, as those observations appear more often in our sample. As an example, the average firm size in this sample is $9.35 billion and 65% of the observations are stocks in the MSCI index, which is not surprising given the well-known institutional preference for holding larger stocks. Similarly, average emission levels for this sample are larger than those for the firm-level sample, whereas emission intensities are lower. The average institution holds 218 stocks approximately evenly split between domestic (104) and foreign (114) firms. In line with the well-known home bias, the more representative median institution holds a much higher fraction of domestic (39) to foreign (16) firms. The same is true for portfolio shares. Appendix Table A.2 shows descriptive statistics for the extensive margin sample.

3. Findings

We describe our regression specifications in this section and report our main findings. Our main dependent variables are institutional ownership defined in multiple ways and our primary explanatory variables relate to various corporate emission measures.

3.1 Firm-level evidence

We begin our analysis by looking at institutional ownership in aggregate at the firm level. We then proceed to analyze ownership at the institution-firm level. Our first regression model relates total

firm-level institutional ownership to measures of emission intensity and emission levels. We estimate the following pooled regression model:

$$IO_{j,t} = a_0 + a_1 Emission_{j,t} + a_2 Controls_{j,t} + a_{c,t} + \varepsilon_{j,t} \quad (1)$$

The following vector of controls is included in our regressions: *LOGSIZE, B/M, LEVERAGE, MOM, ROE, RETVOL, BETA, INVEST/A,* and *MSCI. Emission* is a generic variable that alternately represents *S12INT, S3INT, LOGS12TOT,* and *LOGS3TOT*. Moreover, all regressions include firm country-time fixed effects, $a_{c,t}$. In some specifications, we also include firms' GICS6 industry-time fixed effects. We refer to Table A.3 in the Appendix for an industry overview. We double cluster standard errors at the firm and year-quarter levels to allow for possible serial and cross-sectional dependence in the data. The models are estimated quarterly to align with the reporting of holdings. Our coefficient of interest is a_1, which measures institutional investors' ownership sensitivity to carbon emissions. We report the results from this model in Table 2. Columns 1-4 give the results for measures of carbon intensity and columns 5-8 the results for measures of total carbon emissions. Note that the last two columns in each set include industry-time fixed effects.

A first general result emerges from this analysis: Institutional investors in the aggregate significantly underweight (or divest from) companies associated with high carbon emissions, even after controlling for a host of firm-level characteristics. They do so by screening companies both on carbon intensity *and* on their total level of emissions. They apply the screens both to scope 1&2 and scope 3 emissions, although the coefficient of *LOGS3TOT* is only statistically significant at the 10% level. The economic magnitudes in this specification are small but notable: A one-standard-deviation increase in *S12INT* (*S3INT*) is associated with a 0.9 (0.6) percentage point lower institutional ownership. When we include industry-fixed effects, the results are much weaker and are statistically insignificant in most cases, especially for screens based on total emissions. This latter finding suggests that most of the institutional screening takes place at industry-level rather than on a best-in-class comparison of companies within their respective industries. This finding corroborates common perceptions that institutions, in aggregate, apply industry-level screens, and that institutional investors have lower holdings in industries with higher emissions. When it comes to other firm characteristics, our findings are consistent with those of other studies: Institutional investors tend to favor companies that are large, profitable, have lower volatility, and higher market

betas. Notably, in our sample, neither momentum nor book-to-market ratios correlate consistently with aggregate institutional ownership. Also, the *MSCI* dummy is insignificant in all specifications.[6]

In our next specification, we examine in greater detail how institutional investors choose which companies to underinvest in or divest from. We focus specifically on the country affiliation of companies, whether they are domestic or foreign companies relative to the institutional investors that hold their shares. In a fully integrated and frictionless investment world, as reflected in the international CAPM, diversified investors allocate their capital in proportion to the value-weights of assets, without considering which country a company is located in. There is plenty of evidence, however, of home bias in investors' portfolios. Is home bias also to be expected in the way in which investors choose to divest from companies with high carbon footprints? From a risk diversification perspective this is far from obvious *a priori* because carbon transition risk cannot systematically be greater abroad than at home. To address this question, we separate domestic and foreign investors in any given company and compare the extent to which they are more underweight in emission-intensive firms. Specifically, we estimate the following regression model:

$$IO\_FOR\_DIFF_{j,t} = b_0 + b_1 Emission_{j,t} + b_2 Controls_{j,t} + \alpha_{c,t} + \varepsilon_{j,t} \qquad (2)$$

This is the same specification as in equation (1) for the main right-hand side variables and controls (except that we also control for the level of institutional ownership, *IO*), but our dependent variable is now *IO_FOR_DIFF*, which is the difference in ownership between foreign and domestic institutions. Our coefficient of interest is b_1, which measures how much more sensitive foreign institutional stock holdings are relative to domestic institutional holdings to higher corporate carbon emissions. We report the results in Panel A of Table 3. For brevity, we only report the coefficients of our main variables of interest.

Without controlling for industry, we find that foreign investors are significantly more underweight than domestic investors in companies with higher scope 1&2 and scope 3 intensity and emission levels. The effects are statistically significant at the 5% and 1% levels for the measures of emission intensity and at the 1% level for both measures of total emissions. When we add industry-fixed effects, we find that there is a stronger and statistically significant differential divestment for scope 3 emission intensity, but no significant differential screening based on scope 1&2 intensity.[7] Importantly, we find that controlling for industry does not materially change the effects for emission levels. In terms of economic significance, our strongest results on emission

[6] While the *MSCI* coefficient is insignificant, it is significantly positive in a univariate regression. One reason for this result may be that the *MSCI* indicator is strongly correlated with *LOGSIZE*. The *MSCI* coefficient is also significantly positive when U.S. firms are excluded.

[7] Alternatively defining intensity as emissions divided by total book assets or by total market value of the firm results in significantly negative coefficients at the 1% level across all specifications (Appendix Table A.8).

levels suggest that for the same level of emissions, institutions divest from foreign companies by about 1.2 percentage points more than from domestic companies. This effect is economically large, especially given that the median difference between the two groups of holdings is about 0.6% and the mean difference is about -9%. The results for intensity metrics are somewhat weaker economically, with the divestment difference between foreign and domestic investors being driven mostly by the post-2015 observations, whereas the results for emission levels persist throughout the sample period (Appendix Table A.9).[8] These findings are confirmed visually in Figure 2, which plots the cumulative slope coefficients on the emission variables from quarterly cross-sectional regressions under model (2). In sum, when it comes to divestment, institutional investors are in aggregate significantly more likely to divest from a foreign company with high emissions intensity than from a domestic company.

We explore next the intensive margin in portfolio composition and ask whether institutional investors divest from all companies with high emissions, but more so from foreign companies? We answer this question by separately looking at domestic (*IO_DOM*) and foreign ownership (*IO_FOR*) in regression model (1). We report the results in Panel B (for domestic firms) and Panel C (for foreign firms) of Table 3. Some intriguing findings emerge from this analysis. First, institutional divestment based on carbon emissions (levels and intensities) is largely a foreign-firm phenomenon. The coefficients of carbon emission metrics for foreign stocks are negative and highly significant (both economically and statistically) across all specifications. The only exception is divestment of scope 1&2 emissions in the specification with industry-time fixed effects. For domestic firms, on the other hand, we find very little comparable evidence (the only negative and statistically significant coefficients are those for emission intensity of scope 1&2 in the specification without industry fixed effects, and for scope 3 intensity at the 10% level of significance, which turns significantly positive with industry fixed effects). What is even more striking is that for many specifications, institutions appear to exhibit a preference for holding domestic stocks with higher emissions, contrary to the view that divestment is mostly independent of the country in which the company located (or mostly driven by the extent of transition risk in any given country). This is particularly true when we look at exclusionary filters based on emission levels. This last observation is particularly noteworthy given that the positive tilt based on emission intensity is much weaker, which suggests that screening based on emission intensities masks institutional preferences for high-revenue (and high-emission) companies.

[8] The overall results are very similar when using the foreign ratio as opposed to the foreign difference (Appendix Table A.10).

3.2 Institution-level evidence

The aggregated firm-level regressions in the preceding section mask any underlying investor-level heterogeneity (apart from their country affiliation relative to the companies they invest in). Some investors (domestic or foreign) may reduce their stock holdings in high-emission stocks more than others, either because they are more concerned about climate change and climate transition risk, or because they face tighter regulatory constraints, or more asset owner pressure. Other investors may increase their holdings in stocks with higher emissions either because they see an investment opportunity, or because of political pressures. There could also be barriers to foreign direct investment between any pair of countries. In addition, the composition of investors could change over time in a way that affects the average firm-level effects we have identified, in which case these average effects would not reflect individual *investor* preferences for stocks with different emission levels. Finally, portfolio choices may simply reflect time-varying risk characteristics observed at the firm level. The granularity of our data allows us to unpack many of these confounding effects. We observe firm-level equity holdings separately for each institutional investor, so that we can estimate the following regression model using investor-firm-time level data:

$$LN\left(PF\ SHARE_{i,j,t}\right) = c_0 + c_1 Emission_{j,t} + c_2 FOR_{i,j,t} + c_3 Emission_{j,t} * FOR_{i,j,t} + \\ + c_4 Controls_{j,t} + FIXED\ EFFECTS + \varepsilon_{i,j,t} \quad (3)$$

where $LN\left(PF\ SHARE_{i,j,t}\right)$ is the natural logarithm of the share of institution *i's* portfolio AUM allocated to stock *j* in year-quarter *t*. The variable $FOR_{i,j,t}$ is an indicator variable which takes the value one if the company *j* is not based in the same country as institutional investor *i* holding the stock in year-quarter *t* and takes the value zero otherwise. Importantly, this indicator variable allows us to control for the well-known home bias. The set of controls is the same as that used in model (1). We also interact each individual control with the indicator variable *FOR* to reflect any possible differential preferences for stocks between domestic and foreign investors. We double cluster standard errors at the institution and year-quarter levels. Our main coefficient of interest is c_3, which measures the sensitivity of stock holdings to carbon emissions of a foreign firm for a given institutional investor. We report the results from this regression in Table 4, Panel A for measures of intensity, and Panel B for measures of total emissions. Again, we omit reporting the coefficients of all other control variables for brevity. Columns 1 and 5 include only year-quarter (time) fixed effects. The remaining columns include institution-time fixed effects. In addition, columns 3 and 7 include firm-time-fixed effects; columns 4 and 8 include institution-firm fixed effects.

The findings for the specifications in columns 1 and 4 reveal that, institutional investors tend to be more exposed to domestic stocks with higher carbon footprints, both in terms of their scope 3 intensity and scope 1&2 and scope 3 levels. The coefficient estimate of scope 1&2 intensity is significantly negative at the 10% level. Second, we find a strong offsetting effect for foreign firms with similar levels of emissions. The coefficients of the interaction terms between emissions and *FOR* are all significantly negative at the 1% level and greater in absolute magnitude than the baseline coefficient. These results are not driven by the time-invariant or time-varying institutional fixed effects. To be sure, when we control for institution-time fixed effects, in columns 2 and 5, we find very similar results as in columns 1 and 4, albeit with the baseline coefficient on scope 1&2 intensity now also significantly positive.[9] Figure 3 shows the time-series evolution using quarterly cross-sectional regressions; it clearly shows that while institutions overweight domestic firms with higher emissions, foreign firms with similar characteristics are underweighted by a larger magnitude. This holds true for most of the time series since 2005 for the coefficients of emissions levels but it is a more recent phenomenon for the coefficients of emission intensities. The specification in columns 3 and 6, with institution-time and firm-time fixed effects, allow us to further absorb time invariant and time-varying firm-level heterogeneity not captured by the control variables. This specification is particularly useful if one thinks of a model of portfolio holdings that are affected by cross-sectionally and time-varying risk and expected return stock characteristics. With institution-time and firm-time fixed effects, the coefficient of emissions, c_1, is absorbed by the model and we are left only with the coefficient, c_3, of the interaction term between emissions and the foreign indicator. While the coefficient estimate is significantly reduced relative to columns 2 and 5, it remains negative in all specifications and significantly so at the 1% level in all the regression specifications, except for that with scope 1&2 intensity. This suggests that domestic/foreign portfolio choices of investors reflect more than just firm-level characteristics. To shed further light on this result, Figure 4 shows the same time-series evolution as in Figure 3 but additionally includes firm-fixed effects in the quarterly cross-sectional regressions. For all but scope 3 emission levels, we find that the foreign divestment effect is mostly taking place after 2013; for scope 1&2 intensity holdings are higher prior to this period, which explains the insignificant result over the full sample period. The final test in columns 4 and 8 with institution-time and institution-firm fixed effects allows us to control for time-invariant selection of institutions into individual stocks. When we absorb this variation in the data, the results are mostly statistically insignificant, although the baseline coefficient is slightly positive for scope 3 emissions. This general insignificance compared with the results for the other specifications

[9] As a robustness test, defining intensity as emissions divided by total book assets or by total market value of the firm also results in significantly negative foreign interaction coefficients across all specifications (Appendix Table A.12).

indicates that institutions have more stable preferences for stocks and that their portfolio decisions with respect to location are not driven by slow-moving changes in emissions. Given this stability in preferences, we focus in the remaining sections on specifications (2-3) and (6-7).

The preceding results reveal a significant carbon home bias at the intensive margin. What about the extensive margin? To consider the extensive margin of which stocks institutions choose to invest in or divest from, we replace the dependent variable in equation (3) with $OWN_{i,j,t}$, which indicates whether institution *i* holds a position in firm *j* from its stock universe in year-quarter *t*. For visual purposes, we multiply this binary dependent variable by 100 throughout our analysis. We report the results in Table 5. As for the intensive margin results, we find a clear bias against foreign firms with higher emissions in the first three specifications (columns 1-3 and 5-7). This means that institutions are significantly more likely to fully divest from these firms. Unlike the intensive margin results, however, we find that institutions are also more likely to divest from domestic firms with higher emissions levels. This is visually confirmed in Figure 5, which also shows that divestment of domestic firms with high emissions is mostly true in the latter half of the sample period. When we include firm-fixed effects in the quarterly regressions, the patterns are similar (see Figure 6). In the final column with institution-firm fixed effects, another interesting result emerges. For all four measures of emissions, we find evidence of entry and exit patterns of stocks in institutional investor portfolios based on firms' carbon emissions, with no consistent differential treatment of foreign and domestic stock holdings.

Robustness Tests. Even if firms are located in a particular country, they may have global operations. Accordingly, we control for firms' foreign sales or asset shares as a robustness test and find that although firms with more foreign activities do have higher foreign ownership, this does not alter the main finding of divestment of foreign firms with higher emissions (Appendix Table A.13). In a separate robustness test, we also control for any potential links or barriers between countries by including a triple interacted fixed effect of institution and firm-country in each period. This additional control does not materially change our results (Appendix Table A.14).

3.3 Cross-sectional and time-series heterogeneity

We explore the variation in the cross-section by breaking down institutional investors by characteristics, such as the size of their AUMs and their type.

In the first set of tests, we look at size. There are several channels through which institution size may matter. First, institution size may reflect special roles and related financial services they provide, which could affect home bias and exposure to carbon transition risk. Second, large institutions may be subject to greater pressure from asset owners with respect to the carbon footprint of their portfolio. We examine the role of institution size in two ways. First, we focus on

the three largest institutional investors (in terms of equity AUM) in three different regions, North America, Europe, and Asia (i.e., 9 in total), henceforth denoted as top-3 institutions. Given that institution size tends to vary over time, the list is refreshed every quarter. We report the exact names of the end-of-year largest institutions in Tables A.4-A.6.[10] As an example, in December 2022 the three largest institutions in North America were BlackRock, Vanguard, and State Street; in Europe these were Amundi, Legal & General, and Baillie Gifford; in Asia these were Nikko, Nomura, and Daiwa Asset Management Companies. We define *TOP3* as an indicator variable equal to one if an institution belongs to the top-3 subset of investors in a given year-quarter. We estimate the following regression model:

$$LN\left(PF\ SHARE_{i,j,t}\right) = d_0 + d_1 Emission_{j,t} + d_2 FOR_{i,j,t} + d_3 Emission_{j,t} * FOR_{i,j,t} + \\ + d_4 Emission_{j,t} * FOR_{i,j,t} * TOP3_{i,t} + d_5 Controls_{j,t} + \alpha_{i,t} + \varepsilon_{i,j,t} \quad (4)$$

Our results reported in Table 6 reveal some interesting patterns. Focusing on the intensive-margin results (columns 1-4), we find that apart from scope 1&2 intensity, top-3 institutions not only significantly overweight domestic firms, but also underweight foreign firms with high emissions relative to the other institutions. Top-3 institutions therefore display an even stronger carbon home bias than the average institution outside the top-3; however, the baseline results on emissions, and the interaction between emissions and the foreign indicator are also significant for the other institutions and are consistent with the results reported in Table 4. This means that the carbon home bias is not solely driven by the top-3 funds. At the extensive margin, the coefficients have the same sign but are less significant (columns 5-8). Our finding that top-3 institutions display their preference through tilting rather than divesting suggests that these powerful institutions structure their portfolios more from a risk-management perspective than based on mandates or political pressure.[11]

A possible interpretation of the stronger carbon home bias among top-3 institutions could be that they have a preferential treatment for domestic emitters, either because they are subject to additional lobbying from domestic political constituencies or because of cross-selling of other financial services to domestic companies. Should these institutions be subject to pressures to decarbonize their portfolios, they may find divestment from foreign firms to be an easier route to

[10] The institutional portfolios in FactSet reflect historical mergers and acquisitions; for example, BlackRock Fund Advisors reflects the 2006 and 2009 acquisitions of Merrill Lynch Investment Management and Barclays Global Investors, respectively. We focus on local asset management institutions in each region and, as an example, exclude BlackRock's UK Asset Management Division or Norges Bank (an asset owner) in the Europe region's top-3 category.
[11] While several of the top-3 institutions can be described as, at least partially, passive they still have discretion in the products they offer and their marketing of the funds.

do so. Another possibility is that the powerful top-3 institutions engage effectively with polluters and can have a greater impact when ownership is higher, and the firm is in proximity.

More insights can be gained by further exploiting differences in institution size. It is plausible that political lobbying and business ties are likely to be the strongest for the largest institutions, but not just top-3 ones. We examine these possibilities by looking at a broader cross-section of funds grouped into size quartiles. Quartile 1 includes the smallest 25% of institutions in each quarter based on their AUM while quartile 4 includes the largest 25% of institutions.[12] We report the results from estimating model (3) for each group in Table 7. In Panel A, we focus on measures of emissions based on intensities, and in Panel B we focus on measures based on total levels of emissions. We observe a clear cross-sectional variation in preferences for emissions across different quartiles. First, we find that the largest institutions are the ones that are most likely to divest from foreign companies with higher emissions. Moreover, this divestment more than compensates for the lack of divestment of domestic stocks with high emissions. Second, most institutional size quartiles tend to overweight domestic stocks with higher emissions. Unlike for the top-3 institutions, the largest quartile of institutions as a group does not appear to overweight domestic polluters more than the smaller institutions. Turning to the likelihood of holding a position in a firm, Table 8 confirms that the largest institutions have the highest propensity to fully divest foreign polluters and have a lower propensity to divest domestic polluters relative to smaller institutions. In sum, the carbon home bias is mostly driven by the largest institutions.

To explore regional differences in investor behavior, we explore next how the portfolio decarbonization choices made by institutional investors located in North America differ from those in the rest of the world. We estimate the following regression model:

$$LN(PF\ SHARE_{i,j,t}) = e_0 + e_1 Emission_{j,t} + e_2 FOR_{i,j,t} + e_3 Emission_{j,t} * FOR_{i,j,t} + \\ + e_4 Emission_{j,t} * FOR_{i,j,t} * NAM_{i,t} + e_5 Controls_{j,t} + \alpha_{i,t} + \varepsilon_{i,j,t} \quad (5)$$

where $NAM_{i,t}$ is an indicator variable that takes the value one if an institution *i* at time *t* is located in North America and zero otherwise. Our coefficient of interest is that of the triple interaction term, e_4, which measures how a given institutional investor's stock holdings relate to carbon emissions, depending on whether the stock is foreign or domestic, and whether the investor is located in or outside North America. We report the results from these regression in Table 9. We find that institutional investors located in North America are more likely to hold a lower position in foreign rather than domestic companies with similar emissions (and similar stock characteristics)

[12] Institutional AUM is based on the aggregate market value of equity holdings in U.S. dollars. There is substantial cross-sectional heterogeneity in portfolio sizes (Appendix Table A.7).

than are investors outside North America. This is true for all specifications (columns 1-4). These results are both statistically significant and economically large. However, at the extensive margin, North American institutional investors stand out in this way only for exclusionary screens based on scope 1&2 intensity (column 5).

Most of the observations in our sample are for U.S.-based institutions. Yet, our intensive and extensive margin results generally hold well when we exclude these observations from the sample (see Appendix Tables A.15-16). When we break down our results by the three major regions in our sample, we find that North America displays the strongest home bias at the intensive margin (Appendix Table A.17). On the extensive margin, European and Asian institutions divest more from foreign firms with high carbon emission levels (Appendix Table A.18). The maps in Figures 7-14 display our results by institution-country (with institution-time fixed effects) and show that the carbon home bias is a global phenomenon, which is particularly strong at the extensive margin for exclusionary screens based on emission levels.

As an additional test of investor heterogeneity, we split institutional investors into two broad categories, investment managers (investment companies, investment advisors, and hedge funds) and others (banks, insurers, and pension funds). If the carbon home bias is partially a manifestation of stakeholder pressures or business ties, we would expect *a priori* that investment managers exhibit different portfolio decarbonization policies than asset owners. This is because long-term investors are typically subject to greater pressure than are standard asset managers, whose main objective is return maximization. We test this hypothesis in Table 10, which estimates the following regression model:

$$LN(PF\ SHARE_{i,j,t}) = f_0 + f_1 Emission_{j,t} + f_2 FOR_{i,j,t} + f_3 Emission_{j,t} * FOR_{i,j,t} + \\ + f_4 Emission_{j,t} * FOR_{i,j,t} * INVMNGR_{i,t} + f_5 Controls_{j,t} + \alpha_{i,t} + \varepsilon_{i,j,t} \quad (6)$$

where $INVMNGR_{i,t}$ is an indicator variable that takes the value one if an institution i at time t is classified as an investment manager (investment companies, investment advisors, and hedge funds) and zero otherwise (banks, insurers, and pension funds). The coefficient f_4 measures how the different classes of institutional investors differ in their stock holdings, as they relate to carbon emissions of foreign versus domestic firms. The results in Table 10 reveal that investment managers tend to underweight foreign polluters more than asset owners. There is limited evidence of a differential treatment of domestic polluters, which tend to be overweighted by both categories of investors (columns 1-4). At the same time, only investment managers fully divest in a significant way from domestic polluters, whereas both categories tend to divest from foreign polluters. Overall, asset owners appear to be less likely to divest from domestic firms, with which they may

have stronger business ties than investment managers. Public pension funds may also be subject to more political pressure.

Another relevant question is whether divestment is focused mostly in a few sectors (fossil fuel energy companies, transportation, and electric utilities). To find out, we look at institutional investor portfolios by controlling for these salient industries tied to fossil fuels and estimate how portfolios underweight stocks with high carbon emissions. We estimate the following regression model, which controls for these salient industries:

$$LN(PF\ SHARE_{i,j,t}) = g_0 + g_1 Salient_{j,t} + g_2 Emission_{j,t} + g_3 FOR_{i,j,t} + \\ + g_4 Salient_{j,t} * FOR_{i,j,t} + g_5 Emission_{j,t} * FOR_{i,j,t} + g_6 Emission_{j,t} * FOR_{i,j,t} * \\ * Salient_{j,t} + g_7 Controls_{j,t} + \alpha_{i,t} + \varepsilon_{i,j,t} \quad (7)$$

where $Salient_{j,t}$ is an indicator variable equal to one if company *j* belongs to a salient industry at time *t*, and zero otherwise. The results are reported in Table 11. There is overwhelming evidence of greater ownership of domestic firms in salient industries, and of divestment from foreign firms in salient industries. But the most significant results are related to the emissions coefficients and their consistently negative foreign interaction, which reveals within-industry exclusionary/negative screening over and beyond broad industry screens.[13] This is not a surprising result in light of our previous robustness results to the inclusion of firm-time fixed effects (Tables 4-5).

Finally, we explore how changing attitudes towards climate change have affected institutional investor portfolio composition. Carbon divestment was a less salient issue in the earlier years of our sample, in particular before the Paris Climate Agreement, which introduced major national decarbonization pledges and raised awareness about the looming climate crisis. Accordingly, we test whether there has been a change in divestment policies around the Paris Climate Agreement by estimating the following regression model:

$$LN(PF\ SHARE_{i,j,t}) = h_0 + h_1 Emission_{j,t} + h_2 FOR_{i,j,t} + h_3 Emission_{j,t} * FOR_{i,j,t} + \\ + h_4 Emission_{j,t} * FOR_{i,j,t} * Post2015_t + h_5 Controls_{j,t} + \alpha_{i,t} + \alpha_{j,t} + \varepsilon_{i,j,t} \quad (8)$$

where $Post2015_t$ is an indicator variable that takes the value one if stock ownership is observed post 2015 and zero otherwise. Our coefficient of interest is h_4, which measures how a given institutional investor holdings of foreign stocks of firms with a certain level of carbon emissions differ before and after 2015. To isolate the change in divestment of foreign firms, while controlling for all firm characteristics, we additionally include firm-time fixed effects in this specification. We

[13] We find a similar result in the aggregated firm-level analysis (Appendix Table A.11).

report the results from this regression in Table 12, in which Panel A covers the intensive margin and Panel B the extensive margin. In both panels, columns 1-4 include all institutions and columns 5-8 include only the top-3 institutions.[14] In Panel A, we report that institutional investors in aggregate have mostly introduced exclusionary screens based on intensity measures for foreign firms post Paris. On the other hand, differential divestment based on emission levels is already visible before Paris, with no structural break following the climate agreement. At the extensive margin, we find evidence in all specifications that there was significant foreign divestment prior to the agreement and that this effect strengthened afterwards. For the top-3 institutions, the carbon home bias significantly materialized prior to the 2015 agreement for all exclusionary screens except scope 1&2 intensity emissions. Following the agreement, we find an offsetting increase in the intensive margin, but evidence of a strong strengthening effect based on screens for emissions levels at the extensive margin. In sum, relative to all institutions, top-3 institutions appear to have reacted to the Paris Agreement by excluding foreign firms with high absolute emissions, but at the same time have made smaller adjustments to the carbon footprint of their portfolios.

