

Defining Greenwashing*

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Abstract

We propose a precise definition of greenwashing in asset management that combines ESG self-labels, sustainability scores of portfolio holdings, and funds' voting behavior. Armed with this definition, we are able to quantify the prevalence of greenwashing in the US mutual fund industry. Although self-labeled ESG funds dominate non-ESG funds in terms of ESG ratings and voting support for ESG proposals, 34% of them are greenwashers according to our definition. Greenwashers are more likely to underperform, tend to belong to larger and younger fund families, and are less likely to be offered by signatories of the United Nations Principles for Responsible Investment. Importantly, while retail investors do not distinguish between greenwashers and true ESG funds, institutional investors appear to discriminate between them. Our results suggest that while a majority of ESG funds deliver on their promise, concerns about greenwash in the asset management industry are justified. Moreover, regulatory efforts should consider various aspects of ESG investing, not just ratings, to facilitate retail investors' judgement.

Keywords: Mutual-fund disclosures; ESG labels; ESG ratings; ESG voting; UNPRI; Greenwashing; Sustainability.

JEL classification: G23; G11; Q01.

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*If it's easy to tell if milk is fat-free by just
looking at the nutrition label, it might be time
to make it easier to tell if "green" or
"sustainable" funds are really what they say
they are.*

— Gary Gensler, March 1, 2022

1 Introduction

In 2020, an estimated USD 35.3 trillion, accounting for more than one third of worldwide assets under management, were invested according to Environmental, Social and Governance (ESG) criteria.¹ Surprisingly, despite the strong interest displayed by investors in sustainable investing, the industry still lacks clear standards on what sustainable investment means. This lack of clarity gives rise to the possibility that asset managers opportunistically label themselves as ESG for the purpose of attracting investors' money without actually committing to sustainable investing, a practice known as *greenwashing*. Some industry commentators have claimed that sustainable finance is "rife with greenwash" (Economist, 2021; Fletcher and Oliver, 2022). To address these concerns, since March 2021, new European Union legislation, known as Sustainable Finance Disclosure Regulation (SFDR), asks asset managers to categorize investment products as sustainable and non-sustainable and justify their choice. In May 2022, the SEC proposed a change to the Fund "Names Rules" that, if approved, will require funds using ESG-related names to invest at least 80% of their assets in accordance with ESG principles.² The European Securities and Markets Authority (ESMA) proposed a similar rule in November 2022.³ While these regulatory efforts may potentially enhance transparency, they still lack of a consistent and comprehensive definition of ESG investing that includes its multiples dimensions. Without such definition, it is impossible for market supervisors to detect greenwashing and punish infractors. In this paper, we propose a new definition of greenwashing in asset management that combines mutual funds' ESG disclosures with portfolios' ESG ratings

¹Global Sustainable Investment Review 2020 (<http://www.gsi-alliance.org/wp-content/uploads/2021/08/GSIR-20201.pdf>).

²See Amendments to the Fund "Names Rules" (<https://www.sec.gov/files/ic-34593-fact-sheet.pdf>).

³See ESMA Consultation Paper (<https://www.esma.europa.eu/press-news/consultations/consultation-gui-delines-funds'-names-using-esg-or-sustainability-related>).

and funds' voting on ESG proposals, and use this definition to investigate greenwashing in the US mutual fund industry.

Greenwashing by mutual funds implies that investors' money is not managed according to their values. But greenwashing also affects the allocation of capital and thus, hampers the advancement of social, environmental and governance causes. Therefore, it is of paramount importance to know whether, beyond anecdotal evidence (e.g., Arons, 2021), mutual funds misrepresent their true commitment to ESG goals.

A fund's commitment to sustainable investing is typically judged by the ESG scores of the securities it holds in its portfolio (Liang et al., 2022; Gibson et al., 2022). For instance, Morningstar aggregates security-level ESG scores at the portfolio level to produce five sustainability ratings for mutual funds: low, below average, average, above average, or high. Hence, asset managers that claim to invest according to ESG principles but invest in firms with low ESG scores are often regarded as greenwashers. However, a managed portfolio is more than just a collection of securities. Imposing negative screens on firms with poor ESG scores is not the only way in which a fund manager can exert her commitment to sustainable investing. Moreover, divestment from *brown* firms may even be counterproductive for addressing the climate crisis, as sold assets often end up in the hands of opaque private-equity firms (Economist, 2022). Also, if divestment leads to firm liquidation, this will result in layoffs and a reduction in supply of energy and other products, both of which have negative social consequences. Instead, funds can act as activist investors and attempt to improve firms' practices. For instance, they can vote in favor of proposals related to firms' ESG policies. Naturally, ESG activist investors will often hold securities issued by firms with poor ESG ratings precisely because improving those ratings is their goal. Labelling such funds as greenwashers is wrong.

To illustrate this idea, consider a large mutual fund that claims to have an ESG orientation: Calvert US Large-Cap Value Responsible Index Fund. This fund is part of the Calvert Research and Management family, a pioneer of socially responsible investment, which uses engagement to improve companies' performance on ESG issues (Norton, 2021). Although Calvert US Large-Cap Value Responsible Index Fund fund received a below-average Morningstar sustainability rating in February and March 2020, the fund supported 80.2% of ESG-related resolutions proposed by shareholders in 2020. In contrast, the median fund in our dataset covering the

2016-2022 period voted in favor of ESG initiatives only 42% of the time. It does not seem sensible to conclude that this fund is a greenwasher simply because it holds in its portfolio stocks of firms with low sustainability ratings.

An additional challenge when evaluating the prevalence of greenwashing is determining which funds market themselves as ESG investment products, especially if regulation does not require managers to declare funds as ESG, as is the case in the US. Prior research on ESG funds has relied on lists of funds managed by members of socially responsible investment associations (e.g., Renneboog et al., 2008; Gil-Bazo et al., 2010). Such lists are incomplete and may suffer from selection bias. Alternatively, recent studies have used the names of signatories of the United Nations Principles of Responsible Investments (UNPRI) (Liang et al., 2022; Kim and Yoon, 2023; Gibson et al., 2022). While these studies are informative about the true level of commitment of signatory asset management firms, not all funds within an asset management firm are marketed as ESG.

Our definition of greenwashing addresses both challenges. First, we define a fund as self-labeled ESG if either its name or its investment objective, as stated in the fund’s prospectus, contains terms that denote an ESG-related orientation. Throughout the paper, we refer to these funds as self-labeled ESG funds or simply, ESG funds. Second, we combine funds’ ESG ratings with data on funds’ voting support for ESG proposals, as a proxy of funds’ activism. More specifically, we define a greenwasher as any ESG fund that receives low, below average or average Morningstar sustainability ratings *and* does not vote in support of at least 70% of ESG initiatives proposed by shareholders in one year. The Morningstar sustainability ratings are particularly useful for the purpose of identifying deceptive behavior because we know that mutual investors strongly relied on this particular metric for evaluating a fund’s ESG quality when they were first released in 2016 (Hartzmark and Sussman, 2019). We choose the 70% voting support threshold because it is slightly above the median of ESG funds’ voting support for ESG proposals (66.67%). In robustness tests, we consider other thresholds, 60% and 80%, which are approximately the top tercile and top decile of the voting distribution, respectively. In essence, according to our definition, a greenwasher is a mutual fund that *claims* to invest according to ESG investment principles but whose claim is not substantiated by the ESG performance of the securities it holds or by its actions to influence firms’ ESG policies.