As a second test of changing attitudes, we explore how institutions have responded to expected policy changes by conducting event studies in narrow windows around the close of the 2016 and 2020 U.S. presidential elections. The respective winners, Donald Trump and Joe Biden, had markedly different climate approaches and policies with Trump promising to withdraw from the Paris Climate Agreement, while Biden promised to reverse this action. For each event, we focus on the four quarters around the event, treating the first two as the pre-event window. We focus on a balanced panel in the institution and firm dimensions and estimate the following model:

$$\begin{aligned} LN\left(PF\ SHARE_{i,j,t}\right) = {} & i_0 + i_1 Emission_{j,t} + i_2 FOR_{i,j,t} + i_3 Emission_{j,t} * FOR_{i,j,t} + \\ & + i_4 Emission_{j,t} * FOR_{i,j,t} * PostEvent_t + i_5 Emission_{j,t} * FOR_{i,j,t} * PostEvent_t * \\ & * US\_INST_{j,t} + i_5 Controls_{j,t} + \alpha_{i,t} + \varepsilon_{i,j,t} \end{aligned} \quad (9)$$

where $PostEvent_t$ is an indicator variable that is equal to one if the period is in the two quarters following either the U.S. Presidential Election in 2016 ("Post-Trump") or in 2020 ("Post-Biden"), and $US\_INST_{j,t}$ is in indicator variable taking the value one if an institution is located in the U.S. and zero otherwise. Our coefficients of interest are i_4 and i_5, which measure how U.S. institutions have reacted to the events in adjusting their domestic and foreign holdings of high emitters relative to non-U.S. institutions. Following Trump's election, we find evidence that U.S. institutions significantly increased their holdings of domestic firms with higher emissions relative to

[14] In the separate top-3 analysis, we one-way cluster standard errors by institution-time to avoid biased standard errors due to the low number of institutions (clusters).

institutional investors in the rest of the world (see Table 13, columns 1-4). Conversely, U.S. institutions offset this increase by lowering their holdings of foreign firms with higher emissions. At the extensive margin (Table 13, columns 5-8), we find no consistent evidence of a similar effect. Turning to Biden's election (Table 14), the results are generally insignificant, but most coefficient estimates for e_4 are negative, indicating some weak evidence of divestment of U.S. firms by U.S. institutions in response to expectations of a tighter climate policy. The results are comparable if we replace $US\_INST_{j,t}$ with an indicator $US\_FIRM_{j,t}$ denoting whether a firm is located in the U.S. (Appendix Tables A.19-20). These results provide some evidence that the carbon home bias may in part be driven by national climate policies.

4. Conclusion

Institutional investors are at the center of the global capital market carbon transition. Given their growing size and widespread reach, they are key players in shaping corporate decarbonization policies, either through their investment allocations and pricing of carbon transition risk, or through direct engagement. Indeed, this is why any policy shift or announcement of the largest asset managers is increasingly met by extensive media scrutiny. It is important to understand what portfolio choices institutional investors have made, and are likely to make, to be able to better determine what the likely outcomes will be of climate policy.

We have shown that institutional investors treat foreign carbon emitters differently from domestic ones. There is a significant carbon home bias, over and above the typical home bias displayed by their portfolios. This effect holds even after controlling for the underlying differences in firm carbon emissions, the time-varying characteristics of stocks, and the time-varying characteristics of the investors. These latter findings suggest that the carbon home bias is more than a reflection of risk-return portfolio optimization. Political pressure or business considerations related to cross-selling of other financial services seem to drive institutional investors to favor domestic over foreign companies with high carbon emissions.

Our study provides clear evidence of the presence of a carbon home bias. More work is needed, however, to precisely identify and quantify the source of this bias. Our empirical analysis has centered around specific events, such as changes in political administrations in the United States, but our global setting is not suited for a micro-level analysis on the underlying factors driving the carbon home bias.

References

Alok, Shashwat, Nitin Kumar, and Russ Wermers, 2020, "Do fund managers misestimate climatic disaster risk?" *The Review of Financial Studies*, 33(3): 1146–1183.

Barberis, Nicholas, 2013, "The psychology of tail events: Progress and challenges." *American Economic Review*, 103 (3): 611–616.

Boermans, Martijn and Rients Galema, 2023, "Carbon home bias of European investors", DNB Working Paper 786.

Bolton, Patrick and Marcin Kacperczyk, 2020, "Carbon premium around the world," CEPR Discussion Paper No. DP14567

Bolton, Patrick and Marcin Kacperczyk, 2021, "Do investors care about carbon risk?", *Journal of Financial Economics* 142(2), 517–549.

Bolton, Patrick and Marcin Kacperczyk, 2023, "Global pricing of carbon-transition risk" *Journal of Finance* 78(6), 3677–3754.

Bolton, Patrick and Marcin Kacperczyk, 2022, "Firm commitments", Imperial College Working paper.

Busch, Timo, Matthew Johnson, and Thomas Pioch, 2018, "Consistency of corporate carbon emission data", University of Hamburg Report WWF Deutschland, Hamburg.

Cao, Jie, Xintong Zhan, Weiming Zhang, and Yaojia Zhang, 2023, "Foreign institutional ownership and corporate carbon emissions", Working paper.

Chan, Kalok, Vicentiu Covrig, and Lilian Ng, 2005,"'What determines the domestic bias and foreign bias? Evidence from mutual fund equity allocations worldwide", *Journal of Finance* 60(3), 1495–1534.

Coval, Joshua D. and Tobias J. Moskowitz, 2001, "The geography of investment: informed trading and asset prices", *Journal of Political Economy* 109(4), 811–841.

Coval, Joshua D. and Tobias J. Moskowitz, 1999, "Home bias at home: local equity preference in domestic portfolios", *The Journal of Finance* 54(6), 2045–2073.

Dyck, Alexander, Karl Lins, Lukas Roth, and Hannes Wagner, 2019, "Do institutional investors drive corporate social responsibility? International evidence", *Journal of Financial Economics* 131(3), 693–714.

Engle, Robert, Stefano Giglio, Heebum Lee, Bryan Kelly, and Johannes Stroebel (2020) "Hedging climate change news" *Review of Financial Studies* 33, 1184–1216.

Ferreira, Miguel and Pedro Matos, 2008, The colors of investors' money: the role of institutional investors around the world, *Journal of Financial Economics* 88(3), 499–533.

French, Kenneth R. and James M. Poterba, 1991, "Investor diversification and international equity markets". *The American Economic Review* 81(2), 222–226.

Gibson, Rajna, Glossner, Simon, Krueger, Philipp, Matos, Pedro, and Steffen, Tom, 2022, "Do responsible investors invest responsibly?", *Review of Finance* 26, 1389–1432.

Gillan, Stuart L. and Laura T. Starks, 2003, "Corporate governance, corporate ownership, and the role of institutional investors: a global perspective", *Journal of Applied Finance* 13, 4–22.

Hong, Harrison and Marcin Kacperczyk, 2009, "The price of sin: The effects of social norms on markets." *Journal of Financial Economics* 93(1), 15–36.

Jensen, Theis I., Bryan T. Kelly, and Lasse H. Pedersen, 2023, "Is there a replication crisis in finance?" *Journal of Finance* 78, 2465–2518.

Jevons, William S., 1865, "The coal question: An inquiry concerning the progress of the nation, and probable exhaustion of our coal mines." London: Macmillan and Co.

Kacperczyk, Marcin, Jaromir Nosal, and Tianyu Wang, 2023, "Global volatility and firm-level capital flows", Working Paper, Imperial College.

Kacperczyk, Marcin, Savitar Sundaresan, and Tianyu Wang, 2021, "Do foreign institutional investors improve price efficiency?", *The Review of Financial Studies* 34(3), 1317–1367.

Koijen, Ralph and Motohiro Yogo, 2019, "A demand system approach to asset pricing", *Journal of Political Economy* 127(4), 2019, 1475–1515.

Krueger, Philipp, Zacharias Sautner, and Laura T. Starks, 2020, "The importance of climate risks for institutional investors", *Review of Financial Studies* 33(3), 1067–1111.

Luong, H., Moshirian, F., Nguyen, L., Tian, X., & Zhang, B., 2017, "How do foreign institutional investors enhance firm innovation?" *Journal of Financial and Quantitative Analysis* 52(4), 1449–1490.

Pastor, Lubos, Robert F. Stambaugh, and Lucian A. Taylor, 2023, "Green tilts", No 31320, NBER Working Paper.

Pedersen, Lasse, Shaun Fitzgibbons, and Lukasz Pomorski, 2021, "Responsible investing: The ESG-efficient frontier", *Journal of Financial Economics* 142(2), 572–597.

Tversky, Amos, and Daniel Kahneman, 1992, "Advances in prospect theory: Cumulative representation of uncertainty." *Journal of Risk and uncertainty* 5: 297–323.

Wu, Youchang, and Josef Zechner, 2024, "Political preferences and financial market equilibrium," SSRN: https://ssrn.com/abstract=4645132.

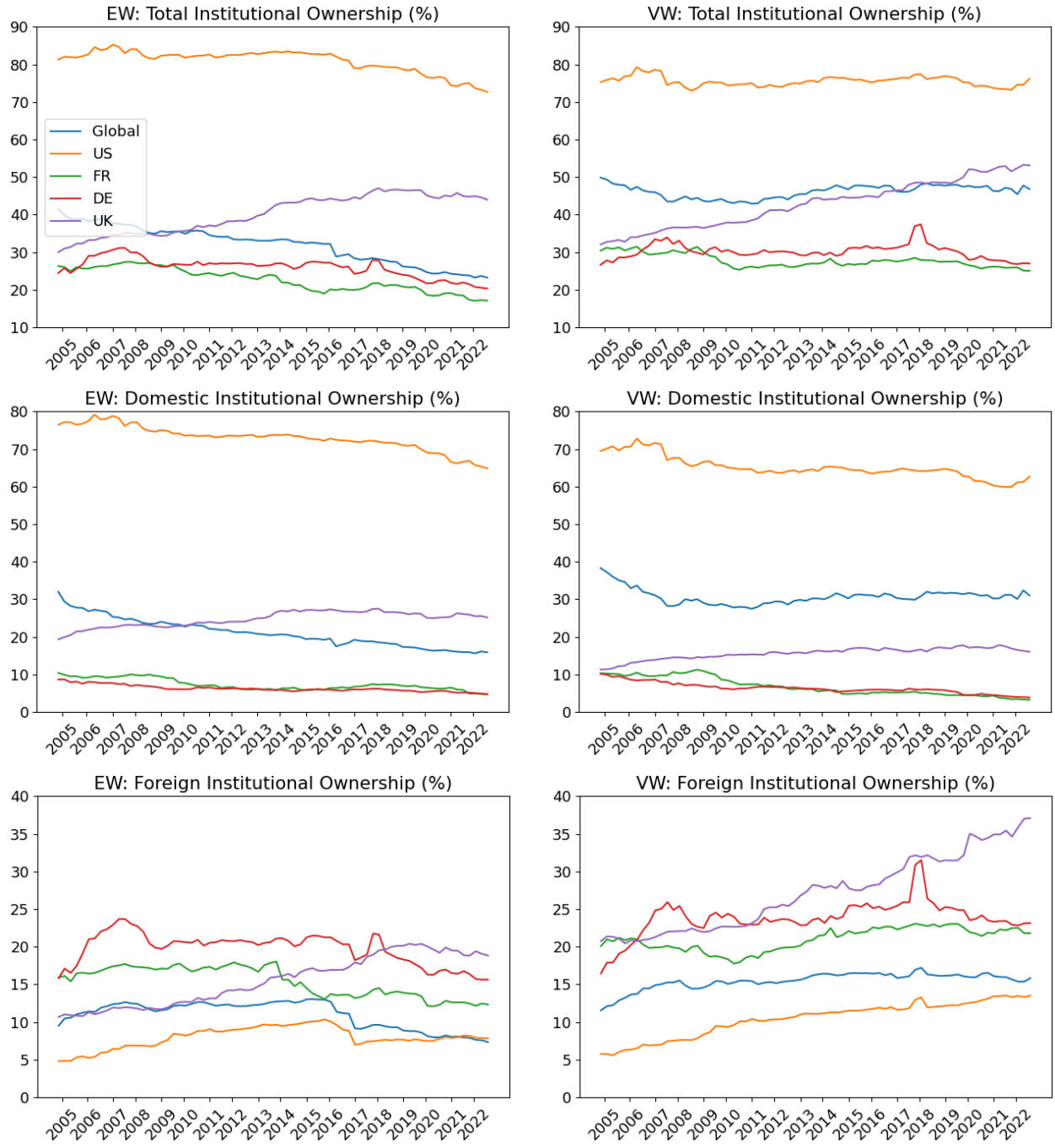

Figure 1: Institutional Ownership Over Time: Total, Domestic, and Foreign Breakdown for the Sample Firms on an Equal- and Value-Weighted Basis

Figures show institutional ownership over time for the sample firms globally ("Global"), in the United States ("US"), France ("FR"), Germany ("DE"), and the United Kingdom ("UK"). The sample period is 2005-2022. The left-hand-side panel shows equal-weighted ownership, and the right-hand-side shows value-weighted ownership. The top, middle, and bottom rows show total, domestic, and foreign ownership, respectively.

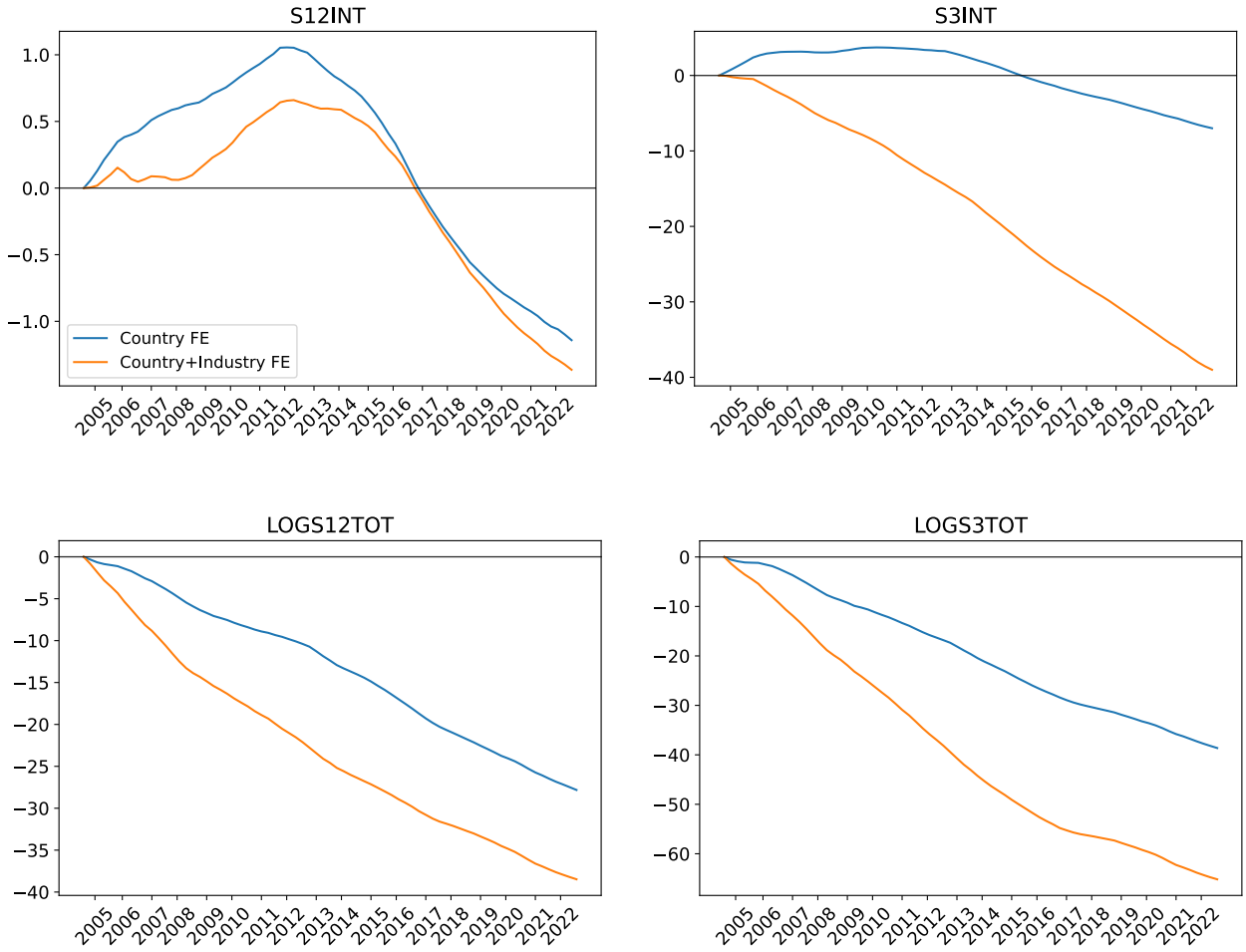

Figure 2: Cumulative Carbon Slope Coefficients: Firm-Level Foreign Difference in Institutional Ownership

Figures show cumulative slope coefficients from quarterly cross-sectional regressions of the dependent variable, $IO\_FOR\_DIFF_{j,t}$, the difference between foreign and domestic ownership of firm j at time t, on carbon emission intensities (top panel) and carbon emission levels (bottom panel) with additional controls defined in Panel A of Table 1. The sample is the firm-level observations in the 2005-2022 period. All regressions include firm country fixed effects. In addition, the orange lines include industry fixed effects.

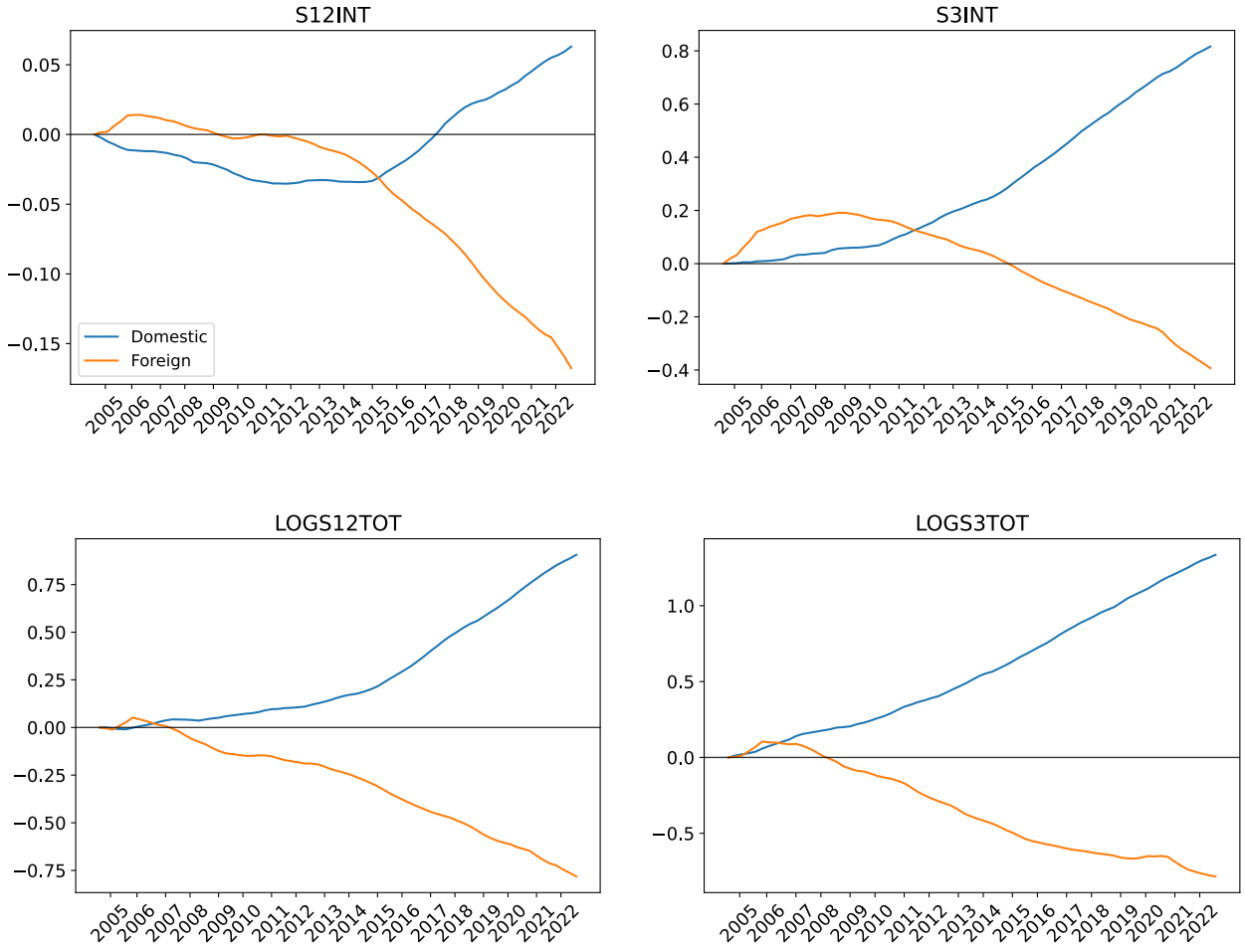

Figure 3: Cumulative Carbon Slope Coefficients: Institutional-Level Ownership Effect (Intensive Margin with Institution Fixed Effects)

Figures show cumulative slope coefficients from quarterly cross-sectional regressions of the dependent variable, $LOG(PF\_SHARE_{i,j,t})$, on carbon emission intensities (top panel) and carbon emission levels (bottom panel) with additional controls defined in Panel B of Table 1. The blue lines (domestic) show the baseline coefficient estimate on the emission variable. The orange lines (foreign) show the total foreign coefficient, calculated as the baseline coefficient estimate on the emission variable plus the coefficient estimate on the interaction between the foreign indicator and the emission variable. The sample is the institutional-level observations in the 2005-2022 period. All quarterly regressions include institution fixed effects.

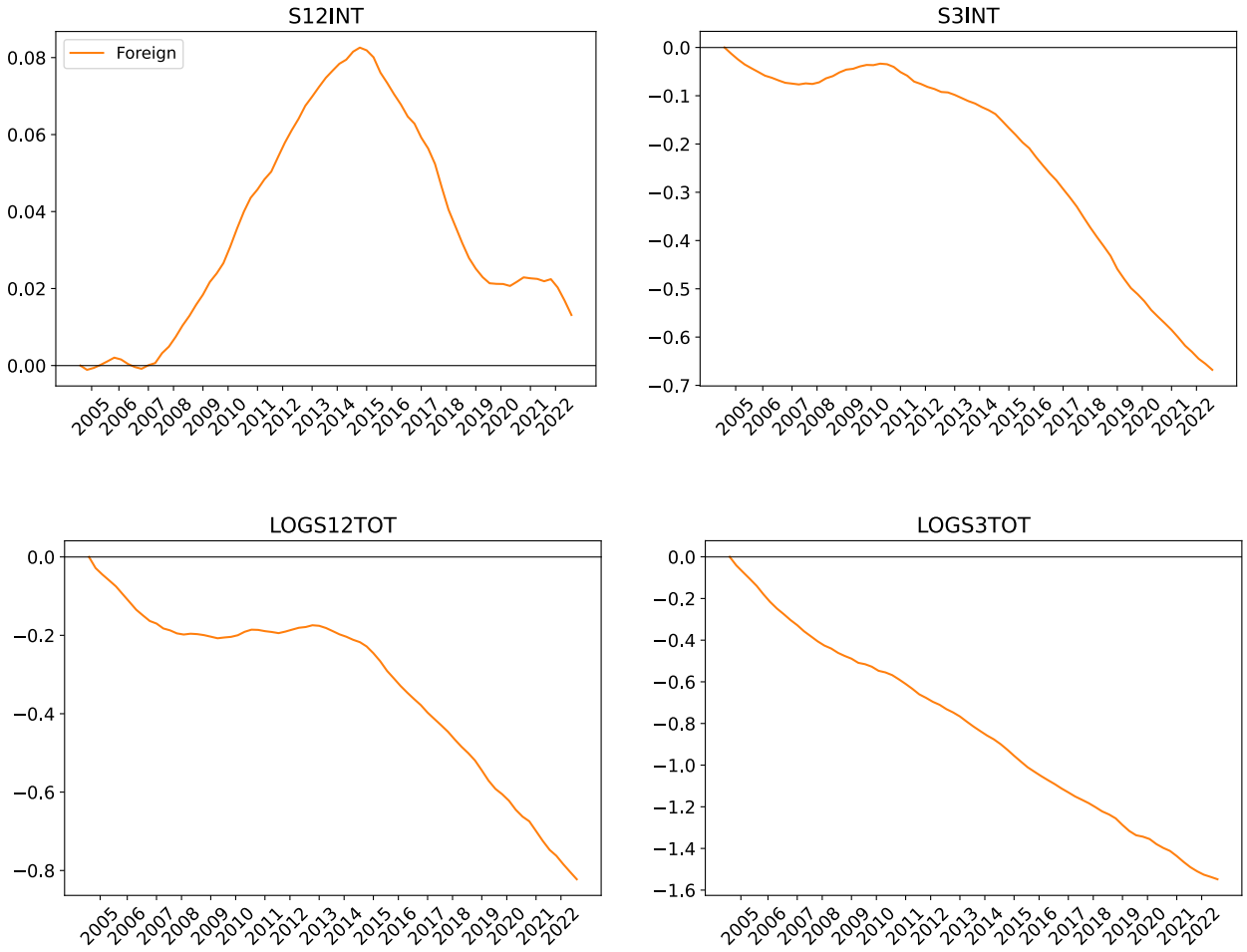

Figure 4: Cumulative Carbon Slope Coefficients: Institutional-Level Ownership Effect (Intensive Margin with Institution and Firm Fixed Effects)

Figures show cumulative slope coefficients from quarterly cross-sectional regressions of the dependent variable, $LOG(PF\_SHARE_{i,j,t})$, on carbon emission intensities (top panel) and carbon emission levels (bottom panel) with additional controls defined in Panel B of Table 1. The lines show the coefficient estimate on the interaction between the foreign indicator and the emission variable. The sample is the institutional-level observations in the 2005-2022 period. All quarterly regressions include institution and firm fixed effects.

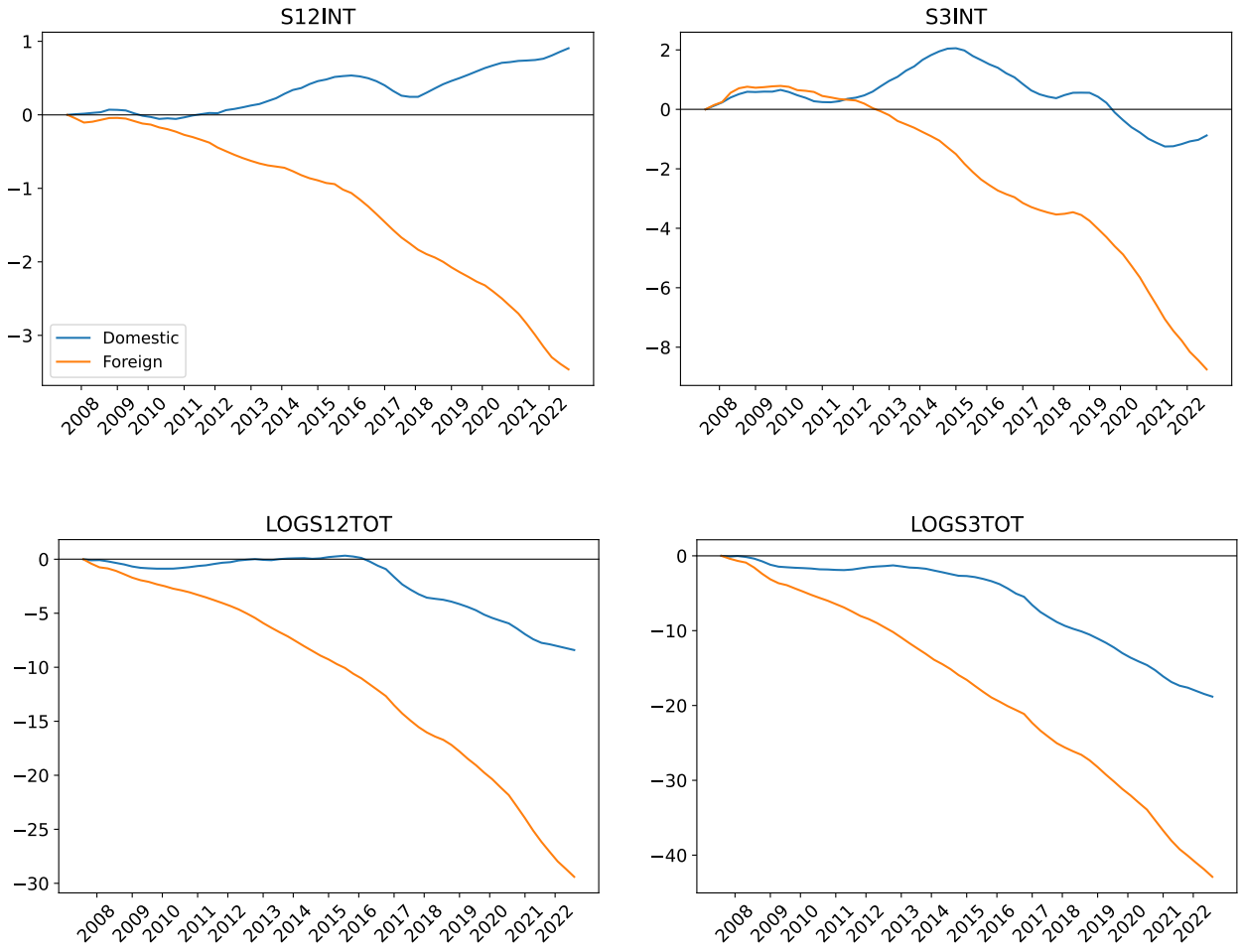

Figure 5: Cumulative Carbon Slope Coefficients: Institutional-Level Stock Selection Effect (Extensive Margin with Institution Fixed Effects)

Figures show cumulative slope coefficients from quarterly cross-sectional regressions of the dependent indicator variable, $OWN_{i,j,t}$, on carbon emission intensities (top panel) and carbon emission levels (bottom panel) with additional controls defined in Panel B of Table 1. The blue lines (domestic) show the baseline coefficient estimate on the emission variable. The orange lines (foreign) show the total foreign coefficient, calculated as the baseline coefficient estimate on the emission variable plus the coefficient estimate on the interaction between the foreign indicator and the emission variable. The sample is the institutional-level observations in the 2008-2022 period. All quarterly regressions include institution fixed effects.

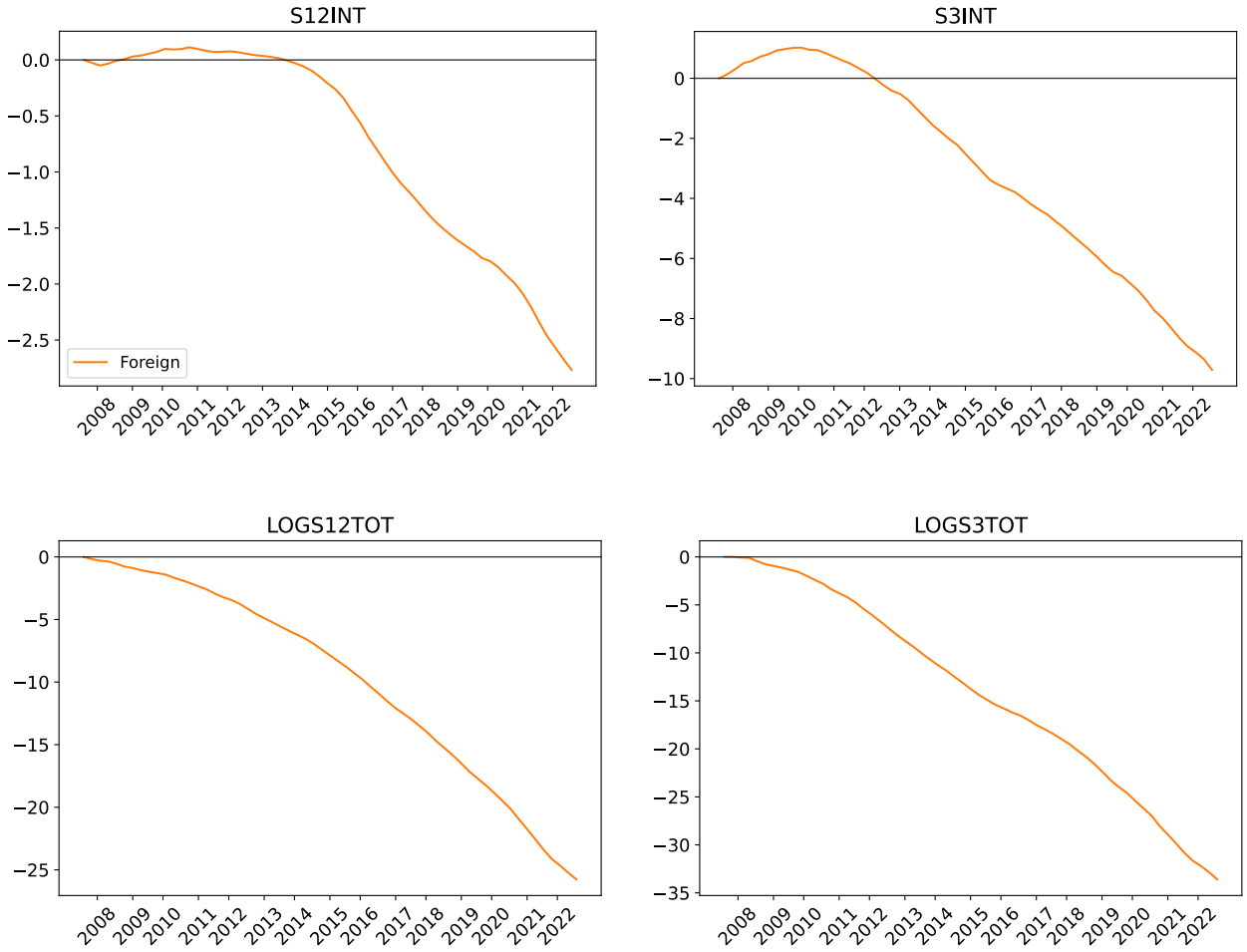

Figure 6: Cumulative Carbon Slope Coefficients: Institutional-Level Stock Selection Effect (Extensive Margin with Institution and Firm Fixed Effects)

Figures show cumulative slope coefficients from quarterly cross-sectional regressions of the dependent indicator variable, $OWN_{i,j,t}$, on carbon emission intensities (top panel) and carbon emission levels (bottom panel) with additional controls defined in Panel B of Table 1. The lines show the coefficient estimate on the interaction between the foreign indicator and the emission variable. The sample is the institutional-level observations in the 2008-2022 period. All quarterly regressions include institution and firm fixed effects.

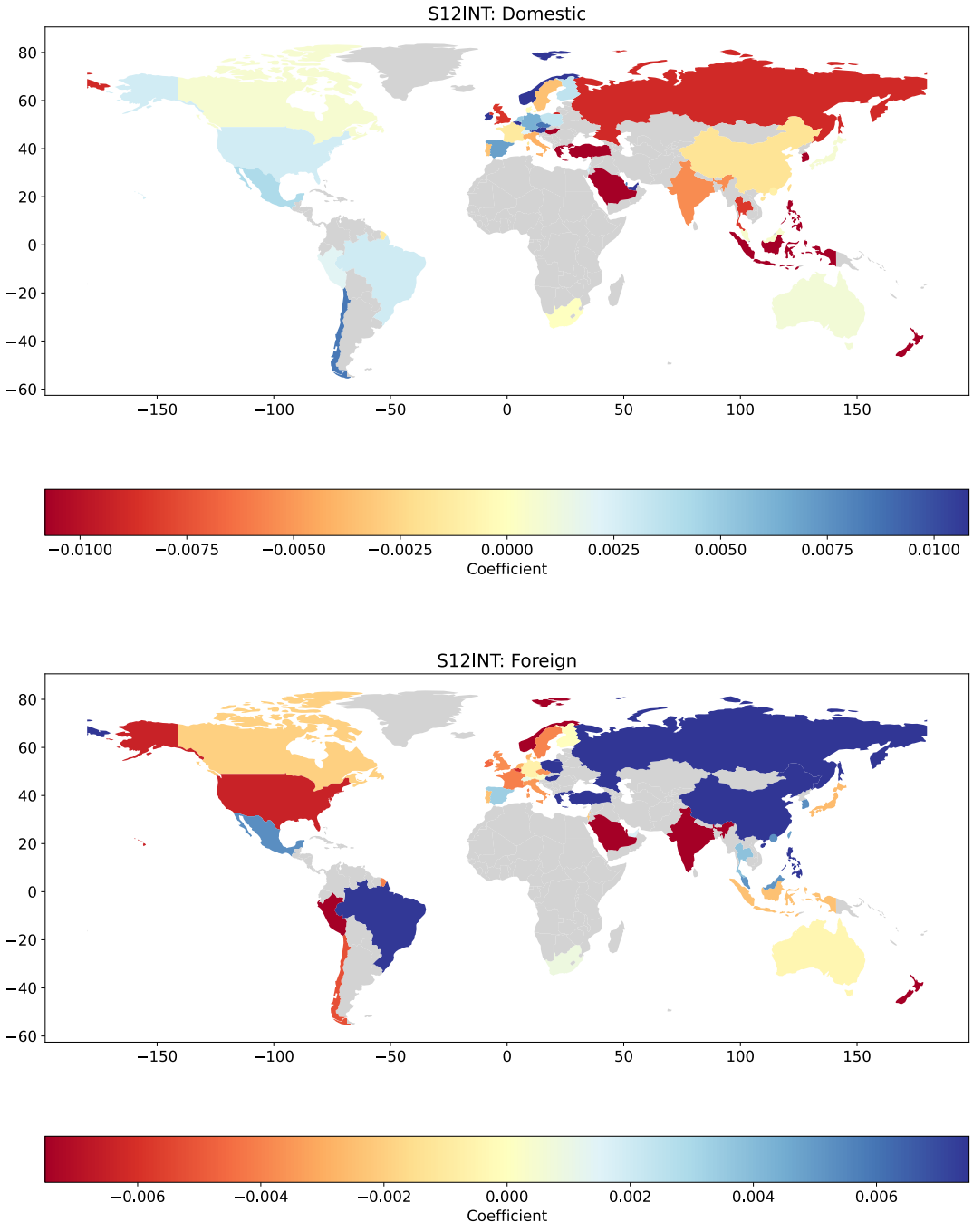

Figure 7: Carbon Slope Coefficients by Country: S12INT (intensive margin)

The maps show institution-country-level slope coefficients from regressions of the dependent variable, $LOG(PF\_SHARE_{i,j,t})$, on carbon emission scope 1+2 intensity with additional controls defined in Panel B of Table 1. The top panel (domestic) shows the baseline coefficient estimate on the emission variable. The bottom panel (foreign) shows the total foreign coefficient, calculated as the baseline coefficient estimate on the emission variable plus the coefficient estimate on the interaction between the foreign indicator and the emission variable. The sample is the institutional-level observations in the 2005-2022 period. All regressions include institution-year/quarter fixed effects.

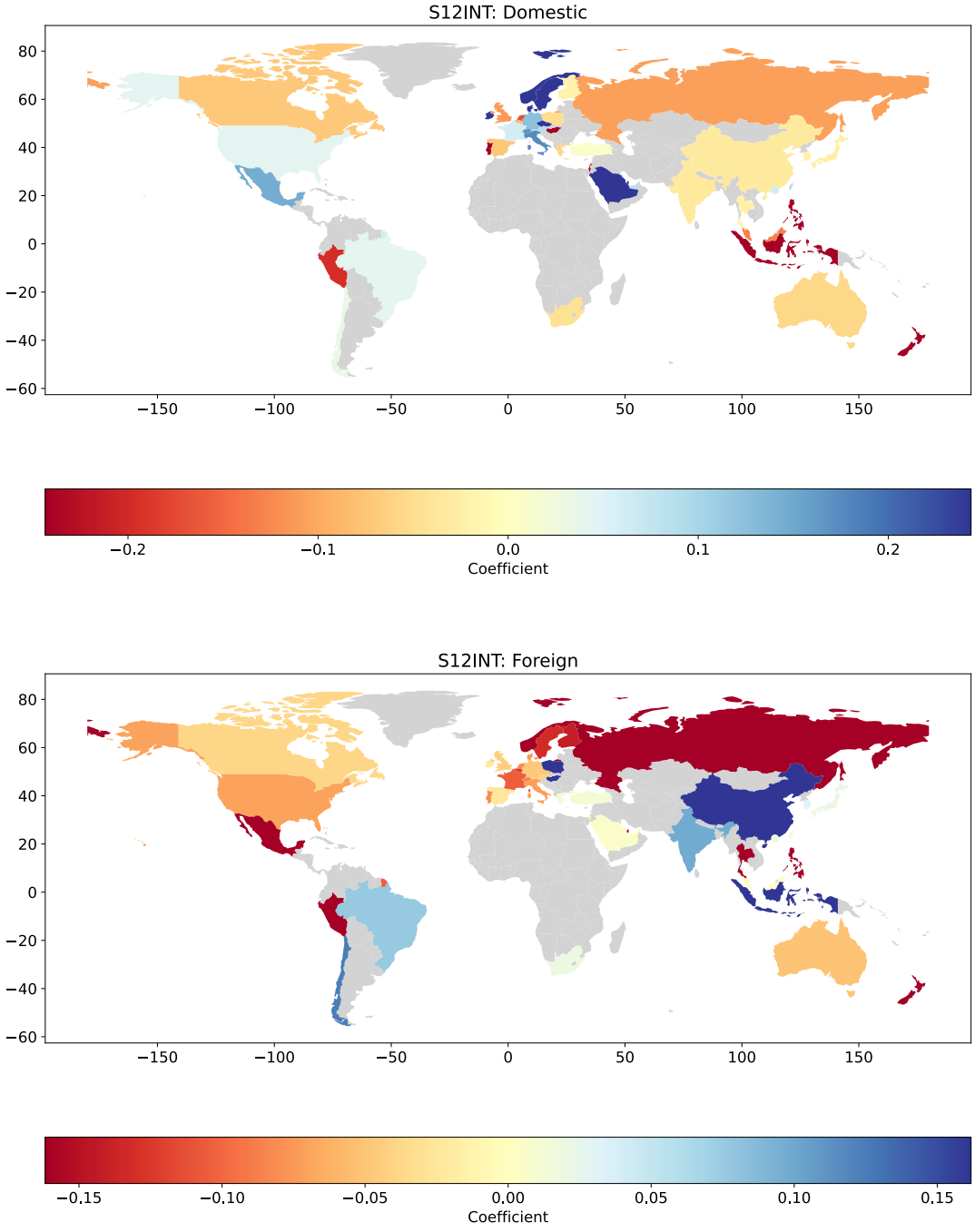

Figure 8: Carbon Slope Coefficients by Country: S12INT (extensive margin)

The maps show institution-country-level slope coefficients from regressions of the binary dependent variable, $OWN_{i,j,t}$, on carbon emission scope 1+2 intensity with additional controls defined in Panel B of Table 1. The top panel (domestic) shows the baseline coefficient estimate on the emission variable. The bottom panel (foreign) shows the total foreign coefficient, calculated as the baseline coefficient estimate on the emission variable plus the coefficient estimate on the interaction between the foreign indicator and the emission variable. The sample is the institutional-level observations in the 2008-2022 period. All regressions include institution-year/quarter fixed effects.

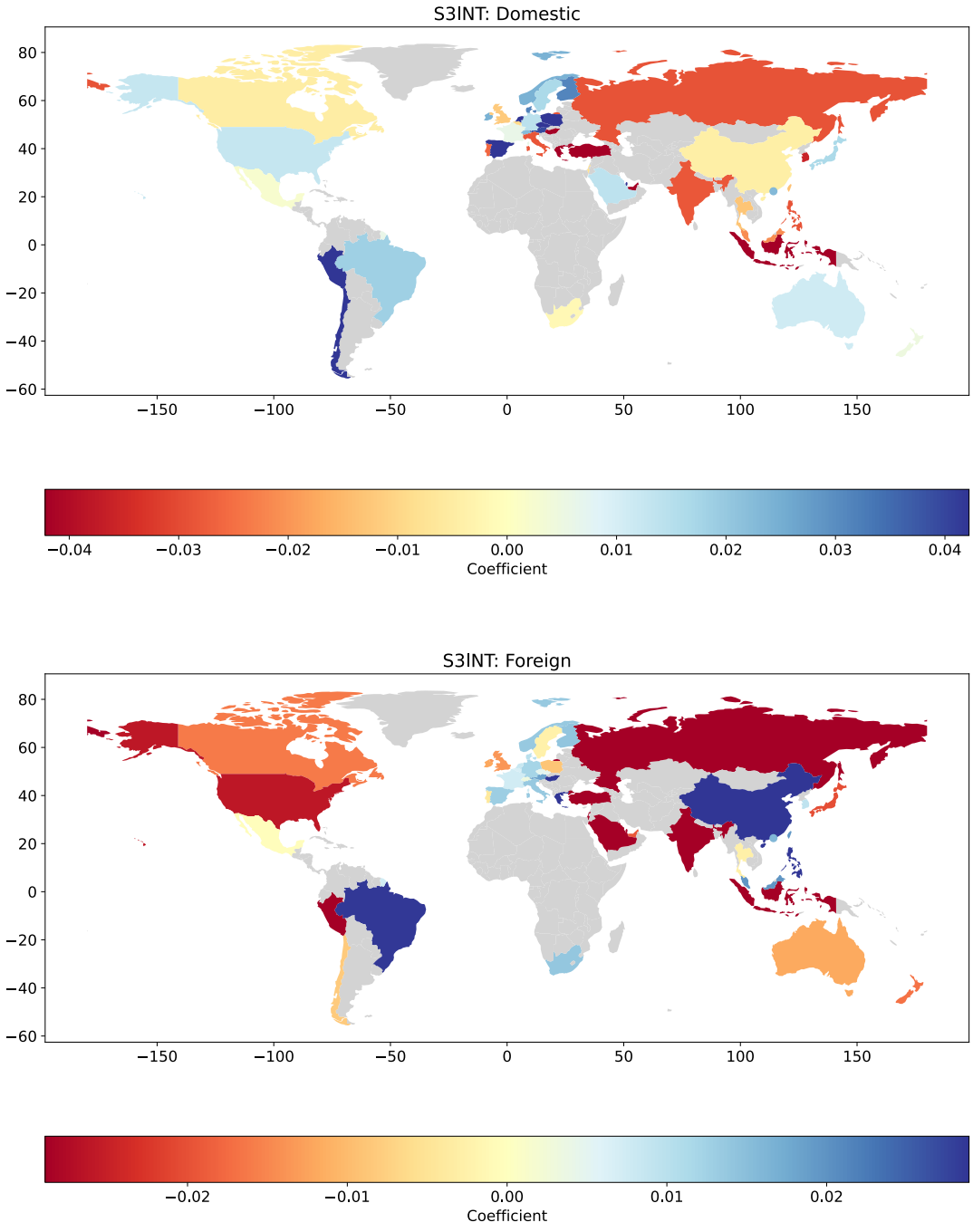

Figure 9: Carbon Slope Coefficients by Country: S3INT (intensive margin)

The maps show institution-country-level slope coefficients from regressions of the dependent variable, $LOG(PF\_SHARE_{i,j,t})$, on carbon emission scope 3 intensity with additional controls defined in Panel B of Table 1. The top panel (domestic) shows the baseline coefficient estimate on the emission variable. The bottom panel (foreign) shows the total foreign coefficient, calculated as the baseline coefficient estimate on the emission variable plus the coefficient estimate on the interaction between the foreign indicator and the emission variable. The sample is the institutional-level observations in the 2005-2022 period. All regressions include institution-year/quarter fixed effects.

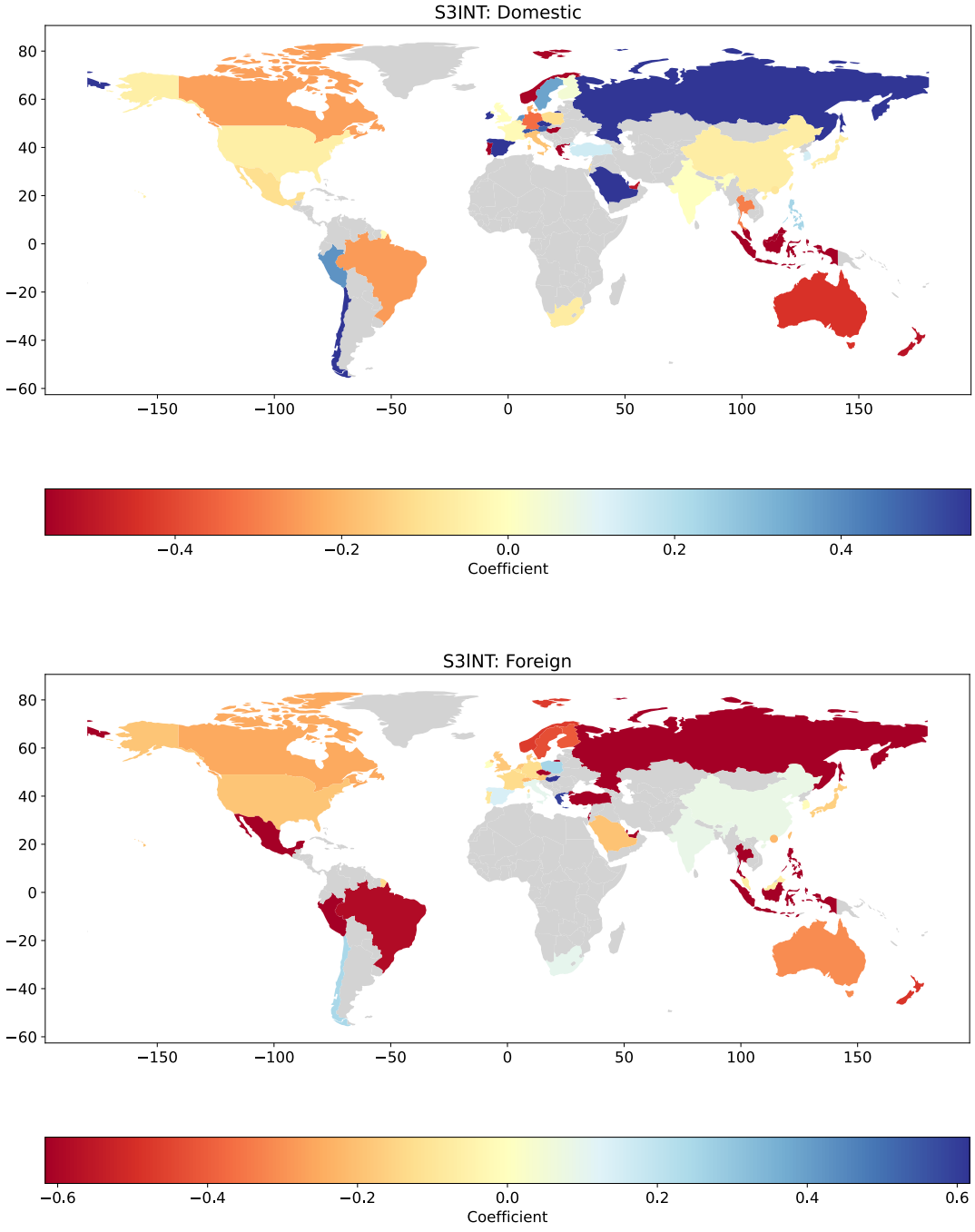

Figure 10: Carbon Slope Coefficients by Country: S3INT (extensive margin)

The maps show institution-country-level slope coefficients from regressions of the binary dependent variable, $OWN_{i,j,t}$, on carbon emission scope 3 intensity with additional controls defined in Panel B of Table 1. The top panel (domestic) shows the baseline coefficient estimate on the emission variable. The bottom panel (foreign) shows the total foreign coefficient, calculated as the baseline coefficient estimate on the emission variable plus the coefficient estimate on the interaction between the foreign indicator and the emission variable. The sample is the institutional-level observations in the 2008-2022 period. All regressions include institution-year/quarter fixed effects.