Armed with a precise definition of greenwashing, we study how prevalent greenwashing is among US mutual funds in the period from 2016 to 2022. We first show that self-labeled ESG funds have higher ESG ratings and vote more frequently in favor of ESG initiatives. More specifically, more than 56.54% of self-labeled ESG funds receive above average or high Morningstar sustainability ratings and only 19.91% of them have below average or low ratings. In contrast, 27.83% of non-ESG funds receive above average or high Morningstar sustainability ratings and 34.46% are rated as below average or low. Regression analysis shows that the association between ESG labels and sustainability ratings is not subsumed by fund and fund-family characteristics. Results are consistent across broad fund classes—including equity and fixed-income funds as well as domestic and international funds – and across the three ESG dimensions. Also, ESG-labeled funds are more likely to vote in favor of environmental and social initiatives, as well as governance initiatives proposed by shareholders, than non-ESG funds. Differences in voting are particularly large in environmental and social resolutions.

However, not all self-labeled ESG funds are committed to sustainable investing. Based on our definition, we find that 34.3% of the funds in our sample are greenwashers. These funds claim to invest according to ESG principles but do not hold portfolios with above-average or high sustainability ratings, nor do they support more than 70% of firms’ ESG initiatives through voting. In terms of assets under management, greenwashers account for 44.9% of all assets in ESG funds. The fact that about one third of self-labeled ESG funds do not manage assets in a manner consistent with ESG principles justifies concerns by regulators and market commentators. Note that our estimate of the fraction of greenwashers is likely an upper bound on the amount of greenwash in asset management, as voting is just one way in which funds attempt to influence firms’ policies. The fact that a majority of funds are not greenwashers according to our conservative definition seems at odds with claims of ubiquitous greenwashing in the asset management industry.

To understand the motives for greenwashing and, at the same time, provide investors and market supervisors with hints on where to look for it, we study how the likelihood of greenwashing depends on fund and fund-family characteristics. We find that greenwashers are more frequently found in larger and younger asset management companies. Interestingly, underperforming funds are more likely to be greenwashers. Importantly, mutual funds in

fund families that are signatories of the United Nations Principles for Responsible Investment (UNPRI) are 12.5% less likely to greenwash.

In 2018, Morningstar granted an sustainability label to funds that its analysts considered as such based on the funds' disclosed investment strategies. However, in January 2020, Morningstar removed the ESG label from funds managing over USD 1 trillion as it found they did not meet adequate environmental, social and governance standards. We find that funds that lost their label were indistinguishable from funds that we classify as non-ESG funds in terms of ratings. Also, those funds showed little voting support for ESG initiatives. These findings raise questions on why those funds received an ESG label in the first place. Importantly, only 1 of the funds that we classify as greenwashers and which had a Morningstar ESG label in December 2019 lost it in the January 2020 revision.

Finally, we ask whether investors are able to distinguish between greenwashers and true ESG funds. In monthly flow regressions, we find that true ESG funds receive 1.13% larger inflows of investors' money per month than otherwise similar non-ESG funds. In contrast, inflows to greenwashers are indistinguishable from those of non-ESG funds. This effect is fully driven by institutional investors. While retail investors do not discriminate between true ESG funds and greenwashers, institutional investors appear to be able to identify greenwashers and show a strong preference for *true* ESG funds.

Our results carry important implications for the debate on the costs and benefits of regulating ESG disclosures. Compliance with detailed disclosure requirements is costly and this burden is particularly heavy for smaller asset management companies. Our results suggest that even without regulated ESG disclosures, our ESG label extracted from mutual funds' prospectuses is informative about both ESG ratings and funds' voting on ESG proposals. Although 43.46% of funds that claim to be ESG receive low, below average, or average sustainability ratings, according to our definition, which also considers the voting decisions on ESG proposals, 34.5% of mutual funds that market themselves as ESG can be reasonably regarded as greenwashers. This implies that more than 21% of the self-labeled ESG funds with mediocre ESG ratings vote in support of ESG resolutions. Moreover, funds that target institutional investors seem pressured to avoid greenwashing. Therefore, our results suggest that while there is room for regulation, regulatory efforts should focus on funds that cater to

retail investors.

Our paper contributes to an emerging literature that studies whether institutional investors that have signed the UNPRI pledge “walk the talk,” i.e., they invest according to ESG principles (Gibson et al., 2022; Kim and Yoon, 2023; Liang et al., 2022). Gibson et al. (2022) show that UNPRI signatories outside the US have better aggregate portfolio ESG scores than those of non-signatories. However, they also find that UNPRI signatories in the US do not have better ESG scores than non-UNPRI institutions, and in fact, ESG scores of signatories that do not report any form of ESG incorporation are even *worse* than those of non-signatories, which the authors interpret as evidence of greenwashing. Similarly, Kim and Yoon (2023) find that UNPRI signatories do not improve fund-level weighted average ESG scores after endorsement. They do not find evidence, either, of ESG engagement or voting, and also conclude that UNPRI signatories engage in greenwashing. Finally, Liang et al. (2022) find that hedge fund signatories underperform non-signatories in terms of risk-adjusted returns. Such underperformance is fully driven by hedge funds with low ESG scores. The authors interpret this evidence as consistent with agency problems leading some hedge funds to both underperform and engage in greenwashing. Consistently with those studies, we find that US mutual funds managed by UNPRI and non-UNPRI signatories receive similar ESG ratings. We find no differences, either, in voting support for ESG initiatives. However, we show that mutual funds managed by UNPRI signatories are *less* likely to manage greenwashers than non-signatories. Therefore, while the mere fact of signing UNPRI does not lead to more ESG-oriented investment by US asset managers, it does appear to deter asset managers from offering funds that falsely claim to be ESG in their prospectuses.

Our paper also contributes to a recent literature that attempts to understand whether ESG funds vote according to their advertised goal and fiduciary responsibility. Dikolli et al. (2022) and Michaely et al. (2022) investigate whether funds voting behaviour is consistent with their stated mandate. Dikolli et al. (2022) show that the ESG funds (funds classified by Morningstar as Sustainable Investment Overall) are no more likely than other mutual funds to support shareholders proposals, and that the type of proposal is determinant (ES proposals are less likely than G proposals to receive votes in support from ESG and non-ESG funds). Michaely et al. (2022) show that ES funds support many ES proposals, and that their support is higher

than that of non-ES funds. However, when ES funds belong to non-ES families, ES funds support the ES proposals that pass or fail by large margins, but their vote is more aligned with their families preferences when the proposal is close to the majority threshold.

More generally, our paper contributes to a broad literature concerned with the effect of Corporate Social Responsibility (CSR)/ESG on shareholder value and risk (Fatemi et al., 2015; Ferrell et al., 2016; Fernando et al., 2017; Dumitrescu and Zakriya, 2021), expected returns (Pedersen et al., 2021; Pástor et al., 2021) and the performance of CSR/ESG mutual funds (Renneboog et al., 2008; Gil-Bazo et al., 2010; Nofsinger and Varma, 2014; El Ghouli and Karoui, 2017).