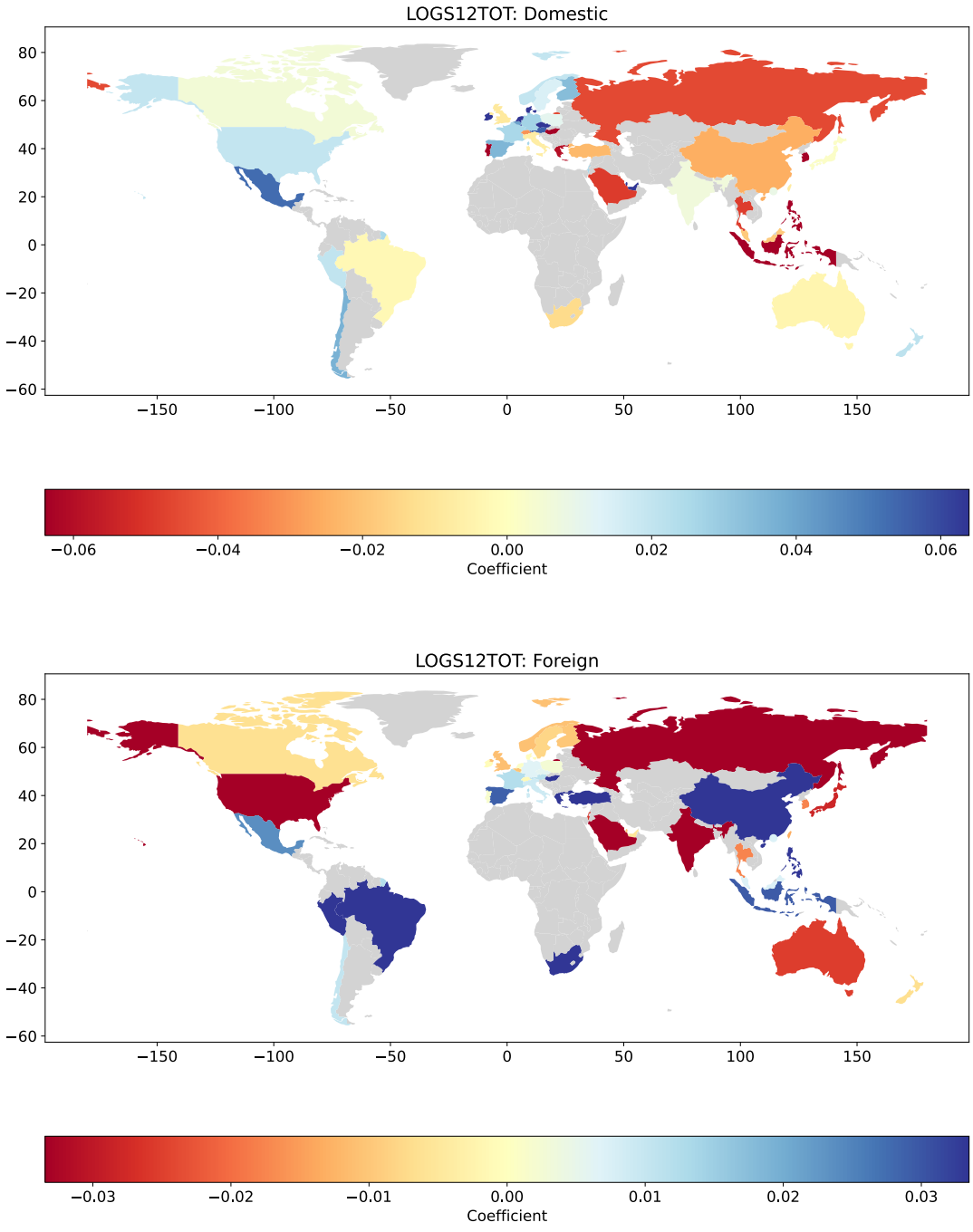

Figure 11: Carbon Slope Coefficients by Country: LOGS12TOT (intensive margin)

The maps show institution-country-level slope coefficients from regressions of the dependent variable, $LOG(PF\_SHARE_{i,j,t})$, on carbon emission scope 1+2 levels with additional controls defined in Panel B of Table 1. The top panel (domestic) shows the baseline coefficient estimate on the emission variable. The bottom panel (foreign) shows the total foreign coefficient, calculated as the baseline coefficient estimate on the emission variable plus the coefficient estimate on the interaction between the foreign indicator and the emission variable. The sample is the institutional-level observations in the 2005-2022 period. All regressions include institution-year/quarter fixed effects.

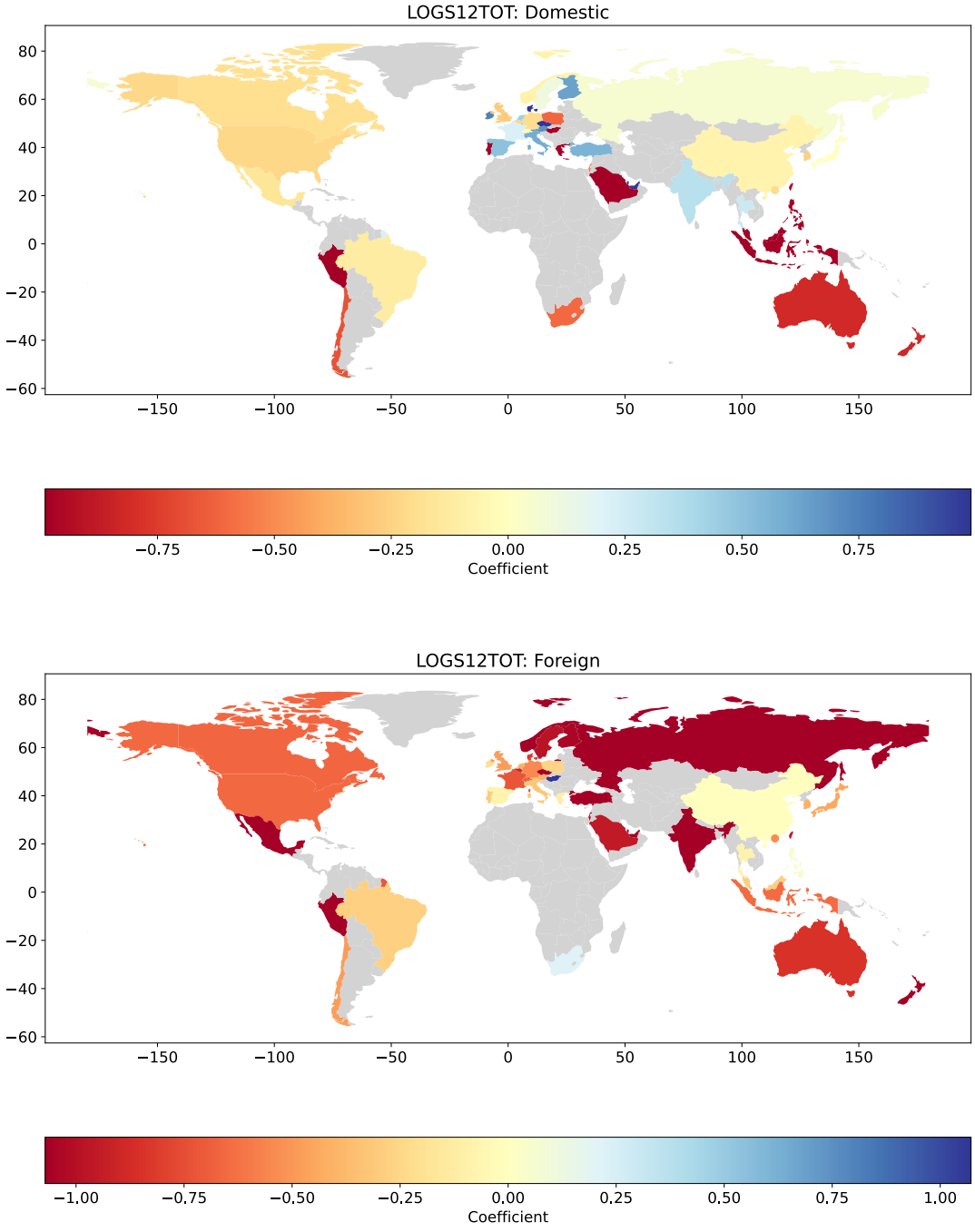

Figure 12: Carbon Slope Coefficients by Country: LOGS12TOT (extensive margin)

The maps show institution-country-level slope coefficients from regressions of the binary dependent variable, $OWN_{i,j,t}$, on carbon emission scope 1+2 levels with additional controls defined in Panel B of Table 1. The top panel (domestic) shows the baseline coefficient estimate on the emission variable. The bottom panel (foreign) shows the total foreign coefficient, calculated as the baseline coefficient estimate on the emission variable plus the coefficient estimate on the interaction between the foreign indicator and the emission variable. The sample is the institutional-level observations in the 2008-2022 period. All regressions include institution-year/quarter fixed effects.

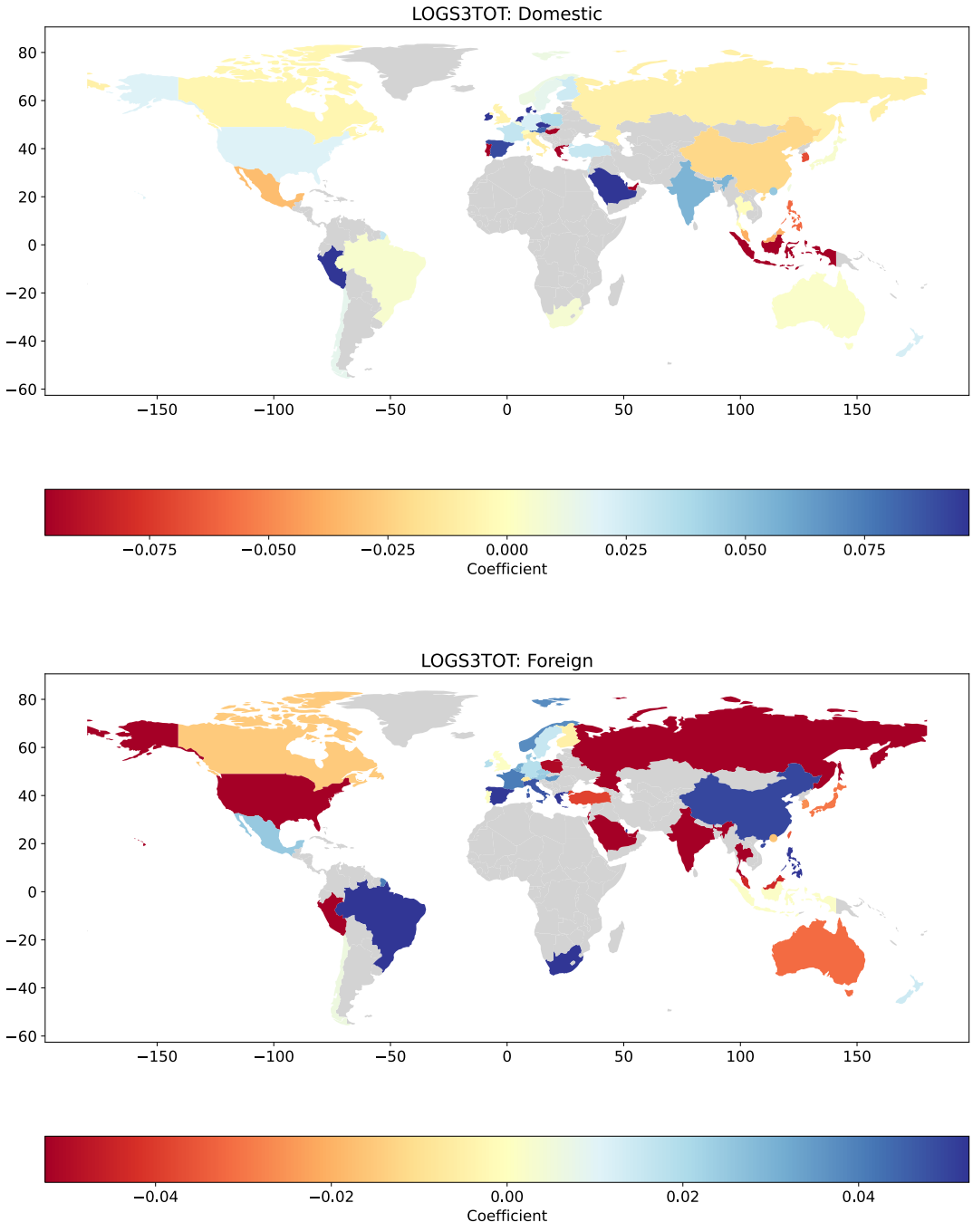

Figure 13: Carbon Slope Coefficients by Country: LOGS3TOT (intensive margin)

The maps show institution-country-level slope coefficients from regressions of the dependent variable, $LOG(PF\_SHARE_{i,j,t})$, on carbon emission scope 3 levels with additional controls defined in Panel B of Table 1. The top panel (domestic) shows the baseline coefficient estimate on the emission variable. The bottom panel (foreign) shows the total foreign coefficient, calculated as the baseline coefficient estimate on the emission variable plus the coefficient estimate on the interaction between the foreign indicator and the emission variable. The sample is the institutional-level observations in the 2005-2022 period. All regressions include institution-year/quarter fixed effects.

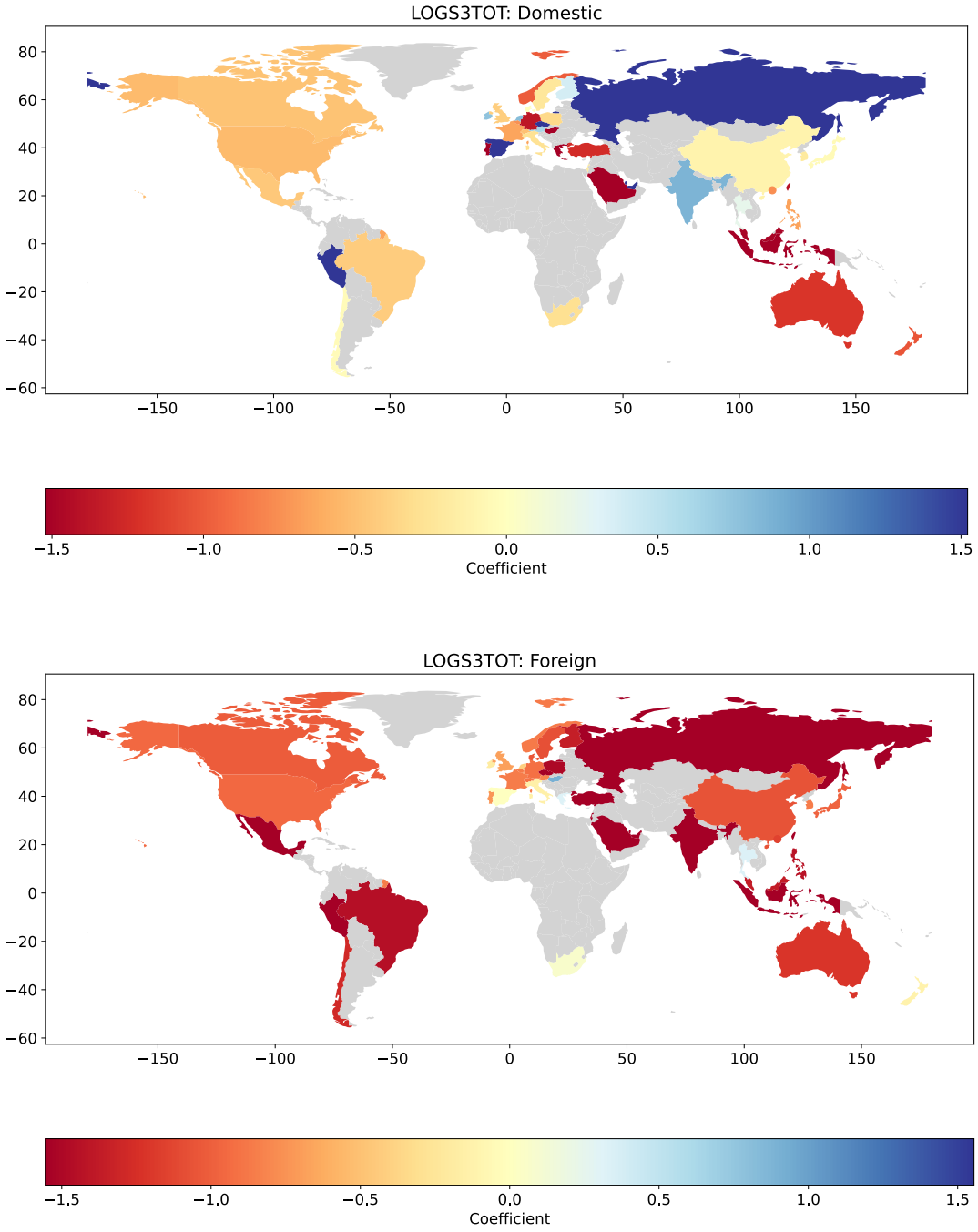

Figure 14: Carbon Slope Coefficients by Country: LOGS3TOT (extensive margin)

The maps show institution-country-level slope coefficients from regressions of the binary dependent variable, $OWN_{i,j,t}$, on carbon emission scope 3 levels with additional controls defined in Panel B of Table 1. The top panel (domestic) shows the baseline coefficient estimate on the emission variable. The bottom panel (foreign) shows the total foreign coefficient, calculated as the baseline coefficient estimate on the emission variable plus the coefficient estimate on the interaction between the foreign indicator and the emission variable. The sample is the institutional-level observations in the 2008-2022 period. All regressions include institution-year/quarter fixed effects.

Table 1: Summary Statistics

This table reports summary statistics (averages, standard deviations and cross-sectional percentile values) for the variables used in the regressions. The sample period is 2005-2022 and uses quarterly data. Panels A and B report summary statistics for the firm-level and the institutional-level, respectively. *IO* is the fraction of the shares of a company held by institutions in the FactSet database; *IO_DOM* is the fraction of shares held by institutions located in the same country as the company; *IO_FOR* is the fraction of shares held by institutions located in countries foreign to the company; *IO_FOR_DIFF* is the difference between *IO_FOR* and *IO_DOM*; *IO_FOR_RATIO* is the ratio of *IO_FOR* to the total ownership, *IO*; *PF SHARE* is the proportion of an institution's assets under management invested in a specific firm; *PF SHARE (DOM)* and *PF SHARE(FOR)* show the domestic and foreign portfolio share allocations, respectively; *S12INT* and *S3INT* are Scope 1&2 and Scope 3 carbon intensity, respectively, defined as tons of CO2 equivalent emissions divided by annual revenue in USD millions. The intensity measures are divided by 100; *LOGS12TOT* and *LOGS3TOT* are the natural logarithm of total Scope 1&2 and Scope 3 emissions, respectively; *LOGSIZE* is the natural logarithm of market capitalization (in $ million); *B/M* is the book value of equity divided by market value of equity; *LEVERAGE* is the book value of debt divided by the book value of assets; *MOM* is the cumulative stock return over the one-year period; *ROE* is the return on equity; *RETVOL* is the annualized daily stock return volatility over the one year period; *BETA* is the market beta calculated using daily data over the one year period; *INVEST/A* is capital expenditures divided by book value of assets; *MSCI* is an indicator variable equal to one if a stock of MSCI All Country World Index, and zero otherwise; *N*, *N (DOM)* and *N (FOR)* show the total, domestic and foreign number of stocks in the institutional portfolios, respectively. In the institutional-level panel, we require an institution to hold at least 10 firms, of which one must be foreign and one domestic. Institutions with greater than 50% of their portfolio allocated to a single stock in a given quarter are excluded.

Panel A: Firm-level

	mean	std	min	25%	median	75%	max
IO (in %)	29.132	30.654	0.000	6.178	16.274	41.969	100.000
IO_DOM	19.152	28.742	0.000	0.734	4.711	21.523	99.849
IO_FOR	9.980	11.881	0.000	2.375	6.727	13.210	100.000
IO_FOR_DIFF	-9.172	31.541	-99.698	-12.015	0.541	6.725	100.000
IO_FOR_RATIO	53.633	35.755	0.000	15.569	57.765	89.423	100.000
S12INT (wins. at 2.5%)	3.085	7.321	0.073	0.294	0.528	1.602	37.125
S3INT (wins. at 2.5%)	2.126	1.874	0.346	0.751	1.561	2.882	8.701
LOGS12TOT	11.386	2.565	0.080	9.732	11.255	12.957	20.191
LOGS3TOT	12.072	2.178	0.134	10.737	12.123	13.531	19.251
LOGSIZE	7.371	1.628	2.984	6.159	7.342	8.452	14.881
B/M (wins. at 2.5%)	0.727	0.648	0.064	0.282	0.528	0.938	3.004
LEVERAGE (wins. at 2.5%)	0.228	0.169	0.000	0.080	0.216	0.347	0.612
MOM (wins. at 2.5%)	0.109	0.436	-0.591	-0.177	0.040	0.300	1.473
ROE (wins. at 2.5%)	0.079	0.177	-0.575	0.034	0.092	0.160	0.457
RETVOL (wins. at 2.5%)	0.400	0.162	0.172	0.281	0.367	0.484	0.864
BETA (wins. at 2.5%)	1.008	0.353	0.348	0.759	0.984	1.227	1.872
INVEST/A (wins. at 2.5%)	0.046	0.042	0.002	0.016	0.034	0.063	0.182
MSCI	0.287	0.452	0.000	0.000	0.000	1.000	1.000

Panel B: Institutional-level

	mean	std	min	25%	median	75%	max
PF SHARE (in %)	0.459	1.372	0.000	0.005	0.040	0.277	49.995
PF SHARE (DOM)	0.657	1.689	0.000	0.012	0.088	0.522	49.995
PF SHARE (FOR)	0.280	0.965	0.000	0.002	0.019	0.132	49.991
LOG(PF SHARE)	-3.454	2.918	-28.582	-5.330	-3.225	-1.285	3.912
S12INT (wins. at 2.5%)	2.912	7.005	0.073	0.226	0.468	1.625	37.125
S3INT (wins. at 2.5%)	1.987	1.742	0.345	0.716	1.419	2.731	8.701
LOGS12TOT	12.778	2.450	0.080	11.150	12.682	14.382	20.191
LOGS3TOT	13.541	2.065	0.134	12.255	13.649	14.991	19.251
LOGSIZE	9.143	1.686	2.984	8.019	9.105	10.289	14.881
B/M (wins. at 2.5%)	0.541	0.505	0.064	0.214	0.390	0.695	3.004
LEVERAGE (wins. at 2.5%)	0.253	0.161	0.000	0.130	0.247	0.364	0.612
MOM (wins. at 2.5%)	0.134	0.376	-0.591	-0.098	0.093	0.303	1.473
ROE (wins. at 2.5%)	0.124	0.175	-0.575	0.061	0.124	0.205	0.457
RETVOL (wins. at 2.5%)	0.350	0.153	0.172	0.237	0.312	0.421	0.864
BETA (wins. at 2.5%)	1.029	0.355	0.348	0.785	1.002	1.245	1.872
INVEST/A (wins. at 2.5%)	0.047	0.039	0.002	0.018	0.035	0.063	0.182
MSCI	0.652	0.476	0.000	0.000	1.000	1.000	1.000
N	218	455	10	36	74	186	10443
N (DOM)	104	202	1	16	39	92	2073
N (FOR)	114	352	1	5	16	66	9093

Table 2: Carbon Emissions and Institutional Ownership: Unconditional Firm-Level Results

The sample is the firm-level observations in the 2005-2022 period. The dependent variable is $IO_{i,t}$. The main independent variables are carbon emissions intensities (columns 1-4) and carbon emission levels (columns 5-8). All variables are defined in Panel A of Table 1. We report the results of the pooled regression with standard errors double clustered at the firm and year/quarter levels. All regression models include country-year/quarter fixed effects. In addition, columns 3-4 and 7-8 include industry-year/quarter fixed effects. ***1% significance; **5% significance; *10% significance.

IO	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
S12INT	-0.117***		-0.0213					
	(0.0153)		(0.0200)					
S3INT		-0.320***		-0.231**				
		(0.0628)		(0.0928)				
LOGS12TOT					-0.465***		-0.107	
					(0.0736)		(0.0803)	
LOGS3TOT						-0.157*		-0.0410
						(0.0894)		(0.112)
LOGSIZE	2.360***	2.311***	2.709***	2.707***	2.737***	2.439***	2.799***	2.742***
	(0.239)	(0.239)	(0.235)	(0.234)	(0.226)	(0.230)	(0.236)	(0.226)
B/M	-0.580***	-0.717***	-0.0641	-0.0525	-0.108	-0.673***	0.0322	-0.0443
	(0.218)	(0.219)	(0.215)	(0.213)	(0.223)	(0.231)	(0.222)	(0.226)
LEVERAGE	-0.667	-1.117	1.842**	1.890**	0.169	-1.007	2.032***	1.871**
	(0.731)	(0.734)	(0.731)	(0.728)	(0.738)	(0.734)	(0.734)	(0.722)
MOM	-0.0240	-0.0637	-0.0988	-0.0925	-0.0773	-0.154	-0.119	-0.115
	(0.159)	(0.166)	(0.167)	(0.168)	(0.166)	(0.164)	(0.169)	(0.168)
ROE	4.350***	4.576***	3.558***	3.587***	4.816***	4.677***	3.600***	3.588***
	(0.603)	(0.602)	(0.607)	(0.607)	(0.603)	(0.599)	(0.606)	(0.602)
RETVOL	-10.70***	-11.10***	-11.61***	-11.75***	-11.52***	-10.98***	-11.72***	-11.66***
	(1.164)	(1.180)	(1.200)	(1.197)	(1.195)	(1.193)	(1.203)	(1.200)
BETA	5.950***	6.051***	4.722***	4.735***	6.145***	6.045***	4.739***	4.728***
	(0.425)	(0.431)	(0.431)	(0.430)	(0.435)	(0.435)	(0.432)	(0.433)
INVEST/A	-5.268**	-6.370**	2.674	2.396	-3.766	-7.087***	2.764	2.556
	(2.639)	(2.654)	(2.546)	(2.529)	(2.639)	(2.656)	(2.554)	(2.516)
MSCI	0.179	0.146	0.205	0.199	0.182	0.179	0.210	0.204
	(0.432)	(0.430)	(0.428)	(0.429)	(0.431)	(0.429)	(0.429)	(0.430)
Country*Yr/Qtr FE	X	X	X	X	X	X	X	X
Industry*Yr/Qtr FE			X	X			X	X
Observations	411398	411398	411398	411398	411398	411398	411398	411398
R2	0.811	0.811	0.820	0.820	0.811	0.811	0.820	0.820

Table 3: Carbon Emissions and Institutional Ownership: Firm-Level Foreign Difference and Domestic/Foreign

The sample is the firm-level observations in the 2005-2022 period. The dependent variable is $IO\_FOR\_DIFF_{i,t}$ (Panel A), $IO\_DOM_{i,t}$ (Panel B), and $IO\_FOR_{i,t}$ (Panel C). The main independent variables are carbon emissions intensities (columns 1-4) and carbon emission levels (columns 5-8). All variables are defined in Panel A of Table 1. We report the results of the pooled regression with standard errors double clustered at the firm and year/quarter level. All regressions include country-year/quarter fixed effects. In addition, columns 3-4 and 7-8 include industry-year/quarter fixed effects. All regression models include the controls of Table 1 (unreported for brevity). Panel A additionally controls for total ownership, *IO*. ***1% significance; **5% significance; *10% significance.