2 Data

2.1 Morningstar Mutual Fund Sustainability Ratings, Scores and Proxy Voting Records

On March 1, 2016, Morningstar introduced the Morningstar Sustainability Ratings for mutual fund portfolios.⁴ The objective is to help investors gauge how well the companies held in a fund perform on environmental, social, and governance issues relative to the portfolios peer group. Morningstar sustainability ratings have been used in academic research by Hartzmark and Sussman (2019) and Gantchev et al. (2021), among others.

To compute sustainability ratings, Morningstar first calculates a portfolio sustainability score as an asset-weighted average of company-level ESG scores, as provided by Sustainalytics. Initially, Sustainalytics gave each company a score in terms of a number of indicators measuring the firm’s preparedness, disclosure, and performance in each of the three ESG pillars. Based on their Morningstar portfolio sustainability score, funds are assigned percent ranks within their Morningstar category and a sustainability rating is assigned depending on this rank. More specifically, Morningstar assigns 1, 2, 3, 4, or 5 globes, to funds ranking in the 0-10, 10-32.5, 32.5-67.5, 67.5-90, and 90-100 percentile buckets, respectively. Throughout the paper,

⁴Complete details and methodology of the initial launch can be found at <https://newsroom.morningstar.com/newsroom/news-archive/press-release-details/2016/Morningstar-Introduces-Industrys-First-Sustainability-Rating-for-20000-Funds-Globally-Giving-Investors-New-Way-to-Evaluate-Investments-Based-on-Environmental-Social-and-Governance-ESG-Factors/default.aspx>

we follow Morningstar’s nomenclature and refer to globes 1, 2, 3, 4, and 5, as “low,” “below average,” “average,” “above average,” and “high,” respectively.

Since August 2018, a fund’s Morningstar sustainability rating is computed using its historical portfolio sustainability score, defined as the 12-month weighted moving average of the fund’s portfolio sustainability score. Also, the Morningstar global category is used to determine the fund’s peer group.⁵ Although old Morningstar sustainability ratings before August 2018 became unavailable after the methodology change in 2018, Morningstar portfolio sustainability scores are still provided for each portfolio and pillar. We use these portfolio sustainability scores to recover portfolio sustainability ratings for the missing period following the methodology described in Morningstar (2016).

In September 2019, company-level ESG scores were replaced with Sustainalytics new ESG Risk Ratings (Pelizzon et al., 2021).⁶ Sustainalytics ESG Risk Ratings measure the degree to which a company’s economic value is at risk driven by ESG factors. Since then, a higher number of globes is interpreted as lower portfolio sustainability risk.

To obtain funds’ voting records, Morningstar collects data from the SEC N-PX filings, and standardizes votes in all shareholder-initiated resolutions and all management-initiated resolutions for a given fund and year under the following classification: % support, % against and % abstained. Table 1 reports the different types of resolutions that are considered as ESG-related.

2.2 Mutual Fund Prospectus Risk/Return Summary

We retrieve historical fund names and investment objectives of US domiciled open-end funds from the US SEC Mutual Fund Prospectus Risk/Return Summary Data Sets, which provides text and numeric information extracted from the risk/return summary section of mutual fund prospectuses at the quarterly frequency for the period 2011:Q1 - 2022:Q4. To determine disclosure of an ESG-related name or investment objective, we examine text-based ESG variables in fund names and investment objectives. To avoid ambiguous interpretations other

⁵Complete documentation can be found at <https://www.morningstar.com/content/dam/marketing/shared/Company/Trends/Sustainability/Detail/Documents/Morningstar-Sustainability-Rating-Methodology-0916.pdf?con=10356>

⁶Complete documentation can be found at https://www.morningstar.co.uk/static/UploadManager/Assets/SustainabilityRatingMethodology_2019_Final.pdf

than ESG, we manually verify all ESG-related strings extracted convey valid ESG information. Table 2 reports our selection of ESG-related strings with exclusion of ambiguous interpretations. In addition to the terms presented in the table, we have also considered abbreviations.

2.3 Risk-adjusted Returns

Since mutual funds in our sample hold domestic as well as international equity and fixed income assets, we estimate risk-adjusted performance of mutual funds using global stock and bond market factors. We use the five equity factors of Fama and French (2015) (market, size, value, investment and profitability) augmented with momentum. We also add a term factor and a default factor to account for exposure to bond risk. The term factor is the difference between monthly returns of long-term and short-term government bond index and the default factor is the difference between monthly returns of mid-term defaultable and default-free bond index. Regional stock market factors are downloaded from Professor Kenneth French’s data library.⁷ Bond indices used to compute the bond risk factors are obtained from Morningstar, as explained in Table 3. Following Ferreira et al. (2012), we compute global factors as value-weighted averages of the corresponding regional market capitalization. To estimate funds’ monthly risk-adjusted returns (alpha), we first regress the previous 36 months of fund excess returns on the factors and store the estimated factor loadings (betas). We require at least 24 months of non-missing returns. Monthly alpha is the difference between the fund’s excess return and the product of factor realizations and betas estimated over the previous 36 months.

2.4 UNPRI Signatories

We download the list of asset management companies who have become signatories of the United Nations Principals of Responsible Investment (UNPRI) as well as the dates when they signed the pledge. As first explored by Gibson et al. (2022), UNPRI signatories commit to following six ESG-related principles and disclosing their responsible investment policies annually.⁸

⁷https://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html

⁸<https://www.unpri.org/>

2.5 Sample Construction

Fund and asset management company characteristics come from Morningstar Direct. The data include information on total net assets (TNA) under management, fund’s inception date, investment category, returns, expense ratios, and Morningstar “star” ratings for performance (see Evans and Sun, 2021, for a recent analysis of this variable).

Our sample period starts in March 2016, when Morningstar first started to publish sustainability scores and ratings, and ends in December 2022. We restrict the sample to US domiciled open-end mutual funds. We further restrict the sample to funds with non-missing historical names and investment objectives. We use tickers and CUSIPs to match the Morningstar data to the Prospectus Risk/Return Summary dataset.⁹ We also match PRI signatory data to asset management companies in the Morningstar database.