Panel A: Overall results

IO_FOR_DIFF	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
S12INT	-0.0340**		-0.0320					
	(0.0143)		(0.0214)					
S3INT		-0.198***		-0.597***				
		(0.0612)		(0.0922)				
LOGS12TOT					-0.452***		-0.456***	
					(0.0651)		(0.0806)	
LOGS3TOT						-0.577***		-0.747***
						(0.0812)		(0.108)
Controls	X	X	X	X	X	X	X	X
Country*Yr/Qtr FE	X	X	X	X	X	X	X	X
Industry*Yr/Qtr FE			X	X			X	X
Observations	411398	411398	411398	411398	411398	411398	411398	411398
R2	0.817	0.817	0.822	0.822	0.817	0.817	0.822	0.822

Panel B: Domestic ownership

IO_DOM	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
S12INT	-0.0488***		0.00399					
	(0.0115)		(0.0144)					
S3INT		-0.0809*		0.168**				
		(0.0462)		(0.0643)				
LOGS12TOT					-0.0361		0.168***	
					(0.0506)		(0.0574)	
LOGS3TOT						0.200***		0.351***
						(0.0622)		(0.0782)
Controls	X	X	X	X	X	X	X	X
Country*Yr/Qtr FE	X	X	X	X	X	X	X	X
Industry*Yr/Qtr FE			X	X			X	X
Observations	411398	411398	411398	411398	411398	411398	411398	411398
R2	0.877	0.877	0.881	0.881	0.877	0.877	0.881	0.882

Panel C: Foreign ownership

IO_FOR	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
S12INT	-0.0682***		-0.0253*					
	(0.00938)		(0.0147)					
S3INT		-0.239***		-0.399***				
		(0.0411)		(0.0656)				
LOGS12TOT					-0.429***		-0.275***	
					(0.0484)		(0.0563)	
LOGS3TOT						-0.357***		-0.392***
						(0.0587)		(0.0768)
Controls	X	X	X	X	X	X	X	X
Country*Yr/Qtr FE	X	X	X	X	X	X	X	X
Industry*Yr/Qtr FE			X	X			X	X
Observations	411398	411398	411398	411398	411398	411398	411398	411398
R2	0.437	0.436	0.458	0.459	0.439	0.437	0.458	0.459

Table 4: Carbon Emissions and Institutional Ownership: Full Sample Institutional-Level Results (Intensive Margin)

The sample is the institutional-level observations in the 2005-2022 period. The dependent variable is $LOG(PF\_SHARE_{i,j,t})$, the natural logarithm of the portfolio share of institution i allocated to firm j at time t. The main independent variables are carbon emissions intensities (Panel A) and carbon emission levels (Panel B) and these variables interacted with the foreign indicator, *FOR*. All variables are defined in Panel B of Table 1. We report the results of the pooled regression with standard errors double clustered at the institution and year/quarter levels. Columns 1 and 5 include year/quarter fixed effects. Columns 2-4 and 6-8 include institution-year/quarter fixed effects. In addition, columns 3 and 7 include firm-year/quarter fixed effects, and columns 4 and 8 include institution-firm fixed effects. All regression models include the controls of Table 1 (unreported for brevity) and interactions of these control variables with the *FOR* indicator. ***1% significance; **5% significance; *10% significance.

Panel A: Intensity

LOG(PF SHARE)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
S12INT	-0.00117*	0.00205***		-0.000394				
	(0.000588)	(0.000470)		(0.000551)				
FOR*S12INT	-0.00454***	-0.00480***	-0.000938	-0.000406				
	(0.00113)	(0.000754)	(0.000796)	(0.000639)				
S3INT					0.0143***	0.0143***		0.00789**
					(0.00254)	(0.00156)		(0.00382)
FOR*S3INT					-0.0236***	-0.0205***	-0.0139***	0.00865
					(0.00394)	(0.00274)	(0.00251)	(0.00615)
Controls	X	X	X	X	X	X	X	X
Yr/Qtr FE	X				X			
Inst*Yr/Qtr FE		X	X	X		X	X	X
Firm*Yr/Qtr FE			X				X	
Inst*Firm FE				X				X
Observations	73926898	73926898	73922723	73162109	73926898	73926898	73922723	73162109
R2	0.354	0.653	0.674	0.875	0.354	0.653	0.674	0.875
Within R2	0.333	0.272	0.0718	0.114	0.333	0.272	0.0718	0.114

Panel B: Levels

LOG(PF SHARE)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
LOGS12TOT	0.0178***	0.0171***		0.0000463				
	(0.00315)	(0.00206)		(0.00261)				
FOR*LOGS12TOT	-0.0500***	-0.0298***	-0.0145***	-0.0183***				
	(0.00450)	(0.00288)	(0.00329)	(0.00370)				
LOGS3TOT					0.0342***	0.0211***		0.0120***
					(0.00386)	(0.00285)		(0.00417)
FOR*LOGS3TOT					-0.0517***	-0.0311***	-0.0204***	-0.00653
					(0.00546)	(0.00375)	(0.00579)	(0.00609)
Controls	X	X	X	X	X	X	X	X
Yr/Qtr FE	X				X			
Inst*Yr/Qtr FE		X	X	X		X	X	X
Firm*Yr/Qtr FE			X				X	
Inst*Firm FE				X				X
Observations	73926898	73926898	73922723	73162109	73926898	73926898	73922723	73162109
R2	0.354	0.653	0.674	0.875	0.354	0.653	0.674	0.875
Within R2	0.334	0.272	0.0718	0.114	0.334	0.272	0.0718	0.114

Table 5: Carbon Emissions and Institutional Ownership: Full Sample Institutional-Level Results (Extensive Margin)

The sample is the institutional-level observations in the 2008-2022 period. The dependent variable is the indicator variable $OWN_{i,j,t}$, equal to one if an institution i holds a position in firm j in its investment universe at time t. The main independent variables are carbon emissions intensities (Panel A) and carbon emission levels (Panel B) and these variables interacted with the foreign indicator, *FOR*. All variables are defined in Panel B of Table 1. We report the results of the pooled regression with standard errors double clustered at the institution and year/quarter levels. Columns 1 and 5 include year/quarter fixed effects. Columns 2-4 and 6-8 include institution-year/quarter fixed effects. In addition, columns 3 and 7 include firm-year/quarter fixed effects, and columns 4 and 8 include institution-firm fixed effects. All regression models include the controls of Table 1 (unreported for brevity) and interactions of these control variables with the *FOR* indicator. ***1% significance; **5% significance; *10% significance.

Panel A: Intensity

OWN	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
S12INT	0.0284***	0.0245***		-0.130***				
	(0.0101)	(0.00572)		(0.0139)				
FOR*S12INT	-0.0400***	-0.0819***	-0.0533***	0.0206				
	(0.0127)	(0.00907)	(0.00946)	(0.0151)				
S3INT					0.0134	-0.0330		-0.434***
					(0.0370)	(0.0259)		(0.120)
FOR*S3INT					-0.0853**	-0.149***	-0.245***	0.567***
					(0.0425)	(0.0312)	(0.0282)	(0.159)
Controls	X	X	X	X	X	X	X	X
Yr/Qtr FE	X				X			
Inst*Yr/Qtr FE		X	X	X		X	X	X
Firm*Yr/Qtr FE			X				X	
Inst*Firm FE				X				X
Observations	105157448	105157448	105155532	104931587	105157448	105157448	105155532	104931587
R2	0.0269	0.269	0.302	0.518	0.0269	0.269	0.302	0.518
Within R2	0.0242	0.0632	0.0118	0.0282	0.0242	0.0632	0.0118	0.0282

Panel B: Levels

OWN	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
LOGS12TOT	-0.388***	-0.253***		-1.160***				
	(0.0662)	(0.0436)		(0.0843)				
FOR*LOGS12TOT	-0.110**	-0.365***	-0.609***	0.0897				
	(0.0521)	(0.0404)	(0.0458)	(0.0877)				
LOGS3TOT					-0.697***	-0.503***		-1.080***
					(0.0809)	(0.0551)		(0.135)
FOR*LOGS3TOT					-0.254***	-0.397***	-0.812***	-0.423**
					(0.0762)	(0.0517)	(0.0611)	(0.175)
Controls	X	X	X	X	X	X	X	X
Yr/Qtr FE	X				X			
Inst*Yr/Qtr FE		X	X	X		X	X	X
Firm*Yr/Qtr FE			X				X	
Inst*Firm FE				X				X
Observations	105157448	105157448	105155532	104931587	105157448	105157448	105155532	104931587
R2	0.0272	0.269	0.302	0.518	0.0275	0.270	0.302	0.518
Within R2	0.0244	0.0635	0.0119	0.0283	0.0247	0.0637	0.0119	0.0283

Table 6: Carbon Emissions and Institutional Ownership: Top 3 Institutions by Region Indicator

The sample is the institutional-level observations. In the intensive margin analysis (columns 1-4), the dependent variable is $LOG(PF\_SHARE_{i,j,t})$, the natural logarithm of the portfolio share of institution i allocated to firm j at time t. In the extensive margin analysis (columns 5-8), the dependent variable is the indicator variable $OWN_{i,j,t}$, equal to one if an institution i holds a position in firm j in its investment universe at time t. The main independent variables are carbon emissions intensities (columns 1-2 and 5-6) and carbon emission levels (columns 3-4 and 7-8) and these variables interacted with the foreign indicator, *FOR*. In addition, we include an interaction of all variables with *TOP3*, indicating whether an institution is a top 3 institution in North America, Europe, or Asia. All variables are defined in Table 1. We report the results of the pooled regression with standard errors two-way clustered at the institution and year/quarter levels. All regressions include institution-year/quarter fixed effects. In addition, all regression models include the controls of Table 1 (unreported for brevity) and interactions of these control variables with the *FOR* and *TOP3* indicators. ***1% significance; **5% significance; *10% significance.

	Intensive Margin				Extensive Margin			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
FOR	-2.291***	-2.250***	-2.190***	-2.147***	-12.28***	-12.01***	-11.38***	-10.62***
	(0.185)	(0.185)	(0.185)	(0.186)	(1.943)	(1.950)	(1.970)	(1.945)
FOR*TOP3	-3.025***	-2.920***	-2.785***	-2.529***	-39.29***	-38.98***	-38.30***	-35.55***
	(0.849)	(0.859)	(0.828)	(0.772)	(9.063)	(9.066)	(8.617)	(8.046)
S12INT	0.00224***				0.0268***			
	(0.000437)				(0.00566)			
TOP3*S12INT	-0.00408				-0.0935***			
	(0.00488)				(0.0141)			
FOR*S12INT	-0.00473***				-0.0847***			
	(0.000738)				(0.00916)			
FOR*TOP3*S12INT	-0.00235				0.116***			
	(0.00525)				(0.0256)			
S3INT		0.0139***				-0.0315		
		(0.00155)				(0.0260)		
TOP3*S3INT		0.0271**				0.193***		
		(0.0128)				(0.0601)		
FOR*S3INT		-0.0187***				-0.149***		
		(0.00268)				(0.0320)		
FOR*TOP3*S3INT		-0.0547***				-0.232**		
		(0.0157)				(0.105)		
LOGS12TOT			0.0168***				-0.248***	
			(0.00211)				(0.0435)	
TOP3*LOGS12TOT			0.0540***				0.533**	
			(0.0194)				(0.233)	
FOR*LOGS12TOT			-0.0287***				-0.375***	
			(0.00289)				(0.0413)	
FOR*TOP3*LOGS12TOT			-0.0772***				-0.319	
			(0.0228)				(0.284)	
LOGS3TOT				0.0195***				-0.506***
				(0.00269)				(0.0553)
TOP3*LOGS3TOT				0.0908***				1.086***
				(0.0319)				(0.288)
FOR*LOGS3TOT				-0.0292***				-0.403***
				(0.00359)				(0.0530)
FOR*TOP3*LOGS3TOT				-0.103***				-0.793*
				(0.0357)				(0.407)
Controls	X	X	X	X	X	X	X	X
Inst*Yr/Qtr FE	X	X	X	X	X	X	X	X
Observations	73926898	73926898	73926898	73926898	105157448	105157448	105157448	105157448
R2	0.655	0.655	0.655	0.655	0.270	0.270	0.270	0.270
Within R2	0.278	0.278	0.278	0.278	0.0637	0.0637	0.0640	0.0642

Table 7: Carbon Emissions and Institutional Ownership: Institutional Size Quartiles (Intensive Margin)

The sample is the institutional-level observations in the 2005-2022 period. The dependent variable is $LOG(PF\_SHARE_{i,j,t})$, the natural logarithm of the portfolio share of institution i allocated to firm j at time t. The main independent variables are carbon emissions intensities (Panel A) and carbon emission levels (Panel B) and these variables interacted with the foreign indicator, *FOR*. All variables are defined in Panel B of Table 1. We estimate the model separately for the smallest quartile of institutions (columns 1 and 5) through the largest quartile of institutions (columns 4 and 8). We report the results of the pooled regression with standard errors double clustered at the institution and year/quarter levels. All regressions include institution-year/quarter fixed effects. All regression models include the controls of Table 1 (unreported for brevity) and interactions of these control variables with the *FOR* indicator. ***1% significance; **5% significance; *10% significance.

Panel A: Intensity

LOG(PF SHARE)	(1) Q1	(2) Q2	(3) Q3	(4) Q4	(5) Q1	(6) Q2	(7) Q3	(8) Q4
FOR	1.172***	0.701***	-0.0527	-2.285***	1.173***	0.712***	-0.0408	-2.230***
	(0.117)	(0.157)	(0.161)	(0.231)	(0.116)	(0.158)	(0.160)	(0.230)
S12INT	0.00429***	0.00274***	-0.000226	0.000735				
	(0.000615)	(0.000430)	(0.000495)	(0.000601)				
FOR*S12INT	-0.00262***	-0.00193**	0.00118	-0.00497***				
	(0.000785)	(0.000771)	(0.000774)	(0.000871)				
S3INT					0.0111***	0.0137***	0.0107***	0.0136***
					(0.00203)	(0.00197)	(0.00196)	(0.00205)
FOR*S3INT					-0.00192	-0.00151	0.000923	-0.0238***
					(0.00257)	(0.00283)	(0.00280)	(0.00319)
Controls	X	X	X	X	X	X	X	X
Inst*Yr/Qtr FE	X	X	X	X	X	X	X	X
Observations	2862053	7172177	11793313	52099355	2862053	7172177	11793313	52099355
R2	0.667	0.612	0.567	0.574	0.667	0.612	0.567	0.574
Within R2	0.160	0.164	0.171	0.318	0.160	0.164	0.171	0.318

Panel B: Levels

LOG(PF SHARE)	(1) Q1	(2) Q2	(3) Q3	(4) Q4	(5) Q1	(6) Q2	(7) Q3	(8) Q4
FOR	1.184***	0.739***	-0.0254	-2.166***	1.176***	0.753***	0.0269	-2.100***
	(0.118)	(0.160)	(0.163)	(0.230)	(0.118)	(0.159)	(0.161)	(0.230)
LOGS12TOT	0.0153***	0.0167***	0.00999***	0.0156***				
	(0.00267)	(0.00229)	(0.00225)	(0.00274)				
FOR*LOGS12TOT	-0.00254	-0.00723**	-0.00436	-0.0340***				
	(0.00326)	(0.00328)	(0.00330)	(0.00355)				
LOGS3TOT					0.00925***	0.0158***	0.0159***	0.0254***
					(0.00315)	(0.00299)	(0.00259)	(0.00402)
FOR*LOGS3TOT					-0.00243	-0.0105**	-0.0148***	-0.0361***
					(0.00424)	(0.00426)	(0.00428)	(0.00491)
Controls	X	X	X	X	X	X	X	X
Inst*Yr/Qtr FE	X	X	X	X	X	X	X	X
Observations	2862053	7172177	11793313	52099355	2862053	7172177	11793313	52099355
R2	0.667	0.612	0.567	0.574	0.667	0.612	0.567	0.574
Within R2	0.160	0.164	0.171	0.319	0.160	0.164	0.171	0.318

Table 8: Carbon Emissions and Institutional Ownership: Institutional Size Quartiles (Extensive Margin)

The sample is the institutional-level observations in the 2008-2022 period. The the dependent variable is the indicator variable $OWN_{i,j,t}$, equal to one if an institution i holds a position in firm j in its investment universe at time t. The main independent variables are carbon emissions intensities (Panel A) and carbon emission levels (Panel B) and these variables interacted with the foreign indicator, *FOR*. All variables are defined in Panel B of Table 1. We estimate the model separately for the smallest quartile of institutions (columns 1 and 5) through the largest quartile of institutions (columns 4 and 8). We report the results of the pooled regression with standard errors double clustered at the institution and year/quarter levels. All regressions include institution-year/quarter fixed effects. All regression models include the controls of Table 1 (unreported for brevity) and interactions of these control variables with the *FOR* indicator. ***1% significance; **5% significance; *10% significance.

Panel A: Intensity

OWN	(1) Q1	(2) Q2	(3) Q3	(4) Q4	(5) Q1	(6) Q2	(7) Q3	(8) Q4
FOR	8.324***	4.385*	0.404	-19.68***	8.047***	4.505**	0.407	-19.20***
	(2.354)	(2.237)	(2.300)	(2.484)	(2.366)	(2.224)	(2.295)	(2.508)
S12INT	0.0136	0.0194**	0.0392***	0.0280***				
	(0.00975)	(0.00905)	(0.00839)	(0.00742)				
FOR*S12INT	-0.0187	-0.0507***	-0.0609***	-0.0993***				
	(0.0163)	(0.0125)	(0.0118)	(0.0118)				
S3INT					-0.126***	0.0127	0.00383	-0.0233
					(0.0439)	(0.0419)	(0.0397)	(0.0281)
FOR*S3INT					0.0751	-0.109**	-0.0622	-0.200***
					(0.0605)	(0.0483)	(0.0450)	(0.0406)
Controls	X	X	X	X	X	X	X	X
Inst*Yr/Qtr FE	X	X	X	X	X	X	X	X
Observations	5895973	12275184	19108179	67878112	5895973	12275184	19108179	67878112
R2	0.317	0.290	0.249	0.237	0.317	0.290	0.249	0.237
Within R2	0.0275	0.0508	0.0556	0.0748	0.0275	0.0508	0.0556	0.0748

Panel B: Levels

OWN	(1) Q1	(2) Q2	(3) Q3	(4) Q4	(5) Q1	(6) Q2	(7) Q3	(8) Q4
FOR	8.831***	4.998**	0.796	-18.44***	10.28***	6.199***	1.479	-17.69***
	(2.371)	(2.256)	(2.321)	(2.527)	(2.430)	(2.263)	(2.326)	(2.489)
LOGS12TOT	-0.267***	-0.241***	-0.264***	-0.210***				
	(0.0545)	(0.0563)	(0.0570)	(0.0481)				
FOR*LOGS12TOT	-0.259***	-0.371***	-0.314***	-0.428***				
	(0.0710)	(0.0599)	(0.0584)	(0.0517)				
LOGS3TOT					-0.597***	-0.532***	-0.597***	-0.420***
					(0.0816)	(0.0752)	(0.0723)	(0.0609)
FOR*LOGS3TOT					-0.493***	-0.555***	-0.399***	-0.428***
					(0.111)	(0.0863)	(0.0810)	(0.0642)
Controls	X	X	X	X	X	X	X	X
Inst*Yr/Qtr FE	X	X	X	X	X	X	X	X
Observations	5895973	12275184	19108179	67878112	5895973	12275184	19108179	67878112
R2	0.317	0.290	0.249	0.238	0.317	0.291	0.249	0.238
Within R2	0.0277	0.0510	0.0558	0.0752	0.0281	0.0513	0.0561	0.0753

Table 9: Carbon Emissions and Institutional Ownership: North America Indicator

The sample is the institutional-level observations. In the intensive margin analysis (columns 1-4), the dependent variable is $LOG(PF\_SHARE_{i,j,t})$, the natural logarithm of the portfolio share of institution i allocated to firm j at time t. In the extensive margin analysis (columns 5-8), the dependent variable is the indicator variable $OWN_{i,j,t}$, equal to one if an institution i holds a position in firm j in its investment universe at time t. The main independent variables are carbon emissions intensities (columns 1-2 and 5-6) and carbon emission levels (columns 3-4 and 7-8) and these variables interacted with the foreign indicator, *FOR*. In addition, we include an interaction of all variables with *NAM*, indicating whether an institution is located in North America, defined as Canada, United States, or Mexico. All variables are defined in Table 1. We report the results of the pooled regression with standard errors two-way clustered at the institution and year/quarter levels. All regressions include institution-year/quarter fixed effects. In addition, all regression models include the controls of Table 1 (unreported for brevity) and interactions of these control variables with the *FOR* and *NAM* indicators. ***1% significance; **5% significance; *10% significance.

	Intensive Margin				Extensive Margin			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
FOR	-1.966***	-1.965***	-1.990***	-2.014***	-25.43***	-25.17***	-24.18***	-23.10***
	(0.331)	(0.331)	(0.329)	(0.322)	(2.935)	(2.962)	(3.002)	(2.951)
FOR*NAM	-1.164**	-1.104**	-0.966**	-0.806*	19.67***	19.50***	19.09***	18.62***
	(0.455)	(0.453)	(0.451)	(0.445)	(4.243)	(4.245)	(4.265)	(4.142)
S12INT	-0.00262***				-0.0338***			
	(0.000977)				(0.0123)			
NAM*S12INT	0.00532***				0.0745***			
	(0.00105)				(0.0135)			
FOR*S12INT	0.00137				-0.0195			
	(0.00104)				(0.0162)			
FOR*NAM*S12INT	-0.00934***				-0.0829***			
	(0.00133)				(0.0187)			
S3INT		0.0155***				0.0675		
		(0.00350)				(0.0421)		
NAM*S3INT		-0.00419				-0.138***		
		(0.00398)				(0.0441)		
FOR*S3INT		-0.0135***				-0.228***		
		(0.00389)				(0.0478)		
FOR*NAM*S3INT		-0.0205***				0.103*		
		(0.00557)				(0.0587)		
LOGS12TOT			-0.00532				-0.175***	
			(0.00497)				(0.0563)	
NAM*LOGS12TOT			0.0239***				-0.0609	
			(0.00592)				(0.0623)	
FOR*LOGS12TOT			0.00558				-0.403***	
			(0.00517)				(0.0615)	
FOR*NAM*LOGS12TOT			-0.0615***				-0.0222	
			(0.00690)				(0.0894)	
LOGS3TOT				0.00466				-0.322***
				(0.00961)				(0.0835)
NAM*LOGS3TOT				0.0124				-0.237***
				(0.0105)				(0.0796)
FOR*LOGS3TOT				0.00767				-0.502***
				(0.00969)				(0.0729)
FOR*NAM*LOGS3TOT				-0.0769***				0.0861
				(0.0117)				(0.115)
Controls	X	X	X	X	X	X	X	X
Inst*Yr/Qtr FE	X	X	X	X	X	X	X	X
Observations	73926898	73926898	73926898	73926898	105157448	105157448	105157448	105157448
R2	0.654	0.654	0.654	0.654	0.270	0.270	0.270	0.270
Within R2	0.276	0.276	0.276	0.276	0.0644	0.0644	0.0647	0.0648

Table 10: Carbon Emissions and Institutional Ownership: Institutional Category Indicator

The sample is the institutional-level observations. In the intensive margin analysis (columns 1-4), the dependent variable is $LOG(PF\_SHARE_{i,j,t})$, the natural logarithm of the portfolio share of institution i allocated to firm j at time t. In the extensive margin analysis (columns 5-8), the dependent variable is the indicator variable $OWN_{i,j,t}$, equal to one if an institution i holds a position in firm j in its investment universe at time t. The main independent variables are carbon emissions intensities (columns 1-2 and 5-6) and carbon emission levels (columns 3-4 and 7-8) and these variables interacted with the foreign indicator, *FOR*. In addition, we include an interaction of all variables with *INVMNGR*, indicating whether an institution is an investment manager, defined as investment companies, investment advisors, and hedge funds. Non-investment managers are banks, insurers, and pension funds. All variables are defined in Table 1. We report the results of the pooled regression with standard errors two-way clustered at the institution and year/quarter levels. All regressions include institution-year/quarter fixed effects. In addition, all regression models include the controls of Table 1 (unreported for brevity) and interactions of these control variables with the *FOR* and *INVMNGR* indicators. ***1% significance; **5% significance; *10% significance.

	Intensive Margin				Extensive Margin			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
FOR	-1.235**	-1.204**	-1.170**	-1.172**	-13.09*	-12.69	-10.76	-10.27
	(0.513)	(0.511)	(0.520)	(0.528)	(7.641)	(7.655)	(7.667)	(7.493)
FOR*INVMNGR	-1.395**	-1.379**	-1.351**	-1.297**	0.408	0.281	-1.110	-0.835
	(0.553)	(0.551)	(0.560)	(0.567)	(7.803)	(7.805)	(7.803)	(7.615)
S12INT	0.000822				0.0688***			
	(0.000601)				(0.0140)			
INVMNGR*S12INT	0.00127*				-0.0465***			
	(0.000749)				(0.0145)			
FOR*S12INT	-0.00499***				-0.143***			
	(0.00105)				(0.0496)			
FOR*INVMNGR*S12INT	0.000191				0.0634			
	(0.00119)				(0.0484)			
S3INT		0.00806***				0.0956**		
		(0.00274)				(0.0476)		
INVMNGR*S3INT		0.00671**				-0.135**		
		(0.00324)				(0.0540)		
FOR*S3INT		-0.00989**				-0.175		
		(0.00473)				(0.116)		
FOR*INVMNGR*S3INT		-0.0113**				0.0282		
		(0.00517)				(0.116)		
LOGS12TOT			0.0140***				0.179**	
			(0.00417)				(0.0888)	
INVMNGR*LOGS12TOT			0.00349				-0.451***	
			(0.00453)				(0.0960)	
FOR*LOGS12TOT			-0.0142**				-0.734***	
			(0.00695)				(0.179)	
FOR*INVMNGR*LOGS12TOT			-0.0166**				0.388**	
			(0.00731)				(0.174)	
LOGS3TOT				0.0274***				-0.00906
				(0.00561)				(0.124)
INVMNGR*LOGS3TOT				-0.00617				-0.518***
				(0.00631)				(0.130)
FOR*LOGS3TOT				-0.00845				-0.602***
				(0.0100)				(0.207)
FOR*INVMNGR*LOGS3TOT				-0.0242**				0.218
				(0.0107)				(0.207)
Controls	X	X	X	X	X	X	X	X
Inst*Yr/Qtr FE	X	X	X	X	X	X	X	X
Observations	73926898	73926898	73926898	73926898	105157448	105157448	105157448	105157448
R2	0.653	0.653	0.653	0.653	0.269	0.269	0.270	0.270
Within R2	0.273	0.273	0.273	0.273	0.0635	0.0635	0.0638	0.0640

Table 11: Carbon Emissions and Institutional Ownership: Salient Industry Indicator

The sample is the institutional-level observations. In the intensive margin analysis (columns 1-5), the dependent variable is $LOG(PF\_SHARE_{i,j,t})$, the natural logarithm of the portfolio share of institution i allocated to firm j at time t. In the extensive margin analysis (columns 6-10), the dependent variable is the indicator variable $OWN_{i,j,t}$, equal to one if an institution i holds a position in firm j in its investment universe at time t. The main independent variables are carbon emissions intensities (columns 1-2 and 6-7) and carbon emission levels (columns 3-4 and 8-9) and these variables interacted with the foreign indicator, *FOR*. In addition, we include an interaction of all variables with *SALIENT*, indicating whether a firm is in a salient industry, defined as utilities, oil and gas, and transportation industries. Columns 5 and 10 exclude the emissions variables. All variables are defined in Table 1. We report the results of the pooled regression with standard errors two-way clustered at the institution and year/quarter levels. All regressions include institution-year/quarter fixed effects. In addition, all regression models include the controls of Table 1 (unreported for brevity) and interactions of these control variables with the *FOR* and *SALIENT* indicators. ***1% significance; **5% significance; *10% significance.