We conduct the analysis at the fund level. Fund size (TNA) and dollar flows are aggregated from share classes of the same fund. Fund flows are measured as monthly dollar flows divided by TNA at the end of the prior month. Gross expense ratio and risk-adjusted returns are weighted-averages across all share classes. Fund institutional ratio is defined as the fraction of asset held by institutional investors. Morningstar star fund ratings and Morningstar category are those of the largest share class, and fund age (in months) is calculated from the inception date of the fund’s oldest share class. Management company age (in months) is calculated from the oldest share class of the management company. Management company size is the sum of TNA across all open-end funds managed by the company. Morningstar environmental, social and governance scores are in percentage points.¹⁰ We winsorize expense ratios at 1% of each

⁹Since tickers are assigned at the share-class level and prospectuses are updated quarterly, the matching process is divided into three steps. First, as long as one share class within a fund in the Morningstar database is matched with a prospectus by the ticker in a given month, we extend the prospectus names and investment objectives to all share classes within this fund in that month because all share-classes within a fund have the same fund names and investment objectives. Second, for funds in the Morningstar database not matched by tickers for any of their share classes, we link Morningstar and prospectus via CUSIP to CRSP and then the CRSP_FUNDNO_CIK_MAP linking file to prospectus. Third, in the months without prospectus we use names and investment objectives reported in the most recent month. From March 2016 to December 2022, we have 396,122 fund-month observations with valid Morningstar sustainability ratings before merging with prospectus data. Merging with prospectus data via tickers yields 108,882 fund-month observations, and via CUSIP and CRSP_FUNDNO_CIK_MAP yields 372,135 with valid fund names and investment objectives, before other filters are applied. We prioritize the information from results merged from tickers, in case there is any contradictory information.

¹⁰Since Morningstar adopted ESG risk score instead of old ESG score in September 2019, we rescale new environmental, social or governance risk scores published after September 2019 by 100 minus it to form consistent environmental/social/governance scores. After rescaling, higher scores indicate better performance.

tail and monthly fund flows at 2% of each tail.

We restrict the sample to fixed income, allocation and equity funds. The sample includes 8,935 unique funds and 547,582 fund-month observations. We have Morningstar sustainability ratings for 7,259 unique funds and 381,218 fund-month observations. We are able to obtain prospectus data for 6,991 different funds and 372,600 fund month observations. Out of those funds, only 279 (9,961 observations) have names or investment objectives that contain an ESG string at some point in time.¹¹

Table 4 provides summary statistics of fund and asset management company characteristics for ESG funds and non-ESG funds at the fund-month level.

3 Ratings, voting behavior, and prevalence of greenwashing

3.1 ESG funds and ESG ratings

In this section, we first compare the sustainability ratings of ESG funds with those of non-ESG funds. We then explore differences in the voting activity of ESG and non-ESG funds in terms of support of ESG proposals initiated by shareholders. Finally, we introduce our definition of greenwashing and quantify its prevalence in the US mutual fund industry.

Table 5 displays the distribution of Morningstar sustainability ratings in globes, for fund-month observations of ESG and non-ESG funds.¹² The table shows that 56.54% of ESG funds have above average or high sustainability ratings (4 or 5 globes) and only 19.91% have below average or low sustainability ratings (1 or 2 globes). In contrast, 27.83% of non-ESG funds receive above average or high ratings while 34.46% have below average or low sustainability ratings. Therefore, self-labeled ESG funds have better ESG ratings on average.

As mentioned in the introduction, previous studies have used UNPRI pledge to identify asset managers commitment to ESG goals (Gibson et al., 2022). Panel B of Table 5 compares ESG ratings of funds in signatory fund families with those of non-signatory families. Although

¹¹Note that a fund can be an ESG fund and a non-ESG fund at different time periods because of changes in names and investment objectives.

¹²Note that the distribution of ratings for the whole sample differs from the theoretical distribution. For instance, by construction 10% of funds receive 1 globe and 10% of funds receive 5 globes. This is due to the fact that our sample excludes funds not meeting the filtering criteria (funds that cannot be matched with data on fund prospectuses, funds domiciled outside the US, ETFs, closed-end funds, and small funds)

funds in UNPRI signatories are more (less) likely to receive higher (lower) ratings than funds managed by non-signatory asset management companies, differences are much smaller than those between ESG and non-ESG funds. For instance, 30.37% of funds in signatory families receive above average or high ratings, as opposed to 26.36% of non-signatories.¹³

Table 5 shows that self-labeled ESG funds have higher sustainability ratings. It is also useful to know whether our ESG label is informative about a fund’s ESG ratings beyond and above the information that investors can already infer from other fund traits. To answer this question, we investigate differences in the distribution of sustainability ratings between ESG and non-ESG funds controlling for fund and asset management company characteristics.

In particular, we estimate the following multinomial logit model:

$$\begin{aligned} Pr(Rating_{f,t,k}) &= Pr(Rating_{f,t} = k | \mathbf{ESG}_{f,t-1}, \mathbf{X}_{f,t-1}; \boldsymbol{\beta}_k, \boldsymbol{\delta}_k) \\ &= \frac{\exp\{\alpha_k + \boldsymbol{\beta}_k \mathbf{ESG}_{f,t-1} + \boldsymbol{\delta}_k \mathbf{X}_{f,t-1,k}\}}{\sum_{j=1}^5 \exp\{\alpha_j + \boldsymbol{\beta}_j \mathbf{ESG}_{f,t-1} + \boldsymbol{\delta}_j \mathbf{X}_{f,t-1,j}\}}, \quad \text{with } k \in \{1, 2, 3, 4, 5\}, \end{aligned} \quad (1)$$

where $Pr(Rating_{f,t,k})$ denotes probability of Morningstar sustainability rating of fund f in month t equal to k , and $\mathbf{ESG}_{f,t-1}$ is an indicator variable that takes the value of 1 if mutual fund f has an ESG label in month $t - 1$ and zero otherwise. $\mathbf{X}_{f,t-1,k}$ is a vector of control variables that includes fund f ’s size (log of assets under management), fund age (log of the number of months), number of Morningstar stars for mutual fund performance, expense ratio, flow in the previous 12 months, fund risk-adjusted returns estimated as described in Section 2, as well as size and age of the fund’s asset management company.

Table 6 reports the estimated coefficients in equation (1). In Panel A, the sample contains all funds. Consistent with the unconditional analysis, a fund’s ESG label, as inferred from the fund’s prospectus, is positively associated with higher sustainability ratings. In particular, ESG funds are significantly more likely to receive 4 and 5 globes than non-ESG funds. In Panel B, we split the sample into three subsamples by broad investment category: fixed income and allocation funds, domestic equity funds, and international equity funds. Overall, there is a positive association between a fund claiming to be ESG and its sustainability ratings.

¹³Gibson et al. (2022) show that the aggregate portfolios of UNPRI signatories in the US have similar, if not *worse*, ESG ratings than non-signatories. Note that we focus on mutual funds while Gibson et al. (2022) investigate the aggregate portfolios of all types of institutional investors. Also, our sample covers a more recent period than the period studied by those authors (2016-2022 vs. 2003-2017).

Table 7 reports the fitted probabilities and marginal effects of the ESG label on Morningstar sustainability ratings. Consistently with the unconditional analysis of Table 5, a mutual fund with average values for its characteristics has a 53.8% (26.3% + 27.5%) predicted probability of receiving above average or high ratings if it is ESG according to its prospectus and only a 26.6% (19.3% + 7.3%) probability, otherwise. The 27% difference in probability is statistically significant. The model also predicts that an ESG fund with average characteristics has 13% (4% + 9%) significantly lower probability to receive below average or low ratings than a non-ESG fund. The predictive ability of ESG label with respect to ratings holds across different subsamples and is stronger for fixed-income and allocation funds: ESG funds are 44.8% more likely than non-ESG funds to have above average or high ratings and 15.8% less likely to receive below average or low ratings than otherwise similar non-ESG funds.

While funds that we identify as ESG have superior sustainability ratings, it is unclear whether they outperform in all the pillars, E, S, or G. To answer this question, we regress the portfolio sustainability score in each dimension separately on the ESG indicator and on fund and fund family characteristics. In particular, we estimate the equation:

$$Z_Score_{i,f,t} = \alpha_i + \beta_i ESG_{f,t-1} + \boldsymbol{\delta}_i \mathbf{X}_{f,t-1} + \gamma_{t,s} + \varepsilon_i, \quad (2)$$

where $Z_Score_{i,f,t}$ denotes the Morningstar disaggregated sustainability score in pillar $i \in \{E, S, G\}$ of fund f in month t standardized with respect to all funds in the same month and in the same category as fund f , $\mathbf{X}_{i,f,t-1}$ is a vector of fund and asset management company controls, and $\gamma_{t,s}$ captures month $\times$ Morningstar category fixed effects. Table 8 reports estimation results. In the full sample, ESG funds have significantly higher score in each of the three pillars than otherwise similar funds. In particular, the environmental, social, and governance scores of ESG funds are 0.199, 0.305 and 0.248 standard deviations higher than those of otherwise similar non-ESG funds. If we focus on other asset classes, the superiority of ESG funds manifests itself in all scores.

3.2 ESG funds and voting on ESG proposals

We argue that the sustainability rating of a fund’s holdings does not tell the full story about the fund’s commitment to sustainable investment. Asset managers who want to make an impact will often invest in firms where they believe there is room for improvement. Consequently, sustainability ratings alone are insufficient to detect greenwashing. We also need to look at the actions that asset managers take in order to influence firms’ ESG policies. While many of those actions are unobservable to researchers, we know how each mutual fund votes on ESG issues.

In Table 9 we compare the voting support for ESG-related initiatives between ESG and non-ESG funds. More specifically, the table shows the average percentage of annual votes in favor of all shareholder-initiated proposals, manager-initiated proposals, and shareholder-initiated proposals classified as either “environmental and social” or “governance.” On average, ESG funds support shareholder-initiated proposals 40% of the times they vote, while non-ESG funds’ support for shareholder-initiated proposals is only 29.5%. This difference is also statistically significant. Conversely, ESG funds are less likely than non-ESG funds to support manager-initiated proposals (55.4% vs. 64.4% support). The difference in average support for environmental and social resolutions between ESG and non-ESG funds is even more striking. While ESG funds support E&S initiatives in 60.5% of their votes, non-ESG funds only vote in favor of E&S initiatives 36.8% of the time. Finally, ESG funds also tend to vote more in favor of governance proposals initiated by shareholders than non-ESG funds (58.9% vs. 47.7%).

Figure 1 plots the cumulative distribution function of funds’ annual voting support in each category for both ESG and non-ESG funds. The graphs show that the distribution of ESG funds’ votes in support of shareholder-initiated proposals is not only higher on average, as seen in Table 9, but it dominates that of non-ESG funds in a first-order stochastic sense. Stochastic dominance is even more apparent for environmental and social initiatives, and slightly less clear for governance initiatives.

In sum, our ESG labels are not just positively correlated with the sustainability ratings of holdings in funds’ portfolios but also with voting support for ESG proposals.

3.3 How many greenwashers are there?

Our definition of greenwashing takes into account both the sustainability ratings of portfolio holdings and the voting behavior exhibited by the fund, and is based on two premises that we think are reasonable. First, an ESG fund that invests in securities with *good* (above average and high) sustainability ratings cannot possibly be characterized as a greenwasher. Second, if an ESG fund invests in securities with average, below average, or low sustainability ratings, the fund is either trying to make an impact or is a greenwasher. To disentangle between the two possibilities, we check whether the fund cares about ESG by voting most of the time in favor of ESG initiatives proposed by shareholders.

More specifically, we define a fund as a greenwasher if it meets the three following conditions:

1. The fund claims to invest according to ESG considerations in either its name or investment objective;
2. The fund's Morningstar sustainability rating is strictly below 4 globes (low, below average and average); and
3. Less than 70% of the fund's votes on shareholder-initiated ESG proposals within the calendar year support the resolution.

The 70% support vote threshold is slightly above the median of ESG funds' voting support for ESG proposals (66.6%) and the top quintile of all funds' voting support. In addition to a 70% minimum voting support threshold, we also consider the 60% and 80% thresholds throughout our analysis.

We take this definition to our data and compute the number of monthly observations that correspond to greenwashers and non-greenwashers (true ESG funds). We also compute the number of unique funds in either subsample. Since a very small number of funds switch from one subsample to the other, for the purpose of this calculation, we consider a fund as a greenwasher if it meets the definition criteria at least once in our sample period. Finally, we compute the total assets under management of funds in each month for each group of funds and calculate the average across all months in the sample period.

The results are reported in Table 10. In the table, we restrict the sample to funds for which both sustainability ratings and voting support data are available. According to our definition,

70 ESG-labeled funds in our sample are greenwashers at least once during the sample period while 134 funds are truly ESG. Therefore, 34.3% of ESG funds in our sample are greenwashers. Greenwashers account for 28% of all ESG monthly observations and 44.9% of all assets under management in ESG funds. Our conclusions do not vary substantially if we change the minimum voting support threshold to 60% or 80%.

These numbers suggest that greenwashing indeed takes place in the US mutual fund industry: The ESG claims of about 1 in 3 US mutual funds are hard to justify on the basis of the securities they hold or their voting decisions on firms' ESG policies.

4 Who are the greenwashers?

The results in section 3 suggest that some funds appear to engage in deceptive behavior that goes against their investors' preferences. In this section, we investigate whether greenwashers differ from true ESG funds in terms of their observable characteristics. This is a useful exercise not only for understanding the potential motives for this behavior, but also from a practical perspective, as any patterns in the data can help both investors and regulators allocate their monitoring efforts more efficiently.

To identify the characteristics of greenwashers, we estimate the following logit regression:

$$\begin{aligned}
& Pr(\textit{Greenwasher}_{f,t}) \\
&= Pr(ESG_{f,t} = 1 \cap \textit{Rating}_{f,t} \leq 3 \cap ESG_Support_{f,t} \leq 70\% | UNPRI_{f,t-1}, \mathbf{X}_{f,t-1}; \beta_1, \boldsymbol{\delta}) \quad (3) \\
&= \frac{\exp\{\alpha + \beta_1 UNPRI_{f,t-1} + \boldsymbol{\delta} \mathbf{X}_{f,t-1}\}}{1 + \exp\{\alpha + \beta_1 UNPRI_{f,t-1} + \boldsymbol{\delta} \mathbf{X}_{f,t-1}\}},
\end{aligned}$$

where $Pr(\textit{Greenwasher}_{f,t})$ denotes probability of an ESG fund f in month t being a greenwasher according to our definition, that is, an ESG fund with one, two or three globes in sustainability ratings, and less than 70% support for shareholder-proposed ESG initiatives. We also report results for the 60% and 80% support thresholds. $UNPRI_{f,t-1}$ is an indicator variable that takes the value of 1 if mutual fund f is managed by a UNPRI signatory in month $t - 1$ and zero otherwise. $\mathbf{X}_{f,t-1}$ is a vector of control variables that includes fund characteristics as well as asset management company characteristics that are likely to affect funds greenwashing

activities. The sample is restricted to funds that self-label as ESG in each period.