	Intensive Margin					Extensive Margin				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
FOR	-2.602***	-2.565***	-2.503***	-2.460***	-2.610***	-12.49***	-12.39***	-11.64***	-10.99***	-12.60***
	(0.202)	(0.201)	(0.202)	(0.202)	(0.202)	(1.930)	(1.931)	(1.950)	(1.922)	(1.920)
SALIENT	0.0343***	0.0400***	0.0178	0.0447***	0.0482***	0.447**	0.620***	1.196***	0.660***	0.601***
	(0.00919)	(0.0106)	(0.0111)	(0.0107)	(0.0105)	(0.222)	(0.192)	(0.179)	(0.191)	(0.195)
FOR*SALIENT	-0.0754***	-0.0936***	-0.0570***	-0.0979***	-0.103***	-0.157	-0.700***	-0.317*	-0.622***	-0.703***
	(0.0115)	(0.0131)	(0.0137)	(0.0134)	(0.0132)	(0.170)	(0.153)	(0.165)	(0.153)	(0.153)
S12INT	0.00131***					0.0151**				
	(0.000408)					(0.00666)				
FOR*S12INT	-0.00345***					-0.0767***				
	(0.000712)					(0.0104)				
S3INT		0.0136***					-0.0419*			
		(0.00157)					(0.0249)			
FOR*S3INT		-0.0193***					-0.140***			
		(0.00275)					(0.0315)			
LOGS12TOT			0.0161***					-0.321***		
			(0.00219)					(0.0418)		
FOR*LOGS12TOT			-0.0266***					-0.343***		
			(0.00302)					(0.0433)		
LOGS3TOT				0.0208***					-0.507***	
				(0.00288)					(0.0547)	
FOR*LOGS3TOT				-0.0301***					-0.394***	
				(0.00378)					(0.0517)	
Controls	X	X	X	X	X	X	X	X	X	X
Inst*Yr/Qtr FE	X	X	X	X	X	X	X	X	X	X
Observations	73926898	73926898	73926898	73926898	73926898	105157448	105157448	105157448	105157448	105157448
R2	0.653	0.653	0.653	0.653	0.653	0.269	0.269	0.269	0.270	0.269
Within R2	0.272	0.272	0.272	0.272	0.272	0.0632	0.0632	0.0636	0.0637	0.0632

Table 12: Carbon Emissions and Institutional Ownership: Post-2015 Indicator with Firm-Time Fixed Effects

The sample is the institutional-level observations. In the intensive margin analysis (panel A), the dependent variable is $LOG(PF\_SHARE_{i,j,t})$, the natural logarithm of the portfolio share of institution i allocated to firm j at time t. In the extensive margin analysis (panel B), the dependent variable is the indicator variable $OWN_{i,j,t}$, equal to one if an institution i holds a position in firm j in its investment universe at time t. The main independent variables are carbon emissions intensities (columns 1-2 and 5-6) and carbon emission levels (columns 3-4 and 7-8) and these variables interacted with the foreign indicator, *FOR*. All variables are defined in Panel B of Table 1. In addition, the model includes interactions with an indicator, *POST2015*, equal to one if the year is 2016 or later, and zero otherwise. Columns 1-4 are based on all institutions. Columns 5-8 are based on the top 3 institutions in each of North America, Europe, and Asia. We report the results of the pooled regression with standard errors double clustered at the institution and year/quarter levels in columns 1-4 and one-way clustered at the institution-year/quarter levels in columns 5-8. All regressions include institution-year/quarter and firm-year/quarter fixed effects. All regression models include the controls of Table 1 (unreported for brevity) and interactions of these control variables with the *FOR* and *POST2015* indicators. ***1% significance; **5% significance; *10% significance.

Panel A: Intensive Margin

LOG(PF SHARE)	All				Top 3			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
FOR	-2.798***	-2.783***	-2.762***	-2.663***	-6.819***	-6.584***	-6.485***	-5.545***
	(0.198)	(0.197)	(0.197)	(0.190)	(0.242)	(0.232)	(0.235)	(0.224)
FOR*POST2015	0.167	0.198	0.201	0.131	-0.510	-0.725	-0.570	-1.254**
	(0.181)	(0.183)	(0.185)	(0.192)	(0.487)	(0.485)	(0.485)	(0.493)
FOR*S12INT	0.000948				0.00798***			
	(0.000749)				(0.00186)			
FOR*POST2015*S12INT	-0.00349***				0.00253			
	(0.000976)				(0.00239)			
FOR*S3INT		-0.00981***				-0.121***		
		(0.00341)				(0.0110)		
FOR*POST2015*S3INT		-0.00922**				0.102***		
		(0.00388)				(0.0125)		
FOR*LOGS12TOT			-0.0123***				-0.113***	
			(0.00368)				(0.0112)	
FOR*POST2015*LOGS12TOT			-0.00590				0.0349**	
			(0.00432)				(0.0141)	
FOR*LOGS3TOT				-0.0297***				-0.267***
				(0.00786)				(0.0180)
FOR*POST2015*LOGS3TOT				0.0110*				0.163***
				(0.00653)				(0.0213)
Controls	X	X	X	X	X	X	X	X
Inst*Yr/Qtr FE	X	X	X	X	X	X	X	X
Firm*Yr/Qtr FE	X	X	X	X	X	X	X	X
Observations	73922723	73922723	73922723	73922723	1796966	1796966	1796966	1796966
R2	0.674	0.674	0.674	0.674	0.775	0.775	0.775	0.776
Within R2	0.0719	0.0719	0.0719	0.0720	0.385	0.386	0.386	0.387

Panel B: Extensive Margin

OWN	All				Top 3			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
FOR	-12.26***	-12.02***	-11.14***	-9.542***	-53.27***	-53.18***	-52.66***	-48.08***
	(2.462)	(2.488)	(2.510)	(2.561)	(3.632)	(3.675)	(3.746)	(3.926)
FOR*POST2015	6.587**	7.003**	8.026***	8.038***	11.30*	11.69**	14.30**	15.59**
	(2.775)	(2.796)	(2.839)	(2.899)	(5.780)	(5.845)	(5.978)	(6.153)
FOR*S12INT	-0.0213**				0.107***			
	(0.00968)				(0.0185)			
FOR*POST2015*S12INT	-0.0663***				-0.0176			
	(0.0133)				(0.0258)			
FOR*S3INT		-0.164***				-0.192***		
		(0.0416)				(0.0736)		
FOR*POST2015*S3INT		-0.112**				-0.163		
		(0.0502)				(0.0996)		
FOR*LOGS12TOT			-0.379***				-0.286***	
			(0.0448)				(0.0916)	
FOR*POST2015*LOGS12TOT			-0.287***				-0.741***	
			(0.0631)				(0.152)	
FOR*LOGS3TOT				-0.609***				-1.147***
				(0.0693)				(0.182)
FOR*POST2015*LOGS3TOT				-0.174*				-0.693***
				(0.0893)				(0.238)
Controls	X	X	X	X	X	X	X	X
Inst*Yr/Qtr FE	X	X	X	X	X	X	X	X
Firm*Yr/Qtr FE	X	X	X	X	X	X	X	X
Observations	105155532	105155532	105155532	105155532	1848686	1848686	1848686	1848686
R2	0.302	0.302	0.302	0.302	0.426	0.426	0.426	0.426
Within R2	0.0119	0.0119	0.0120	0.0120	0.0406	0.0406	0.0409	0.0414

Table 13: Event study: Trump Election

The sample is the four quarters of institutional-level observations around the November 8, 2016 U.S. Presidential Election. The sample is a balanced panel in the institution and firm dimensions. The pre-event observations are at June and September 2016. The post-event ("POST-TRUMP") observations are at December 2016 and March 2017. In columns 1-4, the dependent variable is $LOG(PF\_SHARE_{i,j,t})$, the natural logarithm of the portfolio share of institution i allocated to firm j at time t. In columns 5-8, the dependent variable is the indicator variable $OWN_{i,j,t}$, equal to one if an institution i holds a position in firm j in its investment universe at time t. The main independent variables are carbon emissions intensities (Panel A) and carbon emission levels (Panel B) and these variables interacted with the foreign indicator, *FOR*, a dummy for U.S.-based institutions, *US_INST*, and a dummy indicator for the post-event window, *POST-TRUMP*. All variables are defined in Panel B of Table 1. We report the results of the pooled regression with standard errors clustered at the institution levels. All regressions include institution-year/quarter fixed effects. All regression models include the controls of Table 1 (unreported for brevity) and interactions of these control variables with the *FOR*, *US_INST*, and *POST-TRUMP* indicators. ***1% significance; **5% significance; *10% significance.

	Intensive Margin				Extensive Margin			
Emissions variable	S12INT	S3INT	LOGS12TOT	LOGS3TOT	S12INT	S3INT	LOGS12TOT	LOGS3TOT
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
FOR	-2.405***	-2.358***	-2.333***	-2.388***	-26.66***	-26.52***	-25.57***	-27.82***
	(0.333)	(0.333)	(0.333)	(0.326)	(3.502)	(3.517)	(3.525)	(3.587)
FOR*POST-TRUMP	-0.635***	-0.660***	-0.693***	-0.690***	0.0201	-0.156	-0.111	-0.691
	(0.111)	(0.114)	(0.115)	(0.120)	(1.823)	(1.841)	(1.860)	(1.962)
FOR*US_INST	-1.218**	-1.188**	-1.043**	-0.867*	17.69***	17.38***	16.99***	19.36***
	(0.514)	(0.511)	(0.509)	(0.497)	(5.801)	(5.798)	(5.796)	(5.760)
US_INST*FOR*POST-TRUMP	0.293	0.297	0.358*	0.338*	0.895	0.901	1.293	1.127
	(0.196)	(0.199)	(0.199)	(0.204)	(2.622)	(2.627)	(2.639)	(2.718)
EMISSIONS	0.00440***	0.0121*	0.0204***	0.00976	0.0231	-0.378***	-0.298***	-0.912***
	(0.00154)	(0.00661)	(0.00648)	(0.0131)	(0.0223)	(0.0956)	(0.101)	(0.151)
FOR*EMISSIONS	-0.00625***	-0.0179**	-0.0222***	-0.000293	-0.0835***	0.117	-0.189*	0.279*
	(0.00154)	(0.00715)	(0.00703)	(0.0135)	(0.0248)	(0.105)	(0.108)	(0.161)
POST-TRUMP*EMISSIONS	-0.00417***	-0.00598*	-0.0153***	-0.00773	0.000423	0.173**	0.0549	-0.0141
	(0.00102)	(0.00362)	(0.00367)	(0.00492)	(0.0197)	(0.0703)	(0.0747)	(0.0996)
US_INST*EMISSIONS	-0.00147	0.00654	0.00218	0.0165	-0.0162	0.240**	0.181	0.584***
	(0.00163)	(0.00705)	(0.00711)	(0.0138)	(0.0242)	(0.103)	(0.111)	(0.163)
FOR*POST-TRUMP*EMISSIONS	0.00382***	0.00521	0.0156***	0.00719	-0.00892	-0.0469	-0.0174	0.137
	(0.00109)	(0.00380)	(0.00385)	(0.00527)	(0.0207)	(0.0753)	(0.0792)	(0.106)
FOR*US_INST*EMISSIONS	-0.00598***	-0.0325***	-0.0528***	-0.0775***	0.0424	-0.115	-0.0622	-0.494**
	(0.00208)	(0.00891)	(0.00955)	(0.0166)	(0.0310)	(0.125)	(0.138)	(0.204)
US_INST*POST-TRUMP*EMISSIONS	0.00505***	0.00623	0.0216***	0.0132**	0.00178	-0.156**	-0.0313	0.0290
	(0.00107)	(0.00388)	(0.00394)	(0.00524)	(0.0212)	(0.0770)	(0.0831)	(0.109)
US_INST*FOR*POST-TRUMP*EMISSIONS	-0.00500***	-0.00210	-0.0228***	-0.0143**	-0.0221	0.0480	-0.0454	-0.0567
	(0.00128)	(0.00475)	(0.00473)	(0.00652)	(0.0247)	(0.0960)	(0.0998)	(0.140)
Controls	X	X	X	X	X	X	X	X
Inst*Yr/Qtr FE	X	X	X	X	X	X	X	X
Obs	3765925	3765925	3765925	3765925	5863132	5863132	5863132	5863132
R2	0.625	0.625	0.625	0.625	0.257	0.257	0.258	0.258
Within R2	0.270	0.269	0.270	0.270	0.0654	0.0654	0.0655	0.0655

Table 14: Event study: Biden Election

The sample is the four quarters of institutional-level observations around the November 3, 2020 U.S. Presidential Election. The sample is a balanced panel in the institution and firm dimensions. The pre-event observations are at June and September 2020. The post-event ("POST-BIDEN") observations are at December 2020 and March 2021. In columns 1-4, the dependent variable is $LOG(PF\_SHARE_{i,j,t})$, the natural logarithm of the portfolio share of institution i allocated to firm j at time t. In columns 5-8, the dependent variable is the indicator variable $OWN_{i,j,t}$, equal to one if an institution i holds a position in firm j in its investment universe at time t. The main independent variables are carbon emissions intensities (Panel A) and carbon emission levels (Panel B) and these variables interacted with the foreign indicator, *FOR*, a dummy for U.S.-based institutions, *US_INST*, and a dummy indicator for the post-event window, *POST-BIDEN*. All variables are defined in Panel B of Table 1. We report the results of the pooled regression with standard errors clustered at the institution levels. All regressions include institution-year/quarter fixed effects. All regression models include the controls of Table 1 (unreported for brevity) and interactions of these control variables with the *FOR*, *US_INST*, and *POST-BIDEN* indicators. ***1% significance; **5% significance; *10% significance.

	Intensive Margin				Extensive Margin			
Emissions variable	S12INT	S3INT	LOGS12TOT	LOGS3TOT	S12INT	S3INT	LOGS12TOT	LOGS3TOT
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
FOR	-2.922***	-2.908***	-2.935***	-3.073***	-25.00***	-24.54***	-23.12***	-22.52***
	(0.514)	(0.518)	(0.513)	(0.520)	(4.542)	(4.544)	(4.542)	(4.548)
FOR*POST-BIDEN	0.473***	0.481***	0.458***	0.451***	1.981	2.486	2.764	3.329
	(0.150)	(0.151)	(0.149)	(0.148)	(2.143)	(2.152)	(2.137)	(2.248)
FOR*US_INST	-1.713***	-1.629**	-1.487**	-1.363**	11.35	10.45	10.15	9.519
	(0.639)	(0.641)	(0.638)	(0.645)	(6.976)	(6.940)	(6.923)	(6.831)
US_INST*FOR*POST-BIDEN	0.152	0.158	0.159	0.260	-1.492	-1.515	-1.850	-1.304
	(0.180)	(0.181)	(0.178)	(0.177)	(2.801)	(2.793)	(2.770)	(2.849)
EMISSIONS	-0.00106	0.00747	-0.00787	-0.0189**	-0.0421**	-0.248***	-0.217***	-0.509***
	(0.00188)	(0.00589)	(0.00578)	(0.00807)	(0.0212)	(0.0688)	(0.0804)	(0.0971)
FOR*EMISSIONS	-0.00102	-0.00964	0.00346	0.0295***	-0.0341	-0.148*	-0.530***	-0.506***
	(0.00203)	(0.00636)	(0.00649)	(0.00867)	(0.0272)	(0.0801)	(0.0967)	(0.112)
POST-BIDEN*EMISSIONS	0.000548	0.00817***	0.00118	-0.000881	0.00618	0.168***	-0.00797	0.0299
	(0.00109)	(0.00292)	(0.00375)	(0.00441)	(0.0163)	(0.0514)	(0.0657)	(0.0856)
US_INST*EMISSIONS	0.00509***	0.00965	0.0392***	0.0442***	0.113***	-0.000570	-0.0654	-0.0630
	(0.00195)	(0.00629)	(0.00644)	(0.00876)	(0.0230)	(0.0769)	(0.0901)	(0.110)
FOR*POST-BIDEN*EMISSIONS	0.000598	-0.00683**	0.00591	0.00718	-0.0532***	-0.242***	-0.254***	-0.273***
	(0.00120)	(0.00323)	(0.00431)	(0.00508)	(0.0186)	(0.0589)	(0.0740)	(0.0974)
FOR*US_INST*EMISSIONS	-0.0128***	-0.0364***	-0.0712***	-0.0735***	-0.103***	0.0990	0.184	0.315**
	(0.00255)	(0.00771)	(0.00841)	(0.0119)	(0.0356)	(0.107)	(0.126)	(0.153)
US_INST*POST-BIDEN*EMISSIONS	-0.000321	-0.00955***	-0.000770	0.00385	-0.0217	-0.121**	-0.0455	-0.0393
	(0.00113)	(0.00316)	(0.00401)	(0.00471)	(0.0175)	(0.0573)	(0.0712)	(0.0919)
US_INST*FOR*POST-BIDEN*EMISSIONS	-0.000371	-0.00212	-0.00735	-0.0284***	0.0685***	0.120	0.0855	-0.0228
	(0.00145)	(0.00418)	(0.00520)	(0.00610)	(0.0225)	(0.0780)	(0.0917)	(0.120)
Controls	X	X	X	X	X	X	X	X
Inst*Yr/Qtr FE	X	X	X	X	X	X	X	X
Obs	5889569	5889569	5889569	5889569	9559058	9559058	9559058	9559058
R2	0.672	0.672	0.672	0.672	0.292	0.292	0.292	0.292
Within R2	0.318	0.318	0.318	0.318	0.0962	0.0963	0.0968	0.0969

A Appendix

Table A.1: Summary Statistics: Firm and Institution Country Overview

This table shows the number of unique firms and institutions included by country. The sample period is 2005-2022.

Country	N (firms)	N (inst.)
Australia	493	95
Austria	34	63
Belgium	54	38
Brazil	153	143
Canada	347	313
Chile	32	16
China	2376	136
Colombia	12	0
Czech Republic	6	9
Denmark	56	49
Egypt	31	1
Finland	72	43
France	302	302
Germany	250	457
Greece	39	18
Hong Kong	440	132
Hungary	5	10
India	640	37
Indonesia	133	4
Ireland	53	39
Israel	125	57
Italy	149	90
Japan	2109	63
Korea	1117	11
Luxembourg	28	101
Malaysia	203	31
Mexico	65	28
Netherlands	92	57
New Zealand	57	9
Norway	89	39
Peru	16	1
Philippines	63	1
Poland	67	39
Portugal	18	33
Qatar	18	2
Russia	62	3
Saudi Arabia	122	1
Singapore	107	71
South Africa	123	195
Spain	91	168
Sweden	243	124
Switzerland	176	370
Taiwan	857	38
Thailand	192	12
Turkey	100	5
United Arab Emirates	26	9
United Kingdom	584	647
United States	3104	7678

Table A.2: Summary Statistics: Extensive Margin Data

This table reports summary statistics (averages, standard deviations and cross-sectional percentile values) for the variables used in the institutional-level extensive margin regressions. The sample period is 2008-2022 and uses quarterly data. *OWN* is an indicator variable equal to one if an institution holds a position in a given firm in its investment universe. *PF SHARE* is the proportion of an institution's assets under management invested in a specific firm; *PF SHARE (DOM)* and *PF SHARE(FOR)* show the domestic and foreign portfolio share allocations, respectively; *S12INT* and *S3INT* are Scope 1&2 and Scope 3 carbon intensity, respectively, defined as tons of CO2 equivalent emissions divided by annual revenue in USD millions. The intensity measures are divided by 100; *LOGS12TOT* and *LOGS3TOT* are the natural logarithm of total Scope 1&2 and Scope 3 emissions, respectively; *LOGSIZE* is the natural logarithm of market capitalization (in $ million); *B/M* is the book value of equity divided by market value of equity; *LEVERAGE* is the book value of debt divided by the book value of assets; *MOM* is the cumulative stock return over the one-year period; *ROE* is the return on equity; *RETVOL* is the annualized daily stock return volatility over the one year period; *BETA* is the market beta calculated using daily data over the one year period; *INVEST/A* is capital expenditures divided by book value of assets; *MSCI* is an indicator variable equal to one if a stock of MSCI All Country World Index, and zero otherwise; *N*, *N (DOM)* and *N (FOR)* show the total, domestic and foreign number of stocks in the institutional portfolio investment universes, respectively. We require an institution to have at least 10 firms in its investment universe, of which one must be foreign and one domestic. Institutions with greater than 50% of their portfolio allocated to a single stock in a given quarter are excluded.

	mean	std	min	25%	50%	75%	max
OWN	0.641	0.480	0.000	0.000	1.000	1.000	1.000
PF SHARE (in %)	0.311	1.262	0.000	0.000	0.003	0.088	49.995
PF SHARE (DOM)	0.459	1.586	0.000	0.000	0.011	0.202	49.995
PF SHARE (FOR)	0.184	0.878	0.000	0.000	0.001	0.038	49.991
S12INT (wins. at 2.5%)	2.898	6.947	0.073	0.222	0.459	1.644	37.125
S3INT (wins. at 2.5%)	1.931	1.699	0.345	0.699	1.376	2.652	8.701
LOGS12TOT	12.686	2.450	0.080	11.064	12.573	14.273	20.191
LOGS3TOT	13.432	2.054	0.134	12.146	13.525	14.851	19.031
LOGSIZE	8.982	1.695	2.984	7.860	8.949	10.123	14.881
B/M (wins. at 2.5%)	0.593	0.559	0.064	0.227	0.424	0.760	3.004
LEVERAGE (wins. at 2.5%)	0.260	0.163	0.000	0.136	0.254	0.372	0.612
MOM (wins. at 2.5%)	0.106	0.387	-0.591	-0.136	0.066	0.283	1.473
ROE (wins. at 2.5%)	0.111	0.185	-0.575	0.052	0.115	0.197	0.457
RETVOL (wins. at 2.5%)	0.369	0.162	0.172	0.249	0.330	0.448	0.864
BETA (wins. at 2.5%)	1.039	0.360	0.348	0.790	1.012	1.261	1.872
INVEST/A (wins. at 2.5%)	0.046	0.039	0.002	0.018	0.035	0.062	0.182
MSCI	0.635	0.481	0.000	0.000	1.000	1.000	1.000
N	322	571	10	57	122	322	10746
N (DOM)	148	252	1	24	60	146	2077
N (FOR)	173	453	1	8	29	119	9657

Table A.3: Industry Overview: GICS 6-Digit Level

This table shows the number of unique sample firms by GICS6 industry. The sample period is 2005-2022.

GICS6	N	Industry Description
101010	169	Energy Equipment & Services
101020	514	Oil, Gas & Consumable Fuels
151010	765	Chemicals
151020	182	Construction Materials
151030	122	Containers & Packaging
151040	657	Metals & Mining
151050	118	Paper & Forest Products
201010	135	Aerospace & Defense
201020	175	Building Products
201030	461	Construction & Engineering
201040	408	Electrical Equipment
201050	102	Industrial Conglomerates
201060	756	Machinery
201070	235	Trading Companies & Distributors
202010	362	Commercial Services & Supplies
202020	158	Professional Services
203010	87	Air Freight & Logistics
203020	75	Passenger Airlines
203030	92	Marine Transportation
203040	142	Ground Transportation
203050	126	Transportation Infrastructure
251010	350	Automobile Components
251020	83	Automobiles
252010	322	Household Durables
252020	112	Leisure Products
252030	339	Textiles, Apparel & Luxury Goods
253010	436	Hotels, Restaurants & Leisure
253020	139	Diversified Consumer Services
254010	361	Media
255010	73	Distributors
255020	147	Internet & Direct Marketing Retail
255030	110	Broadline Retail
255040	380	Specialty Retail
301010	234	Consumer Staples Distribution & Retail
302010	126	Beverages
302020	599	Food Products
302030	25	Tobacco
303010	47	Household Products
303020	127	Personal Care Products
351010	365	Health Care Equipment & Supplies
351020	314	Health Care Providers & Services
351030	73	Health Care Technology
352010	574	Biotechnology
352020	511	Pharmaceuticals
352030	90	Life Sciences Tools & Services
451010	194	Internet Software & Services
451020	396	IT Services
451030	586	Software
452010	216	Communications Equipment
452020	171	Technology Hardware, Storage & Peripherals
452030	719	Electronic Equipment, Instruments & Components
452040	12	Office Electronics
453010	548	Semiconductors & Semiconductor Equipment
501010	158	Diversified Telecommunication Services
501020	66	Wireless Telecommunication Services
502010	67	Media
502020	75	Entertainment
502030	49	Interactive Media & Services
551010	153	Electric Utilities
551020	74	Gas Utilities
551030	50	Multi-Utilities
551040	49	Water Utilities
551050	170	Independent Power and Renewable Electricity Pro...

Table A.4: Top 3 Institutions by Year: North America

This table shows the three largest institutional portfolios in North America by year-end. The sort is based on total equity assets under management. The sample period is 2005-2022.

Year	Inst. Name	Inst. Country	Holdings (USDm)
2005	BlackRock Fund Advisors	US	646,940.0
2005	Fidelity Management & Research Co. LLC	US	595,626.0
2005	SSgA Funds Management, Inc.	US	471,370.0
2006	BlackRock Fund Advisors	US	746,861.0
2006	Fidelity Management & Research Co. LLC	US	619,672.0
2006	SSgA Funds Management, Inc.	US	530,691.0
2007	BlackRock Fund Advisors	US	781,981.0
2007	Fidelity Management & Research Co. LLC	US	668,361.0
2007	SSgA Funds Management, Inc.	US	580,502.0
2008	BlackRock Fund Advisors	US	509,004.0
2008	SSgA Funds Management, Inc.	US	394,046.0
2008	Fidelity Management & Research Co. LLC	US	355,037.0
2009	BlackRock Fund Advisors	US	595,163.0
2009	The Vanguard Group, Inc.	US	497,313.0
2009	SSgA Funds Management, Inc.	US	487,174.0
2010	BlackRock Fund Advisors	US	664,588.0
2010	The Vanguard Group, Inc.	US	626,465.0
2010	SSgA Funds Management, Inc.	US	569,971.0
2011	The Vanguard Group, Inc.	US	688,427.0
2011	BlackRock Fund Advisors	US	644,560.0
2011	SSgA Funds Management, Inc.	US	563,284.0
2012	The Vanguard Group, Inc.	US	884,169.0
2012	BlackRock Fund Advisors	US	762,541.0
2012	SSgA Funds Management, Inc.	US	671,478.0
2013	The Vanguard Group, Inc.	US	1,211,154.0
2013	BlackRock Fund Advisors	US	1,028,910.0
2013	SSgA Funds Management, Inc.	US	895,689.0
2014	The Vanguard Group, Inc.	US	1,411,684.0
2014	BlackRock Fund Advisors	US	1,142,657.0
2014	SSgA Funds Management, Inc.	US	986,483.0
2015	The Vanguard Group, Inc.	US	1,633,995.0
2015	BlackRock Fund Advisors	US	1,148,126.0
2015	SSgA Funds Management, Inc.	US	889,212.0
2016	The Vanguard Group, Inc.	US	1,973,189.0
2016	BlackRock Fund Advisors	US	1,326,689.0
2016	SSgA Funds Management, Inc.	US	1,009,488.0
2017	The Vanguard Group, Inc.	US	2,610,349.0
2017	BlackRock Fund Advisors	US	1,739,205.0
2017	SSgA Funds Management, Inc.	US	1,184,747.0
2018	The Vanguard Group, Inc.	US	2,521,684.0
2018	BlackRock Fund Advisors	US	1,598,703.0
2018	SSgA Funds Management, Inc.	US	1,045,027.0
2019	The Vanguard Group, Inc.	US	3,286,294.0
2019	BlackRock Fund Advisors	US	2,045,410.0
2019	SSgA Funds Management, Inc.	US	1,384,528.0
2020	The Vanguard Group, Inc.	US	3,736,365.0
2020	BlackRock Fund Advisors	US	2,373,204.0
2020	SSgA Funds Management, Inc.	US	1,575,215.0
2021	The Vanguard Group, Inc.	US	4,657,162.0
2021	BlackRock Fund Advisors	US	2,903,935.0
2021	SSgA Funds Management, Inc.	US	2,023,180.0
2022	The Vanguard Group, Inc.	US	3,905,646.0
2022	BlackRock Fund Advisors	US	2,421,046.0
2022	SSgA Funds Management, Inc.	US	1,633,692.0

Table A.5: Top 3 Institutions by Year: Europe

This table shows the three largest institutional portfolios in Europe by year-end. The sort is based on total equity assets under management. The sample period is 2005-2022.

Year	Inst. Name	Inst. Country	Holdings (USDm)
2005	DWS Investment GmbH	DE	135,580.0
2005	Allianz Global Investors GmbH	DE	60,005.0
2005	Schroder Investment Management Ltd.	GB	45,911.0
2006	DWS Investment GmbH	DE	174,448.0
2006	Allianz Global Investors GmbH	DE	84,062.0
2006	APG Asset Management NV	NL	79,823.0
2007	DWS Investment GmbH	DE	155,221.0
2007	APG Asset Management NV	NL	95,332.0
2007	Allianz Global Investors GmbH	DE	90,077.0
2008	DWS Investment GmbH	DE	62,472.0
2008	APG Asset Management NV	NL	55,348.0
2008	Allianz Global Investors GmbH	DE	43,566.0
2009	DWS Investment GmbH	DE	87,838.0
2009	APG Asset Management NV	NL	80,663.0
2009	Legal & General Investment Management Ltd.	GB	61,766.0
2010	DWS Investment GmbH	DE	99,633.0
2010	APG Asset Management NV	NL	87,916.0
2010	Schroder Investment Management Ltd.	GB	75,967.0
2011	APG Asset Management NV	NL	87,817.0
2011	DWS Investment GmbH	DE	76,515.0
2011	Schroder Investment Management Ltd.	GB	67,272.0
2012	APG Asset Management NV	NL	107,299.0
2012	DWS Investment GmbH	DE	104,742.0
2012	Schroder Investment Management Ltd.	GB	85,180.0
2013	DWS Investment GmbH	DE	128,671.0
2013	APG Asset Management NV	NL	125,061.0
2013	Schroder Investment Management Ltd.	GB	111,789.0
2014	APG Asset Management NV	NL	136,523.0
2014	DWS Investment GmbH	DE	125,771.0
2014	Schroder Investment Management Ltd.	GB	108,341.0
2015	DWS Investment GmbH	DE	123,414.0
2015	APG Asset Management NV	NL	109,817.0
2015	Legal & General Investment Management Ltd.	GB	103,573.0
2016	APG Asset Management NV	NL	127,071.0
2016	DWS Investment GmbH	DE	120,153.0
2016	Legal & General Investment Management Ltd.	GB	119,868.0
2017	Legal & General Investment Management Ltd.	GB	153,680.0
2017	DWS Investment GmbH	DE	153,069.0
2017	APG Asset Management NV	NL	149,343.0
2018	DWS Investment GmbH	DE	158,713.0
2018	APG Asset Management NV	NL	131,513.0
2018	Baillie Gifford & Co.	GB	125,856.0
2019	Baillie Gifford & Co.	GB	183,048.0
2019	APG Asset Management NV	NL	163,817.0
2019	Legal & General Investment Management Ltd.	GB	141,394.0
2020	Baillie Gifford & Co.	GB	280,276.0
2020	APG Asset Management NV	NL	179,986.0
2020	Legal & General Investment Management Ltd.	GB	172,637.0
2021	Baillie Gifford & Co.	GB	308,125.0
2021	Legal & General Investment Management Ltd.	GB	233,780.0
2021	Amundi Asset Management SA (Investment Management)	FR	195,828.0
2022	Legal & General Investment Management Ltd.	GB	199,864.0
2022	Baillie Gifford & Co.	GB	177,754.0
2022	Amundi Asset Management SA (Investment Management)	FR	162,303.0

Table A.6: Top 3 Institutions by Year: Asia

This table shows the three largest institutional portfolios in Asia by year-end. The sort is based on total equity assets under management. The sample period is 2005-2022.

Year	Inst. Name	Inst. Country	Holdings (USDm)
2005	Nomura Asset Management Co., Ltd.	JP	44,392.0
2005	Mitsubishi UFJ Kokusai Asset Management Co., Ltd.	JP	18,699.0
2005	Nikko Asset Management Co., Ltd.	JP	18,130.0
2006	Nomura Asset Management Co., Ltd.	JP	41,243.0
2006	Nikko Asset Management Co., Ltd.	JP	24,585.0
2006	Mitsubishi UFJ Kokusai Asset Management Co., Ltd.	JP	23,499.0
2007	Nomura Asset Management Co., Ltd.	JP	39,070.0
2007	Nikko Asset Management Co., Ltd.	JP	25,449.0
2007	Daiwa Asset Management Co. Ltd.	JP	24,159.0
2008	Nomura Asset Management Co., Ltd.	JP	27,318.0
2008	Daiwa Asset Management Co. Ltd.	JP	16,166.0
2008	Nikko Asset Management Co., Ltd.	JP	14,005.0
2009	Nikko Asset Management Co., Ltd.	JP	31,957.0
2009	Nomura Asset Management Co., Ltd.	JP	29,495.0
2009	China Asset Management Co., Ltd.	CN	26,021.0
2010	Nomura Asset Management Co., Ltd.	JP	32,965.0
2010	Nikko Asset Management Co., Ltd.	JP	31,671.0
2010	Mitsubishi UFJ Trust & Banking Corp. (Investmen...	JP	28,624.0
2011	Nikko Asset Management Co., Ltd.	JP	59,272.0
2011	Nomura Asset Management Co., Ltd.	JP	34,378.0
2011	Mitsubishi UFJ Trust & Banking Corp. (Investmen...	JP	30,735.0
2012	Nikko Asset Management Co., Ltd.	JP	64,475.0
2012	Nomura Asset Management Co., Ltd.	JP	41,862.0
2012	Mitsubishi UFJ Trust & Banking Corp. (Investmen...	JP	33,854.0
2013	Nikko Asset Management Co., Ltd.	JP	71,820.0
2013	Nomura Asset Management Co., Ltd.	JP	58,548.0
2013	Mitsubishi UFJ Trust & Banking Corp. (Investmen...	JP	38,774.0
2014	Nikko Asset Management Co., Ltd.	JP	71,837.0
2014	Nomura Asset Management Co., Ltd.	JP	63,817.0
2014	Mitsubishi UFJ Trust & Banking Corp. (Investmen...	JP	39,814.0
2015	Nikko Asset Management Co., Ltd.	JP	83,018.0
2015	Nomura Asset Management Co., Ltd.	JP	79,466.0
2015	Mitsubishi UFJ Trust & Banking Corp. (Investmen...	JP	40,948.0
2016	Nomura Asset Management Co., Ltd.	JP	98,531.0
2016	Nikko Asset Management Co., Ltd.	JP	96,603.0
2016	Asset Management One Co., Ltd.	JP	48,334.0
2017	Nomura Asset Management Co., Ltd.	JP	143,887.0
2017	Nikko Asset Management Co., Ltd.	JP	134,217.0
2017	Daiwa Asset Management Co. Ltd.	JP	66,747.0
2018	Nikko Asset Management Co., Ltd.	JP	149,782.0
2018	Nomura Asset Management Co., Ltd.	JP	144,123.0
2018	Daiwa Asset Management Co. Ltd.	JP	68,844.0
2019	Nikko Asset Management Co., Ltd.	JP	201,996.0
2019	Nomura Asset Management Co., Ltd.	JP	194,292.0
2019	Daiwa Asset Management Co. Ltd.	JP	89,652.0
2020	Nomura Asset Management Co., Ltd.	JP	252,231.0
2020	Nikko Asset Management Co., Ltd.	JP	251,378.0
2020	Daiwa Asset Management Co. Ltd.	JP	113,958.0
2021	Nikko Asset Management Co., Ltd.	JP	262,109.0
2021	Nomura Asset Management Co., Ltd.	JP	253,746.0
2021	Daiwa Asset Management Co. Ltd.	JP	116,316.0
2022	Nomura Asset Management Co., Ltd.	JP	210,348.0
2022	Nikko Asset Management Co., Ltd.	JP	205,922.0
2022	Daiwa Asset Management Co. Ltd.	JP	94,176.0

Table A.7: Institutional Portfolios: Cross-Sectional Institutional Size Breakpoints

This table shows the year-end cross-sectional size quartile breakpoints based on the equity assets under management of institutional portfolios. The sample period is 2005-2022.

Year-end	min	25th	median	75th	max
2005	0.287	108.160	351.752	1621.552	646939.875
2006	0.124	111.027	362.432	1699.223	746861.312
2007	0.070	108.617	363.158	1744.449	781981.375
2008	0.066	55.233	182.403	885.641	509004.438
2009	0.203	72.382	235.025	1166.027	595162.875
2010	0.085	80.924	262.594	1290.053	664588.000
2011	0.129	67.998	224.401	1143.430	688426.500
2012	0.107	73.563	246.579	1275.188	884168.750
2013	0.078	88.310	291.117	1439.207	1211153.625
2014	0.069	84.548	286.356	1417.526	1411684.125
2015	0.117	80.264	262.535	1322.996	1633995.375
2016	0.103	80.357	262.836	1328.015	1973188.750
2017	0.117	89.492	284.044	1331.545	2610348.500
2018	0.073	69.732	221.703	1034.638	2521683.750
2019	0.041	80.924	245.118	1155.408	3286293.750
2020	0.114	87.328	256.865	1188.953	3736364.500
2021	0.021	90.557	273.754	1272.584	4657162.000
2022	0.115	71.290	215.611	994.981	3905645.500

Table A.8: Carbon Emissions and Institutional Ownership: Firm-Level Foreign Difference with Alternative Intensity Definitions

The sample is the firm-level observations in the 2005-2022 period. The dependent variable is $IO\_FOR\_DIFF_{i,t}$. The main independent variables are carbon emissions scaled by total assets (columns 1-4) and carbon emissions scaled by total market value (columns 5-8). We report the results of the pooled regression with standard errors double clustered at the firm and year/quarter level. All regressions include country-year/quarter fixed effects. In addition, columns 3-4 and 7-8 include industry-year/quarter fixed effects. All regression models include the controls of Table 1 (unreported for brevity) and a control for for total ownership, *IO*. ***1% significance; **5% significance; *10% significance.

IO_FOR_DIFF	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
S12INT_ASSETS	-0.102***		-0.113***					
	(0.0274)		(0.0381)					
S3INT_ASSETS		-0.300***		-0.557***				
		(0.0550)		(0.0762)				
S12INT_MV					-0.0493***		-0.0514***	
					(0.0103)		(0.0132)	
S3INT_MV						-0.134***		-0.174***
						(0.0222)		(0.0256)
Controls	X	X	X	X	X	X	X	X
Country*Yr/Qtr FE	X	X	X	X	X	X	X	X
Industry*Yr/Qtr FE			X	X			X	X
Observations	411390	411390	411390	411390	411388	411388	411388	411388
R2	0.817	0.817	0.822	0.822	0.817	0.817	0.822	0.822

Table A.9: Carbon Emissions and Institutional Ownership: Firm-Level Foreign Difference with Post-2015 Indicator

The sample is the firm-level observations in the 2005-2022 period. The dependent variable is $IO\_FOR\_DIFF_{i,t}$. The main independent variables are carbon emissions intensities (columns 1-4) and carbon emission levels (columns 5-8). In addition, the model includes interactions with an indicator, *POST2015*, equal to one if the year is 2016 or later, and zero otherwise. We report the results of the pooled regression with standard errors double clustered at the firm and year/quarter level. All regressions include country-year/quarter fixed effects. In addition, columns 3-4 and 7-8 include industry-year/quarter fixed effects. All regression models include the controls of Table 1 (unreported for brevity) and a control for for total ownership, *IO*. ***1% significance; **5% significance; *10% significance.

IO_FOR_DIFF	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
S12INT	0.00683		0.00499					
	(0.0232)		(0.0351)					
POST2015*S12INT	-0.0624***		-0.0647*					
	(0.0214)		(0.0325)					
S3INT		-0.0331		-0.544***				
		(0.103)		(0.145)				
POST2015*S3INT		-0.225**		-0.0699				
		(0.0970)		(0.135)				
LOGS12TOT					-0.387***		-0.623***	
					(0.112)		(0.150)	
POST2015*LOGS12TOT					-0.0524		0.235	
					(0.106)		(0.144)	
LOGS3TOT						-0.624***		-1.177***
						(0.147)		(0.183)
POST2015*LOGS3TOT						0.117		0.648***
						(0.142)		(0.178)
Controls	X	X	X	X	X	X	X	X
Country*Yr/Qtr FE	X	X	X	X	X	X	X	X
Industry*Yr/Qtr FE			X	X			X	X
Observations	411398	411398	411398	411398	411398	411398	411398	411398
R2	0.820	0.820	0.825	0.825	0.820	0.820	0.825	0.825

Table A.10: Carbon Emissions and Institutional Ownership: Firm-Level Foreign Ratio

The sample is the firm-level observations in the 2005-2022 period. The dependent variable is $IO\_FOR\_RATIO_{i,t}$. The main independent variables are carbon emissions intensities (columns 1-4) and carbon emission levels (columns 5-8). All variables are defined in Panel A of Table 1. We report the results of the pooled regression with standard errors double clustered at the firm and year/quarter level. All regressions include country-year/quarter fixed effects. In addition, columns 3-4 and 7-8 include industry-year/quarter fixed effects. All regression models include the controls of Table 1 (unreported for brevity) and a control for for total ownership, *IO*. In addition, in Panel B, the model includes interactions with an indicator, *POST2015*, equal to one if the year is 2016 or later, and zero otherwise. ***1% significance; **5% significance; *10% significance.

Panel A: Overall results

IO_FOR_RATIO	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
S12INT	-0.0421*		-0.0409					
	(0.0220)		(0.0293)					
S3INT		-0.178**		-0.789***				
		(0.0796)		(0.124)				
LOGS12TOT					-0.390***		-0.387***	
					(0.0815)		(0.106)	
LOGS3TOT						-0.460***		-0.602***
						(0.102)		(0.133)
Controls	X	X	X	X	X	X	X	X
Country*Yr/Qtr FE	X	X	X	X	X	X	X	X
Industry*Yr/Qtr FE			X	X			X	X
Observations	411398	411398	411398	411398	411398	411398	411398	411398
R2	0.686	0.686	0.693	0.693	0.686	0.686	0.693	0.693

Panel B: Post-2015 results

IO_FOR_RATIO	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
S12INT	-0.00685		0.00585					
	(0.0245)		(0.0373)					
POST2015*S12INT	-0.0539*		-0.0763*					
	(0.0299)		(0.0423)					
S3INT		-0.217**		-0.834***				
		(0.0979)		(0.151)				
POST2015*S3INT		0.0737		0.115				
		(0.112)		(0.175)				
LOGS12TOT					-0.399***		-0.537***	
					(0.110)		(0.160)	
POST2015*LOGS12TOT					0.0278		0.220	
					(0.120)		(0.173)	
LOGS3TOT						-0.693***		-1.115***
						(0.147)		(0.195)
POST2015*LOGS3TOT						0.345**		0.768***
						(0.158)		(0.211)
Controls	X	X	X	X	X	X	X	X
Country*Yr/Qtr FE	X	X	X	X	X	X	X	X
Industry*Yr/Qtr FE			X	X			X	X
Observations	411398	411398	411398	411398	411398	411398	411398	411398
R2	0.688	0.688	0.694	0.695	0.688	0.688	0.694	0.694

Table A.11: Carbon Emissions and Institutional Ownership: Firm-Level Salient Industries

The sample is the firm-level observations in the 2005-2022 period. The dependent variables are total institutional ownership, IOi,t, in Panel A, the foreign difference in institutional ownership, $IO\_FOR\_DIFF_{i,t}$, in Panel B, and the foreign ownership ratio, $IO\_FOR\_RATIO_{i,t}$, in Panel C. The main independent variables are carbon emissions intensities (columns 1-2) and carbon emission levels (columns 3-4). In addition, all regression models include a separate dummy variable, *SALIENT*, indicating whether a firm is in a salient industry, defined as utilities, oil and gas, and transportation industries. We report the results of the pooled regression with standard errors double clustered at the firm and year/quarter level. All regressions include country-year/quarter fixed effects, the controls of Table 1 (unreported for brevity), and a control for for total ownership, *IO*. ***1% significance; **5% significance; *10% significance.

Panel A: Overall Results

IO	(1)	(2)	(3)	(4)	(5)
SALIENT	-4.010***	-4.544***	-4.079***	-4.528***	-4.499***
	(0.459)	(0.443)	(0.447)	(0.444)	(0.443)
S12INT	-0.0627***				
	(0.0155)				
S3INT		-0.335***			
		(0.0627)			
LOGS12TOT			-0.301***		
			(0.0720)		
LOGS3TOT				-0.187**	
				(0.0890)	
Controls	X	X	X	X	X
Country*Yr/Qtr FE	X	X	X	X	X
Observations	411398	411398	411398	411398	411398
R2	0.813	0.813	0.813	0.812	0.812

Panel B: Foreign Difference

IO_FOR_DIFF	(1)	(2)	(3)	(4)	(5)
SALIENT	-1.532***	-1.670***	-1.072**	-1.733***	-1.637***
	(0.438)	(0.417)	(0.431)	(0.416)	(0.418)
S12INT	-0.0135				
	(0.0150)				
S3INT		-0.205***			
		(0.0613)			
LOGS12TOT			-0.410***		
			(0.0675)		
LOGS3TOT				-0.589***	
				(0.0809)	
Controls	X	X	X	X	X
Country*Yr/Qtr FE	X	X	X	X	X
Observations	411398	411398	411398	411398	411398
R2	0.817	0.817	0.818	0.818	0.817

Panel C: Foreign Ratio

IO_FOR_RATIO	(1)	(2)	(3)	(4)	(5)
SALIENT	-1.621***	-1.809***	-1.313**	-1.856***	-1.779***
	(0.553)	(0.530)	(0.547)	(0.528)	(0.531)
S12INT	-0.0205				
	(0.0228)				
S3INT		-0.185**			
		(0.0796)			
LOGS12TOT			-0.338***		
			(0.0841)		
LOGS3TOT				-0.473***	
				(0.102)	
Controls	X	X	X	X	X
Country*Yr/Qtr FE	X	X	X	X	X
Observations	411398	411398	411398	411398	411398
R2	0.686	0.686	0.687	0.687	0.686

Table A.12: Carbon Emissions and Institutional Ownership: Alternative Intensity Definitions

The sample is the institutional-level observations. In Panel A the sample period is 2005-2022 and the dependent variable is $LOG(PF\_SHARE_{i,j,t})$, the natural logarithm of the portfolio share of institution i allocated to firm j at time t. In Panel B the sample period is 2008-2022 and the dependent variable is the indicator variable $OWN_{i,j,t}$, equal to one if an institution i holds a position in firm j in its investment universe at time t. The main independent variables are carbon emissions scaled by assets (columns 1-2) and carbon emissions scaled by total market value (3-4) and these variables interacted with the foreign indicator, *FOR*. All variables are defined in Panel B of Table 1. We report the results of the pooled regression with standard errors double clustered at the institution and year/quarter levels. All regressions include institution-year/quarter fixed effects, the controls shown in Table 1 (unreported for brevity) and interactions of these control variables with the *FOR* indicator. ***1% significance; **5% significance; *10% significance.

Panel A: Intensive Margin

LOG(PF SHARE)	(1)	(2)	(3)	(4)
FOR	-2.575***	-2.520***	-2.598***	-2.562***
	(0.202)	(0.201)	(0.202)	(0.201)
S12INT_ASSETS	0.00347***			
	(0.000841)			
FOR*S12INT_ASSETS	-0.0101***			
	(0.00137)			
S3INT_ASSETS		0.0118***		
		(0.00139)		
FOR*S3INT_ASSETS		-0.0196***		
		(0.00212)		
S12INT_MV			0.000855**	
			(0.000358)	
FOR*S12INT_MV			-0.00588***	
			(0.000635)	
S3INT_MV				0.00447***
				(0.00106)
FOR*S3INT_MV				-0.0140***
				(0.00153)
Controls	X	X	X	X
Inst*Yr/Qtr FE	X	X	X	X
Observations	73926448	73926448	73916861	73916861
R2	0.653	0.653	0.653	0.653
Within R2	0.272	0.272	0.272	0.272

Panel B: Extensive Margin

OWN	(1)	(2)	(3)	(4)
FOR	-12.43***	-12.05***	-12.73***	-12.36***
	(1.934)	(1.927)	(1.925)	(1.928)
S12INT_ASSETS	0.0393***			
	(0.0109)			
FOR*S12INT_ASSETS	-0.156***			
	(0.0170)			
S3INT_ASSETS		-0.0446**		
		(0.0207)		
FOR*S3INT_ASSETS		-0.150***		
		(0.0254)		
S12INT_MV			0.0165***	
			(0.00615)	
FOR*S12INT_MV			-0.0774***	
			(0.00646)	
S3INT_MV				-0.0234
				(0.0140)
FOR*S3INT_MV				-0.115***
				(0.0151)
Controls	X	X	X	X
Inst*Yr/Qtr FE	X	X	X	X
Observations	105156864	105156864	105146490	105146490
R2	0.269	0.269	0.269	0.269
Within R2	0.0632	0.0632	0.0632	0.0632

Table A.13: Carbon Emissions and Institutional Ownership: Robustness Test with Foreign % Sales and Asset Control

The sample is the institutional-level observations. In columns 1-4 the sample period is 2005-2022 and the dependent variable is $LOG(PF\_SHARE_{i,j,t})$, the natural logarithm of the portfolio share of institution i allocated to firm j at time t. In columns 5-8 the sample period is 2008-2022 and the dependent variable is the indicator variable $OWN_{i,j,t}$, equal to one if an institution i holds a position in firm j in its investment universe at time t. The main independent variables are carbon emission intensity (columns 1-2 and 5-6) and the log of total carbon emissions (3-4 and 7-8) and these variables interacted with the foreign indicator, *FOR*. Panel A (B) additionally controls for the foreign sales (assets) share. We report the results of the pooled regression with standard errors double clustered at the institution and year/quarter levels. All regressions include institution-year/quarter fixed effects, the controls shown in Table 1 (unreported for brevity) and interactions of these control variables with the *FOR* indicator. ***1% significance; **5% significance; *10% significance.

Panel A: Foreign Sales Control

	Intensive Margin				Extensive Margin			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
FOR	-2.487***	-2.425***	-2.376***	-2.288***	-12.40***	-11.96***	-11.48***	-10.40***
	(0.198)	(0.196)	(0.197)	(0.196)	(1.897)	(1.908)	(1.927)	(1.901)
FOR_SALES	-0.000575***	-0.000756***	-0.000603***	-0.000748***	-0.0187***	-0.0192***	-0.0195***	-0.0169***
	(0.000193)	(0.000201)	(0.000194)	(0.000202)	(0.00289)	(0.00285)	(0.00287)	(0.00270)
FOR*FOR_SALES	0.00267***	0.00292***	0.00273***	0.00293***	0.0153***	0.0170***	0.0174***	0.0178***
	(0.000337)	(0.000351)	(0.000342)	(0.000348)	(0.00317)	(0.00328)	(0.00327)	(0.00327)
S12INT	0.00184***				0.0179***			
	(0.000464)				(0.00578)			
FOR*S12INT	-0.00420***				-0.0759***			
	(0.000713)				(0.00857)			
S3INT		0.0161***				0.00988		
		(0.00175)				(0.0249)		
FOR*S3INT		-0.0262***				-0.188***		
		(0.00314)				(0.0346)		
LOGS12TOT			0.0172***				-0.258***	
			(0.00206)				(0.0437)	
FOR*LOGS12TOT			-0.0310***				-0.359***	
			(0.00295)				(0.0410)	
LOGS3TOT				0.0230***				-0.466***
				(0.00299)				(0.0528)
FOR*LOGS3TOT				-0.0393***				-0.438***
				(0.00390)				(0.0544)
Controls	X	X	X	X	X	X	X	X
Inst*Yr/Qtr FE	X	X	X	X	X	X	X	X
Observations	73926898	73926898	73926898	73926898	105157448	105157448	105157448	105157448
R2	0.653	0.653	0.653	0.653	0.269	0.269	0.270	0.270
Within R2	0.273	0.273	0.273	0.273	0.0633	0.0633	0.0636	0.0638

Panel B: Foreign Assets Control

	Intensive Margin				Extensive Margin			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
FOR	-2.507***	-2.449***	-2.391***	-2.308***	-12.29***	-11.85***	-11.27***	-10.18***
	(0.199)	(0.198)	(0.198)	(0.197)	(1.900)	(1.911)	(1.930)	(1.905)
FOR_ASSETS	-0.000137	-0.000343*	-0.000238	-0.000392**	-0.0161***	-0.0166***	-0.0160***	-0.0128***
	(0.000177)	(0.000186)	(0.000180)	(0.000190)	(0.00286)	(0.00281)	(0.00275)	(0.00259)
FOR*FOR_ASSETS	0.00239***	0.00268***	0.00256***	0.00276***	0.0186***	0.0206***	0.0208***	0.0204***
	(0.000305)	(0.000320)	(0.000314)	(0.000321)	(0.00296)	(0.00306)	(0.00305)	(0.00304)
S12INT	0.00200***				0.0191***			
	(0.000468)				(0.00581)			
FOR*S12INT	-0.00436***				-0.0760***			
	(0.000720)				(0.00861)			
S3INT		0.0152***				0.00694		
		(0.00175)				(0.0247)		
FOR*S3INT		-0.0256***				-0.196***		
		(0.00312)				(0.0343)		
LOGS12TOT			0.0175***				-0.241***	
			(0.00210)				(0.0424)	
FOR*LOGS12TOT			-0.0325***				-0.382***	
			(0.00303)				(0.0415)	
LOGS3TOT				0.0226***				-0.461***
				(0.00308)				(0.0519)
FOR*LOGS3TOT				-0.0397***				-0.462***
				(0.00400)				(0.0544)
Controls	X	X	X	X	X	X	X	X
Inst*Yr/Qtr FE	X	X	X	X	X	X	X	X
Observations	73926898	73926898	73926898	73926898	105157448	105157448	105157448	105157448
R2	0.653	0.653	0.653	0.653	0.269	0.269	0.269	0.270
Within R2	0.273	0.273	0.273	0.273	0.0633	0.0633	0.0636	0.0637

Table A.14: Carbon Emissions and Institutional Ownership: Controlling for Country Links or Barriers

The sample is the institutional-level observations. In the intensive margin analysis (panel A), the dependent variable is $LOG(PF\_SHARE_{i,j,t})$, the natural logarithm of the portfolio share of institution i allocated to firm j at time t. In the extensive margin analysis (panel B), the dependent variable is the indicator variable $OWN_{i,j,t}$, equal to one if an institution i holds a position in firm j in its investment universe at time t. The main independent variables are carbon emissions intensities (columns 1-2) and carbon emission levels (columns 3-4) and these variables interacted with the foreign indicator, *FOR*. All variables are defined in Panel B of Table 1. We report the results of the pooled regression with standard errors double clustered at the institution and year/quarter levels. All regressions include institution-year/quarter and institution country-firm country-year/quarter fixed effects, the controls of Table 1 (unreported for brevity) and interactions of these control variables with the *FOR* indicator. ***1% significance; **5% significance; *10% significance.