Table 11 reports estimation results. Morningstar star ratings are negatively and significantly associated with greenwashing. Fund size is positively and significantly associated with greenwashing for the 60% and 80% support thresholds, but not for the 70% support threshold. None of the other fund-level characteristics predict greenwashing. In contrast, asset management characteristics are all strongly and significantly associated with greenwashing, which suggests that the decision to market funds as ESG despite no commitment with ESG investing is taken at the asset management company level. More specifically, asset management firms that are UNPRI signatories and older are significantly less likely to engage in greenwashing. Also, greenwashing is more prevalent among larger asset management firms. To gauge the economic significance of these associations, Table 12 reports marginal effects. If we focus on the 70% threshold definition for greenwashing, an additional Morningstar star decreases the probability of greenwashing by 10%. A mutual fund that belongs to a UNPRI signatory is 12.5% less likely to greenwash than funds in non-signatory fund families. A one standard deviation increase in the (log of) management company's AUM for ESG funds in our sample (3.05) increases the probability of an ESG fund being a greenwasher by 22.57% ($=3.05 \times 0.074$). Finally, a one standard deviation increase in the log of the management company's age in months (0.44) decreases the probability of an ESG fund being a greenwasher by 36.43% ($=0.446 \times 0.828$).

Our finding that UNPRI signatories are less likely to greenwash is important because, as mentioned in the Introduction, previous studies have failed to provide evidence supporting the commitment of UNPRI signatories in the US with ESG investing (Gibson et al., 2022; Kim and Yoon, 2023; Liang et al., 2022). While it is true that funds managed by UNPRI signatories are not better than those managed by non-UNPRI signatories in terms of ratings or voting support also in our sample, individual mutual funds that claim to invest according to ESG principles are more likely to live up to this claim if they are managed by an UNPRI signatory. In other words, the mere fact that an asset management firm pledges to the sustainable investment principles does not guarantee that its funds will invest more in accordance with those principles. However, it does increase the probability that its individual funds will truthfully claim to invest according to ESG considerations.

5 Morningstar ESG labels

In 2018, Morningstar introduced its ESG label for mutual funds, which is intended to identify funds that incorporate ESG criteria throughout the investment process. A total of 898 unique funds in our sample receive the Morningstar ESG label. This number is substantially larger than our estimate of 279 funds that claim to invest according to ESG principles (and have sustainability ratings data). However, in January 2020, Morningstar decided to strip many funds off their ESG labels upon suspicions of widespread greenwashing. According to Morningstar, sustainability tags were taken off from “funds that say they consider ESG factors in the investment process, but that don’t integrate them in a determinative way for their investment selection” (Schwartzkopff and Kishan, 2022). In our sample, 483 funds lost their Morningstar ESG label, resulting in only 216 funds with a Morningstar sustainability label. In this section, we investigate whether in the process of refining their ESG label, Morningstar analysts were able to spot funds that we identify as greenwashers.

Panel C of Table 5 displays the rating distribution for funds labeled as ESG by Morningstar in December 2019 split in two subsamples: those that kept their label in the January 2020 revision and those that lost it. The table suggests that poor ratings are a strong predictor of a fund being stripped off its ESG label. In particular, 62.3% of observations of funds that lost their ESG labels had less than 4 globes in December 2019, as opposed to only 43.5% of observations of funds that kept their label. Interestingly, the distribution of sustainability ratings among funds that retained their ESG label closely resembles that of the funds that we identify as ESG based only on the information provided in their name or investment objective. However, the fact that many funds that lost their ESG label had good sustainability ratings and many funds that kept their ESG label had poor sustainability ratings, suggests that analysts used other criteria in their decisions.

In Table 13, we explore whether the decision to remove ESG labels was related to funds’ voting support. In particular, we compare the 1st, 2nd, and 3rd quartiles of the distribution of voting support for ESG resolutions in 2019 of funds with 1-3 globes that kept their label with that of funds with 1-3 globes that lost theirs. Similarly, we compare funds with 4 and 5 globes that lost the label to those with 4 and 5 globes that kept it. Funds that lost their

label exhibited substantially lower voting support for 1st and 3rd quartiles of the voting. In particular, the median fund with 1-3 globes that kept its label voted 66.7% of the times in favor of ESG resolutions during 2019 (1st and 3rd quartiles of the voting support distribution are 31.6% and 95%, respectively). In contrast, the median fund with similar ratings that lost their label voted only 50% of the times for ESG resolutions (1st and 3rd quartiles are 25% and 72%, respectively). The voting support distributions are not too different for funds with good ratings. In this group, median support was 88.8% for funds that kept their label and 57.7% for those that lost it.

The evidence is consistent with a shift in Morningstar’s ESG classification towards considering both Morningstar sustainability ratings and voting support for ESG resolutions. However in December 2019, out of the 38 funds that were classified at the time as greenwashers according to our definition, 26 had a Morningstar ESG label, and only 1 of them lost the label in January 2020. We conclude that either Morningstar analysts missed these funds or they used other criteria to evaluate their commitment to ESG investment.

6 Can investors spot greenwashers?

Results in section 3 suggest that one third of mutual funds’ ESG claims are not justified by their portfolio choices or their actions. This observation raises the question of why not more asset managers engage in greenwashing given investors’ growing appetite for sustainable investing and the fact that market supervisors still have limited ability to punish such behavior. In this section, we explore the possibility that investors, and more specifically, sophisticated investors, are able to spot greenwashers.

To test our hypothesis, we study the net inflows of investors’ money to mutual funds. In doing so, we distinguish among 3 types of mutual funds: (1) non-ESG mutual funds; (2) greenwashers; and (3) true ESG funds. Importantly, to ensure that funds’ voting behavior and sustainability ratings are observable to investors, we define greenwashers as ESG funds with average, below-average or low Morningstar sustainability ratings *in the previous month* and voting support for shareholder-proposed ESG initiatives below 70% *in the previous year*. Similarly, we define true ESG funds as ESG funds with either above-average or high Morningstar

sustainability ratings *in the previous month* or voting support for shareholder-proposed ESG initiatives equal to or above 70% *in the previous year*. Furthermore, we restrict the sample to observations for which sustainability ratings in the previous year and voting support for shareholder-proposed ESG initiatives in the previous year are available.

We then regress monthly mutual fund flows on indicator variables for each type of fund:

$$Flow_{f,t} = \alpha + \beta_1 \text{True ESG}_{f,t} + \beta_2 \text{Greenwasher}_{f,t} + \delta \mathbf{X}_{f,t-1} + \gamma_{t,cat} + \varepsilon_{f,t}. \quad (4)$$

where $Flow_{f,t}$ denotes the (relative) flow to fund f in month t . Greenwasher and True ESG are indicator variables for greenwashers and true ESG funds, as defined above. The omitted indicator variable corresponds to non-ESG funds. $\mathbf{X}_{f,t-1}$ includes fund and fund-family characteristics as explanatory variables of fund f in month $t - 1$. Given the evidence in Evans and Sun (2021) that mutual fund investors strongly rely on Morningstar star ratings, we include star ratings as the only determinant of fund performance. We also include flows in the previous month to account for short-term persistence. Finally, we include year-month $\times$ Morningstar category fixed effects $\gamma_{t,s}$. Standard errors are clustered at both the fund and year-month levels.

Column (1) of Table 14 reports estimation results. The estimated coefficient on True ESG funds is positive and statistically significant at the 1% level. More specifically, True ESG funds receive on average 1.128% higher flows per month than otherwise similar non-ESG funds during our sample period. This extra flow to true-ESG funds is economically significant. Given the median size of the funds in our sample, such growth corresponds to almost USD 20 million per year in new money. The estimated coefficient on the indicator variable for Greenwasher is also positive but less than half the size of the coefficient on True ESG funds and statistically insignificant. However, the difference between the two coefficients is not statistically significant, which casts doubt on the idea that investors can clearly distinguish between greenwashers and true ESG funds.

It is plausible that only the most sophisticated investors are able to see through ESG labels. To test this hypothesis, in column (2), we augment the model 4 to include a dummy variable for institutional funds (“Institutional”) that equals 1 if the institutional share classes of the

fund account for more than 50% of the fund’s assets under management. Importantly, we also include interactions of this dummy with the indicator variables for Greenwasher and True ESG. In this specification, the estimated coefficients on True ESG and Greenwasher, which capture the flows from retail investors into these funds relative to non-ESG funds, are both statistically significant and very similar in magnitude: 1.188 and 0.823, respectively. The difference is not statistically significant. This finding is consistent with retail investors showing a preference for funds with an ESG label during our sample period, but being unable to distinguish between greenwashers and true ESG funds. The estimated coefficient on the interaction terms with the institutional indicator are both negative, but while the coefficient on the interaction between Institutional and Greenwasher is similar in size to that of Greenwasher (-0.84), the coefficient on the interaction between Institutional and True ESG is very small (-0.031). Given these coefficients, the estimated flows from institutional investors to greenwashers relative to non-ESG funds is close to zero (-0.017) and statistically insignificant. In contrast, the estimated flows from institutional investors to true ESG funds during the sample period and relative to non-ESG funds is positive and statistically and economically significant (1.039). Moreover, we reject the null hypothesis that true ESG funds receive the same flows as greenwashers.

Taken together, the results of this section show that retail investors and institutional investors differ sharply in the way they assess mutual funds’ ESG quality. While the former rely mostly on funds’ ESG labels, the latter also pay close attention to ratings and voting behavior. Consequently, even in a mutual fund market where sustainability reporting lacks a specific regulation, asset management firms offering funds that claim to invest according to ESG principles must fulfill that promise if they wish to attract institutional investors. Such form of external governance is a potential deterrent against greenwashing.

7 Conclusions

Despite frequent accusations of widespread greenwashing in the asset management industry, the lack of a precise definition makes it impossible to evaluate whether such complaints are justified. Our proposed definition considers a mutual fund’s claim to invest according to ESG criteria contained in its prospectus and evaluates the truthfulness of the fund’s claim based not

only on the sustainability scores of the securities held in the fund's portfolio but also on the fund's proven commitment to ESG investment through its voting record.

Using this definition, we quantify the prevalence of greenwashing in the US mutual fund industry and conclude that 1 in 3 funds that claim to invest according to ESG considerations fail to deliver on this promise to their investors. Greenwashers tend to underperform and are more frequently found in larger and younger fund families. Importantly, while asset management companies that have signed the UNPRI pledge do not seem to invest according to those principles more than non-signatories, they are less likely to offer funds that falsely claim to be ESG.

Retail investors do not seem capable of distinguishing between true ESG funds and greenwashers and when evaluating funds' commitment to ESG investing. On the other hand, institutional investors seem to be able to discriminate.

Taken together, our results suggest that there is room for regulation. This regulation should be aimed at enhancing transparency of the broad set of actions taken by ESG investors. Moreover, regulation should target funds that cater to retail investors.

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Tables and Figures

Table 1: Proxy Voting: Types of Resolutions

This table overviews types of resolutions proposed by either shareholders or management in the voting results of mutual funds categorized in Morningstar. Shareholder resolutions are divided into environmental and social, governance and non-ESG resolutions.

<i>Shareholder Resolutions</i>	
Environmental & Social	Climate Change, Environment, Human & Workers' Rights, Humane Treatment of Animals, Militarism and Aggression, Political Influence, Public Health/Product Safety, Other E&S
Governance	Director Elections, ESG Governance Arrangements, Board Governance, Executive Compensation, Other Governance
Non-ESG	Shareholder Rights, Shareholder Meetings and Proxy Process, Strategy & Business
<i>Management Resolutions</i>	
	Governance & Director Election, 1/2/3 years Advisory Vote Frequency ("Say on Pay") , Advisory Vote on Executive Compensation, Compensation (Approve new or amended equity-based compensation plans), Auditor Ratification (Ratify the selection of the company's auditor for the forthcoming fiscal year)

Table 2: Text-based ESG Labels

This table reports the ESG-related strings we use to search in the prospectus. We also go through a filtering process to identify strings in fund names or investment objectives that may appear as ESG-related but do not convey ESG information.

ESG Words			
alternative energy	biosphere	carbon offset	carbon transformation
circular economy	clean energy	cleaner	climate
conscious	corporate responsibility	CSR	decarbonisation
diversity	ecology	engage	environment
environmental	ESG	ethic	ethical
ethics	fair	footprint	fossil free
fuel screened	gender	governance	green
impact	low carbon	lower carbon	peace
planet	recycling	renewable	responsibility
responsible	SDG	smart energy	smart food
social	socially	solar energy	SRI
sustainability	sustainable	transition	values
warming	waste	well-being	wind energy
Exceptions			
Asset Managers: Green Owl, Green Square, Green Century			
Investment Objectives: Sustainable growth of income, Low interest rate environment			

Table 3: Term and Default Factors: Selection of Bond Indices

This table shows the bond indices we use to construct term and default factors, as in Fama and French (1993), and include long-term and short-term government bond indices as well as mid-term defaultable or default-free bond indices. Return data for indexes are retrieved from Morningstar.