Panel A: Intensive Margin

LOG(PF SHARE)	(1)	(2)	(3)	(4)
S12INT	0.00240***			
	(0.000387)			
FOR*S12INT	-0.00376***			
	(0.000524)			
S3INT		0.0126***		
		(0.00150)		
FOR*S3INT		-0.0145***		
		(0.00212)		
LOGS12TOT			0.0173***	
			(0.00201)	
FOR*LOGS12TOT			-0.0213***	
			(0.00234)	
LOGS3TOT				0.0201***
				(0.00243)
FOR*LOGS3TOT				-0.0238***
				(0.00292)
Controls	X	X	X	X
Inst*Yr/Qtr FE	X	X	X	X
Country-Country-Time FE	X	X	X	X
Observations	73920713	73920713	73920713	73920713
R2	0.670	0.670	0.670	0.670
Within R2	0.245	0.245	0.245	0.245

Panel B: Extensive Margin

OWN	(1)	(2)	(3)	(4)
S12INT	0.0308***			
	(0.00545)			
FOR*S12INT	-0.0573***			
	(0.00727)			
S3INT		-0.0478*		
		(0.0246)		
FOR*S3INT		-0.0764**		
		(0.0298)		
LOGS12TOT			-0.259***	
			(0.0410)	
FOR*LOGS12TOT			-0.210***	
			(0.0380)	
LOGS3TOT				-0.534***
				(0.0500)
FOR*LOGS3TOT				-0.316***
				(0.0491)
Controls	X	X	X	X
Inst*Yr/Qtr FE	X	X	X	X
Country-Country-Time FE	X	X	X	X
Observations	105152762	105152762	105152762	105152762
R2	0.277	0.277	0.277	0.277
Within R2	0.0560	0.0560	0.0562	0.0565

Table A.15: Carbon Emissions and Institutional Ownership: Intensive Margin Results Excluding U.S. Institutions

The sample is the institutional-level observations in the 2005-2022 period, excluding U.S.-based institutions. The dependent variable is $LOG(PF\_SHARE_{i,j,t})$, the natural logarithm of the portfolio share of institution i allocated to firm j at time t. The main independent variables are carbon emissions intensities (Panel A) and carbon emission levels (Panel B) and these variables interacted with the foreign indicator, *FOR*. All variables are defined in Panel B of Table 1. We report the results of the pooled regression with standard errors double clustered at the institution and year/quarter levels. Columns 1 and 5 include year/quarter fixed effects. Columns 2-4 and 6-8 include institution-year/quarter fixed effects. In addition, columns 3 and 7 include firm-year/quarter fixed effects, and columns 4 and 8 include institution-firm fixed effects. All regression models include the controls of Table 1 (unreported for brevity) and interactions of these control variables with the *FOR* indicator. ***1% significance; **5% significance; *10% significance.

Panel A: Intensity

LOG(PF SHARE)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
S12INT	0.000796	-0.00133		0.00387***				
	(0.00258)	(0.00103)		(0.00125)				
FOR*S12INT	-0.00542**	0.0000619	-0.00366**	-0.00451***				
	(0.00249)	(0.00108)	(0.00140)	(0.00121)				
S3INT					-0.00902	0.00981**		0.0320**
					(0.00757)	(0.00380)		(0.0124)
FOR*S3INT					0.0128*	-0.00910**	-0.0184***	-0.0188
					(0.00745)	(0.00415)	(0.00403)	(0.0135)
Controls	X	X	X	X	X	X	X	X
Yr/Qtr FE	X				X			
Inst*Yr/Qtr FE		X	X	X		X	X	X
Firm*Yr/Qtr FE			X				X	
Inst*Firm FE				X				X
Observations	32612943	32612943	32605293	32387727	32612943	32612943	32605293	32387727
R2	0.310	0.638	0.667	0.869	0.310	0.638	0.667	0.869
Within R2	0.288	0.257	0.0842	0.119	0.288	0.257	0.0843	0.119

Panel B: Levels

LOG(PF SHARE)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
LOGS12TOT	0.00850	-0.00574		0.00309				
	(0.00771)	(0.00462)		(0.00554)				
FOR*LOGS12TOT	-0.0250***	0.00554	-0.0191***	-0.0168***				
	(0.00700)	(0.00491)	(0.00523)	(0.00593)				
LOGS3TOT					-0.00206	-0.00768		-0.0243**
					(0.0108)	(0.00979)		(0.0101)
FOR*LOGS3TOT					0.0161	0.0178*	-0.0103	0.0363***
					(0.0116)	(0.00992)	(0.0121)	(0.0113)
Controls	X	X	X	X	X	X	X	X
Yr/Qtr FE	X				X			
Inst*Yr/Qtr FE		X	X	X		X	X	X
Firm*Yr/Qtr FE			X				X	
Inst*Firm FE				X				X
Observations	32612943	32612943	32605293	32387727	32612943	32612943	32605293	32387727
R2	0.310	0.638	0.667	0.869	0.310	0.638	0.667	0.869
Within R2	0.288	0.257	0.0843	0.119	0.288	0.257	0.0842	0.119

Table A.16: Carbon Emissions and Institutional Ownership: Extensive Margin Results Excluding U.S. Institutions

The sample is the institutional-level observations in the 2008-2022 period, excluding U.S.-based institutions. The dependent variable is the indicator variable $OWN_{i,j,t}$, equal to one if an institution i holds a position in firm j in its investment universe at time t. The main independent variables are carbon emissions intensities (Panel A) and carbon emission levels (Panel B) and these variables interacted with the foreign indicator, *FOR*. All variables are defined in Panel B of Table 1. We report the results of the pooled regression with standard errors double clustered at the institution and year/quarter levels. Columns 1 and 5 include year/quarter fixed effects. Columns 2-4 and 6-8 include institution-year/quarter fixed effects. In addition, columns 3 and 7 include firm-year/quarter fixed effects, and columns 4 and 8 include institution-firm fixed effects. All regression models include the controls of Table 1 (unreported for brevity) and interactions of these control variables with the *FOR* indicator. ***1% significance; **5% significance; *10% significance.

Panel A: Intensity

OWN	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
S12INT	-0.0808***	-0.0299**		-0.0791***				
	(0.0252)	(0.0116)		(0.0244)				
FOR*S12INT	0.0662**	-0.0218	-0.0761***	-0.0232				
	(0.0275)	(0.0152)	(0.0160)	(0.0261)				
S3INT					0.00722	0.0430		-1.203***
					(0.0681)	(0.0418)		(0.217)
FOR*S3INT					-0.201***	-0.210***	-0.209***	1.226***
					(0.0721)	(0.0505)	(0.0471)	(0.243)
Controls	X	X	X	X	X	X	X	X
Yr/Qtr FE	X				X			
Inst*Yr/Qtr FE		X	X	X		X	X	X
Firm*Yr/Qtr FE			X				X	
Inst*Firm FE				X				X
Observations	46794326	46794326	46790508	46715186	46794326	46794326	46790508	46715186
R2	0.0327	0.249	0.294	0.497	0.0327	0.249	0.294	0.497
Within R2	0.0307	0.0645	0.0137	0.0344	0.0307	0.0645	0.0137	0.0344

Panel B: Levels

OWN	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
LOGS12TOT	-0.212**	-0.173***		-0.308**				
	(0.0830)	(0.0522)		(0.126)				
FOR*LOGS12TOT	-0.415***	-0.414***	-0.504***	-0.819***				
	(0.0779)	(0.0605)	(0.0614)	(0.149)				
LOGS3TOT					-0.137	-0.357***		-1.417***
					(0.159)	(0.0794)		(0.336)
FOR*LOGS3TOT					-1.092***	-0.486***	-0.602***	-0.190
					(0.163)	(0.0806)	(0.0949)	(0.356)
Controls	X	X	X	X	X	X	X	X
Yr/Qtr FE	X				X			
Inst*Yr/Qtr FE		X	X	X		X	X	X
Firm*Yr/Qtr FE			X				X	
Inst*Firm FE				X				X
Observations	46794326	46794326	46790508	46715186	46794326	46794326	46790508	46715186
R2	0.0330	0.250	0.294	0.497	0.0336	0.250	0.294	0.497
Within R2	0.0311	0.0649	0.0138	0.0345	0.0316	0.0650	0.0138	0.0345

Table A.17: Carbon Emissions and Institutional Ownership: Intensive Margin Results by Region

The sample is the institutional-level observations in the period 2005-2022. Panel A/B/C show the results separately for North America/Europe/Asia. The dependent variable is $LOG(PF\_SHARE_{i,j,t})$, the natural logarithm of the portfolio share of institution i allocated to firm j at time t. The main independent variables are carbon emission intensity (columns 1-2) and the log of total carbon emissions (3-4) and these variables interacted with the foreign indicator, *FOR*. All variables are defined in Panel B of Table 1. We report the results of the pooled regression with standard errors double clustered at the institution and year/quarter levels. All regressions include institution-year/quarter fixed effects, the controls shown in Table 1 (unreported for brevity) and interactions of these control variables with the *FOR* indicator. ***1% significance; **5% significance; *10% significance.

Panel A: North America

LOG(PF SHARE)	(1)	(2)	(3)	(4)
FOR	-3.130***	-3.069***	-2.956***	-2.821***
	(0.313)	(0.310)	(0.310)	(0.308)
S12INT	0.00270***			
	(0.000462)			
FOR*S12INT	-0.00797***			
	(0.00105)			
S3INT		0.0113***		
		(0.00171)		
FOR*S3INT		-0.0340***		
		(0.00418)		
LOGS12TOT			0.0186***	
			(0.00251)	
FOR*LOGS12TOT			-0.0559***	
			(0.00463)	
LOGS3TOT				0.0171***
				(0.00294)
FOR*LOGS3TOT				-0.0692***
				(0.00681)
Controls	X	X	X	X
Inst*Yr/Qtr FE	X	X	X	X
Observations	44370042	44370042	44370042	44370042
R2	0.662	0.662	0.662	0.662
Within R2	0.290	0.290	0.290	0.290

Panel B: Europe

LOG(PF SHARE)	(1)	(2)	(3)	(4)
FOR	-3.065***	-3.047***	-3.056***	-3.059***
	(0.242)	(0.241)	(0.242)	(0.247)
S12INT	-0.000321			
	(0.00114)			
FOR*S12INT	-0.00185			
	(0.00112)			
S3INT		0.0182***		
		(0.00408)		
FOR*S3INT		-0.0175***		
		(0.00364)		
LOGS12TOT			0.00431	
			(0.00478)	
FOR*LOGS12TOT			-0.00379	
			(0.00457)	
LOGS3TOT				0.0184***
				(0.00635)
FOR*LOGS3TOT				-0.00271
				(0.00632)
Controls	X	X	X	X
Inst*Yr/Qtr FE	X	X	X	X
Observations	22481510	22481510	22481510	22481510
R2	0.648	0.648	0.648	0.648
Within R2	0.251	0.251	0.251	0.252

Panel C: Asia

LOG(PF SHARE)	(1)	(2)	(3)	(4)
FOR	1.007	0.976	0.937	1.128*
	(0.638)	(0.636)	(0.632)	(0.597)
S12INT	-0.00649***			
	(0.00156)			
FOR*S12INT	0.00961***			
	(0.00167)			
S3INT		0.00986*		
		(0.00511)		
FOR*S3INT		-0.00431		
		(0.00896)		
LOGS12TOT			-0.0228***	
			(0.00644)	
FOR*LOGS12TOT			0.0157	
			(0.00975)	
LOGS3TOT				0.0148
				(0.0150)
FOR*LOGS3TOT				-0.0351*
				(0.0190)
Controls	X	X	X	X
Inst*Yr/Qtr FE	X	X	X	X
Observations	5583009	5583009	5583009	5583009
R2	0.578	0.577	0.578	0.578
Within R2	0.266	0.266	0.266	0.266

Table A.18: Carbon Emissions and Institutional Ownership: Extensive Margin Results by Region

The sample is the institutional-level observations in the period 2008-2022. Panel A/B/C show the results separately for North America/Europe/Asia. The dependent variable is the indicator variable $OWN_{i,j,t}$, equal to one if an institution i holds a position in firm j in its investment universe at time t. The main independent variables are carbon emission intensity (columns 1-2) and the log of total carbon emissions (3-4) and these variables interacted with the foreign indicator, *FOR*. All variables are defined in Panel B of Table 1. We report the results of the pooled regression with standard errors double clustered at the institution and year/quarter levels. All regressions include institution-year/quarter fixed effects, the controls shown in Table 1 (unreported for brevity) and interactions of these control variables with the *FOR* indicator. ***1% significance; **5% significance; *10% significance.

Panel A: North America

OWN	(1)	(2)	(3)	(4)
FOR	-5.757*	-5.672*	-5.081*	-4.472
	(3.063)	(3.047)	(3.033)	(2.921)
S12INT	0.0407***			
	(0.00608)			
FOR*S12INT	-0.102***			
	(0.0105)			
S3INT		-0.0709**		
		(0.0269)		
FOR*S3INT		-0.125***		
		(0.0415)		
LOGS12TOT			-0.236***	
			(0.0464)	
FOR*LOGS12TOT			-0.425***	
			(0.0602)	
LOGS3TOT				-0.558***
				(0.0544)
FOR*LOGS3TOT				-0.416***
				(0.0887)
Controls	X	X	X	X
Inst*Yr/Qtr FE	X	X	X	X
Observations	62665600	62665600	62665600	62665600
R2	0.282	0.282	0.282	0.283
Within R2	0.0649	0.0649	0.0651	0.0654

Panel B: Europe

OWN	(1)	(2)	(3)	(4)
FOR	-33.86***	-33.19***	-32.08***	-31.76***
	(2.653)	(2.656)	(2.650)	(2.702)
S12INT	0.0372*			
	(0.0221)			
FOR*S12INT	-0.104***			
	(0.0237)			
S3INT		0.208***		
		(0.0602)		
FOR*S3INT		-0.359***		
		(0.0588)		
LOGS12TOT			-0.0556	
			(0.0705)	
FOR*LOGS12TOT			-0.508***	
			(0.0661)	
LOGS3TOT				-0.397***
				(0.108)
FOR*LOGS3TOT				-0.355***
				(0.0860)
Controls	X	X	X	X
Inst*Yr/Qtr FE	X	X	X	X
Observations	32153829	32153829	32153829	32153829
R2	0.246	0.246	0.246	0.246
Within R2	0.0615	0.0614	0.0618	0.0618

Panel C: Asia

OWN	(1)	(2)	(3)	(4)
FOR	-18.16***	-18.19***	-16.98***	-12.99**
	(5.811)	(5.855)	(5.889)	(5.872)
S12INT	-0.0629***			
	(0.0162)			
FOR*S12INT	0.0892***			
	(0.0202)			
S3INT		-0.0714		
		(0.0705)		
FOR*S3INT		-0.141		
		(0.0849)		
LOGS12TOT			-0.223**	
			(0.0871)	
FOR*LOGS12TOT			-0.444***	
			(0.0997)	
LOGS3TOT				-0.103
				(0.121)
FOR*LOGS3TOT				-1.247***
				(0.138)
Controls	X	X	X	X
Inst*Yr/Qtr FE	X	X	X	X
Observations	8275973	8275973	8275973	8275973
R2	0.260	0.260	0.261	0.261
Within R2	0.0824	0.0824	0.0828	0.0834

Table A.19: Event study: Trump Election with U.S. Firm Indicator

The sample is the four quarters of institutional-level observations around the November 8, 2016 U.S. Presidential Election. The sample is a balanced panel in the institution and firm dimensions. The pre-event observations are at June and September 2016. The post-event ("POST-TRUMP") observations are at December 2016 and March 2017. In columns 1-4, the dependent variable is $LOG(PF\_SHARE_{i,j,t})$, the natural logarithm of the portfolio share of institution i allocated to firm j at time t. In columns 5-8, the dependent variable is the indicator variable $OWN_{i,j,t}$, equal to one if an institution i holds a position in firm j in its investment universe at time t. The main independent variables are carbon emissions intensities (Panel A) and carbon emission levels (Panel B) and these variables interacted with the foreign indicator, *FOR*, a dummy for U.S.-based firms, *US_FIRM*, and a dummy indicator for the post-event window, *POST-TRUMP*. All variables are defined in Panel B of Table 1. We report the results of the pooled regression with standard errors clustered at the institution levels. All regressions include institution-year/quarter fixed effects. All regression models include the controls of Table 1 (unreported for brevity) and interactions of these control variables with the *FOR*, *US_FIRM*, and *POST-TRUMP* indicators. ***1% significance; **5% significance; *10% significance.

	Intensive Margin				Extensive Margin			
Emissions variable	S12INT	S3INT	LOGS12TOT	LOGS3TOT	S12INT	S3INT	LOGS12TOT	LOGS3TOT
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
FOR	-3.487***	-3.409***	-3.332***	-3.337***	-30.56***	-30.53***	-30.03***	-32.47***
	(0.334)	(0.334)	(0.333)	(0.327)	(3.640)	(3.654)	(3.663)	(3.712)
FOR*POST-TRUMP	-0.732***	-0.768***	-0.789***	-0.797***	-1.185	-1.276	-1.048	-1.785
	(0.125)	(0.128)	(0.129)	(0.134)	(1.838)	(1.853)	(1.874)	(1.972)
FOR*US_FIRM	2.669***	2.605***	2.536***	2.573***	28.60***	28.41***	30.96***	33.75***
	(0.415)	(0.417)	(0.421)	(0.422)	(5.455)	(5.502)	(5.510)	(5.696)
US_FIRM*FOR*POST-TRUMP	0.533***	0.563***	0.593***	0.601***	5.005*	5.424*	4.891*	5.946**
	(0.160)	(0.164)	(0.164)	(0.171)	(2.738)	(2.768)	(2.798)	(2.956)
EMISSIONS	0.00452***	0.0127*	0.0213***	0.0104	0.0228	-0.378***	-0.299***	-0.910***
	(0.00154)	(0.00664)	(0.00648)	(0.0131)	(0.0223)	(0.0957)	(0.101)	(0.151)
FOR*EMISSIONS	-0.0110***	-0.0317***	-0.0490***	-0.0259*	-0.0775***	0.166	-0.100	0.392**
	(0.00163)	(0.00727)	(0.00714)	(0.0137)	(0.0245)	(0.103)	(0.109)	(0.163)
POST-TRUMP*EMISSIONS	-0.00419***	-0.00613*	-0.0155***	-0.00804	0.000934	0.175**	0.0595	-0.00764
	(0.00102)	(0.00364)	(0.00368)	(0.00495)	(0.0197)	(0.0704)	(0.0747)	(0.0999)
US_FIRM*EMISSIONS	-0.00162	0.00573	0.00103	0.0156	-0.0157	0.241**	0.184*	0.584***
	(0.00163)	(0.00707)	(0.00710)	(0.0138)	(0.0241)	(0.111)	(0.164)	(0.164)
FOR*POST-TRUMP*EMISSIONS	0.00382***	0.00664*	0.0150***	0.00652	-0.0313	-0.0783	-0.0817	0.129
	(0.000802)	(0.00361)	(0.00355)	(0.00472)	(0.0206)	(0.0751)	(0.0794)	(0.108)
FOR*US_FIRM*EMISSIONS	-0.00667***	-0.0257***	-0.0496***	-0.0302*	0.00287	-0.307**	-0.549***	-1.018***
	(0.00135)	(0.00617)	(0.00618)	(0.0131)	(0.0310)	(0.127)	(0.141)	(0.206)
US_FIRM*POST-TRUMP*EMISSIONS	-0.00142	-0.00658	-0.0135*	-0.00988	0.00125	-0.159**	-0.0364	0.0219
	(0.000877)	(0.00398)	(0.00400)	(0.00849)	(0.0212)	(0.0771)	(0.0831)	(0.110)
US_FIRM*FOR*POST-TRUMP*EMISSIONS	0.00298***	0.00622**	0.0109**	0.00609	0.0387	0.0183	0.0307	-0.204
	(0.00102)	(0.00466)	(0.00467)	(0.00984)	(0.0266)	(0.0977)	(0.108)	(0.144)
Controls	X	X	X	X	X	X	X	X
Inst*Yr/Qtr FE	X	X	X	X	X	X	X	X
Obs	5863132	5863132	5863132	5863132	5863132	5863132	5863132	5863132
R2	0.232	0.233	0.233	0.233	0.257	0.257	0.257	0.258
Within R2	0.0643	0.0645	0.0646	0.0647	0.0653	0.0652	0.0654	0.0655

Table A.20: Event study: Biden Election with U.S. Firm Indicator

The sample is the four quarters of institutional-level observations around the November 3, 2020 U.S. Presidential Election. The sample is a balanced panel in the institution and firm dimensions. The pre-event observations are at June and September 2020. The post-event ("POST-BIDEN") observations are at December 2020 and March 2021. In columns 1-4, the dependent variable is $LOG(PF\_SHARE_{i,j,t})$, the natural logarithm of the portfolio share of institution i allocated to firm j at time t. In columns 5-8, the dependent variable is the indicator variable $OWN_{i,j,t}$, equal to one if an institution i holds a position in firm j in its investment universe at time t. The main independent variables are carbon emissions intensities (Panel A) and carbon emission levels (Panel B) and these variables interacted with the foreign indicator, *FOR*, a dummy for U.S.-based firms, *US_FIRM*, and a dummy indicator for the post-event window, *POST-BIDEN*. All variables are defined in Panel B of Table 1. We report the results of the pooled regression with standard errors clustered at the institution levels. All regressions include institution-year/quarter fixed effects. All regression models include the controls of Table 1 (unreported for brevity) and interactions of these control variables with the *FOR*, *US_FIRM*, and *POST-BIDEN* indicators. ***1% significance; **5% significance; *10% significance.

	Intensive Margin				Extensive Margin			
Emissions variable	S12INT	S3INT	LOGS12TOT	LOGS3TOT	S12INT	S3INT	LOGS12TOT	LOGS3TOT
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
FOR	-4.371***	-4.328***	-4.315***	-4.460***	-32.84***	-32.65***	-31.47***	-31.58***
	(0.485)	(0.488)	(0.482)	(0.489)	(4.692)	(4.682)	(4.682)	(4.667)
FOR*POST-BIDEN	0.682***	0.705***	0.682***	0.720***	2.843	3.358	3.431*	4.256**
	(0.142)	(0.143)	(0.141)	(0.140)	(2.045)	(2.045)	(2.029)	(2.134)
FOR*US_FIRM	3.488***	3.504***	3.499***	3.684***	41.60***	41.99***	42.26***	43.85***
	(0.542)	(0.546)	(0.542)	(0.549)	(5.604)	(5.629)	(5.629)	(5.661)
US_FIRM*FOR*POST-BIDEN	-0.693***	-0.742***	-0.706***	-0.764***	-3.390	-3.843	-3.403	-4.413
	(0.179)	(0.180)	(0.178)	(0.178)	(2.743)	(2.761)	(2.732)	(2.839)
EMISSIONS	-0.00108	0.00747	-0.00733	-0.0183**	-0.0423**	-0.251***	-0.217***	-0.511***
	(0.00188)	(0.00589)	(0.00579)	(0.00806)	(0.0212)	(0.0688)	(0.0804)	(0.0970)
FOR*EMISSIONS	-0.00643***	-0.0225***	-0.0179***	0.0179**	-0.0472*	-0.0745	-0.451***	-0.282***
	(0.00205)	(0.00633)	(0.00648)	(0.00902)	(0.0259)	(0.0784)	(0.0927)	(0.109)
POST-BIDEN*EMISSIONS	0.000598	0.00818***	0.00113	-0.00138	0.00737	0.173***	-0.00424	0.0304
	(0.00109)	(0.00292)	(0.00375)	(0.00440)	(0.0163)	(0.0513)	(0.0657)	(0.0856)
US_FIRM*EMISSIONS	0.00508***	0.00936	0.0384***	0.0433***	0.113***	0.00187	-0.0647	-0.0600
	(0.00195)	(0.00629)	(0.00642)	(0.00875)	(0.0230)	(0.0769)	(0.0900)	(0.110)
FOR*POST-BIDEN*EMISSIONS	0.00000321	-0.0127***	0.000638	-0.00550	-0.0290	-0.237***	-0.216***	-0.275***
	(0.00118)	(0.00319)	(0.00409)	(0.00479)	(0.0179)	(0.0573)	(0.0720)	(0.0943)
FOR*US_FIRM*EMISSIONS	0.00546**	0.00326	-0.00154	-0.0405***	-0.0343	-0.169	-0.180	-0.496***
	(0.00249)	(0.00798)	(0.00918)	(0.0120)	(0.0333)	(0.109)	(0.132)	(0.152)
US_FIRM*POST-BIDEN*EMISSIONS	-0.000366	-0.00969***	-0.000745	0.00431	-0.0227	-0.130**	-0.0497	-0.0420
	(0.00113)	(0.00316)	(0.00401)	(0.00470)	(0.0175)	(0.0573)	(0.0712)	(0.0920)
US_FIRM*FOR*POST-BIDEN*EMISSIONS	0.00108	0.0206***	0.00219	0.0114*	-0.0237	0.133*	-0.0276	0.0655
	(0.00145)	(0.00426)	(0.00521)	(0.00601)	(0.0238)	(0.0777)	(0.0973)	(0.121)
Controls	X	X	X	X	X	X	X	X
Inst*Yr/Qtr FE	X	X	X	X	X	X	X	X
Obs	5889569	5889569	5889569	5889569	9559058	9559058	9559058	9559058
R2	0.672	0.672	0.672	0.672	0.292	0.292	0.292	0.292
Within R2	0.318	0.318	0.318	0.318	0.0962	0.0963	0.0968	0.0969