Region	Long-term Government Bond Index	Short-term Government Bond Index	Mid-term Defaultable Bond Index	Mid-term Default-free Bond Index
North America	FTSE US GBI 10+ Yr USD	FTSE US GBI 1-3 Yr USD	Morningstar US 1-5Y Corp Bd TR USD	Markit iBoxx USD Treasuries 3-7 TR
Europe	FTSE EMU GBI 10+ Year USD	FTSE EMU GBI 1-3 Year USD	ICE BofA 5-10Y BBB EUR Corp TR USD	ICE BofA 5-10Y AAA EUR Corp TR USD
Asia	FTSE Asian GBI 10+ Yr USD	FTSE Asian GBI 1-3 Yr USD	ICE BofA Asian Dollar Corp TR USD	Bloomberg Barclays Asian Pacific Aggregate Global Aggregate Eligible TR USD
Latin America	FTSE EMUSDGBI 10+ Year USD	FTSE EMUSDGBI 1-5 Year USD	BBgBarc EM Americas Corp TR USD	BBgBarc EM Americas Sovereign TR USD
Middle East	FTSE EMUSDGBI 10+ Year USD	FTSE EMUSDGBI 1-5 Year USD	BBgBarc EM Middle East Corp TR USD	BBgBarc EM Middle East Sovereign TR USD
Africa	FTSE EMUSDGBI 10+ Year USD	FTSE EMUSDGBI 1-5 Year USD	BBgBarc EM Africa Corp TR USD	BBgBarc EM Africa Sovereign TR USD

Table 4: Summary Statistics

This table reports summary statistics of data at the fund-month level used in the empirical analysis. We keep observations of funds with valid Morningstar sustainability ratings and prospectus names and objectives. Fund AUM is in million dollars and AUM of the asset management company is in trillion dollars. Fund age and management company age are in months. Both Morningstar star ratings and sustainability ratings take values between one and five. Environmental, social and governance risk scores are standardized by mean and standard deviation of raw E, S or G scores of all mutual funds in our sample, in which higher scores denote better performance. Past 36-month abnormal returns, monthly flows and past 12-month cumulative flows are in percentage points. UNPRI Signatory is an indicator variable that takes the value of one if the asset management company is a UNPRI signatory in that month and zero otherwise.

	ESG Funds				Non-ESG Funds				All Funds			
	Mean	SD	Median	N	Mean	SD	Median	N	Mean	SD	Median	N
Log (Fund AUM)	18.61	2.49	18.80	9,961	19.47	2.35	19.65	362,618	19.44	2.36	19.63	372,579
Log (Fund Age)	4.41	1.24	4.52	9,961	4.95	0.96	5.18	362,625	4.94	0.97	5.17	372,586
Institutional Ratio	0.49	0.42	0.50	9,961	0.42	0.41	0.29	362,618	0.42	0.41	0.30	372,579
Net Expense Ratio (%)	0.81	0.42	0.84	9,961	0.93	0.49	0.95	362,618	0.93	0.49	0.95	372,579
Star Rating	2.95	1.09	3.00	7,532	2.82	1.06	3.00	325,687	2.82	1.06	3.00	333,219
Abnormal Return - Past 36 months	0.27	0.44	0.24	7,811	0.21	0.43	0.20	330,694	0.21	0.43	0.20	338,505
Monthly Flows (%)	0.94	10.43	0.09	9,858	-0.74	11.13	-0.28	358,942	-0.70	11.11	-0.26	368,800
Past 12-Month Cumulative Flows (%)	25.66	100.94	1.84	8,171	9.10	97.67	-4.01	306,941	9.53	97.79	-3.81	315,112
Log (Management Company AUM - Billion)	2.37	3.05	2.66	9,952	2.96	2.89	3.41	361,609	2.95	2.89	3.38	371,561
Log (Management Company Age - Months)	5.78	0.44	5.88	9,952	5.76	0.41	5.86	361,610	5.76	0.41	5.86	371,562
Morningstar Sustainability Rating	3.62	1.20	4.00	9,961	2.92	1.07	3.00	362,639	2.94	1.08	3.00	372,600
Environmental Score (Standardized)	0.23	0.81	0.30	8,364	-0.01	1.01	0.10	272,802	0.00	1.01	0.10	281,166
Social Score (Standardized)	0.25	0.81	0.08	8,364	-0.00	1.01	-0.13	272,802	0.00	1.01	-0.12	281,166
Governance Score (Standardized)	0.19	0.79	0.01	8,364	-0.01	1.01	-0.16	272,802	-0.00	1.01	-0.16	281,166
UNPRI Signatory	0.74	0.44	1.00	9,952	0.56	0.50	1.00	361,610	0.57	0.50	1.00	371,562

Table 5: Monthly Fund-level Morningstar Sustainability Ratings

This table shows frequencies of monthly Morningstar sustainability ratings in our sample for different subsamples. In Panel A, the sample is divided into funds with non-ESG and ESG label. In Panel B, the sample is divided into funds managed by non-UNPRI and UNPRI signatory asset management companies. In Panel C, the sample is restricted to the year 2019 and divided into funds that kept their Morningstar ESG label in January 2020 and those that lost it.

Panel A: ESG vs. non-ESG Funds

	ESG Funds		Non-ESG Funds	
	Number of Obs	Percentage	Number of Obs	Percentage
Low	502	5.04	34,266	9.45
Below Average	1,481	14.87	90,706	25.01
Average	2,346	23.55	136,732	37.70
Above Average	2,556	25.66	71,181	19.63
High	3,076	30.88	29,754	8.20
Total	9,961	100.00	362,639	100.00

Panel B: UNPRI vs. Non-UNPRI Signatory Fund Families

	UNPRI		Non-UNPRI Funds	
	Number of Obs	Percentage	Number of Obs	Percentage
Low	17,977	8.32	17,814	10.79
Below Average	51,293	23.73	42,699	25.86
Average	81,223	37.58	61,058	36.98
Above Average	45,120	20.88	30,437	18.43
High	20,499	9.49	13,098	7.93
Total	216,112	100.00	165,106	100.00

Panel C: Morningstar ESG Label Removal in January 2020

	Kept ESG Label		Lost ESG Label	
	Number of Obs	Percentage	Number of Obs	Percentage
Low	134	6.63	325	8.56
Below Average	317	15.68	823	21.67
Average	544	26.90	1,271	33.46
Above Average	512	25.32	1,024	26.96
High	515	25.47	355	9.35
Total	2,022	100.00	3,798	100.00

Table 6: Do ESG Labels Indicate Better ESG Ratings?

This table reports the estimated coefficients and standard errors from a multinomial logit model for fund Morningstar sustainability ratings. In Panel B, the sample is separated into fixed-income & allocation funds, domestic equity funds, as well as international equity funds. In all the regressions we control for both fund and management company characteristics. Fund controls include log of fund size (USD million), log of fund age (months), Morningstar star ratings, gross expenses ratio, past 12-month cumulative flows and past 36-month abnormal return. Management company controls include log of total assets under management (USD billion) and log of age (months). Standard errors are clustered at fund and year-month level. *, ** and *** indicate statistical significance at the 10%, 5% and 1% levels, respectively.

Panel A: All Funds

	All Funds			
	Low	Below Average	Above Average	High
ESG Fund	-0.154 (0.283)	0.023 (0.149)	0.764*** (0.156)	1.780*** (0.173)
Log (Fund AUM)	0.005 (0.018)	0.017 (0.011)	-0.025** (0.012)	0.016 (0.020)
Log (Fund Age)	-0.086* (0.051)	-0.018 (0.031)	0.066** (0.034)	-0.049 (0.055)
Star Rating	-0.191*** (0.035)	-0.091*** (0.019)	0.072*** (0.018)	0.142*** (0.032)
Expense Ratio (%)	0.528*** (0.082)	0.112** (0.054)	0.288*** (0.059)	0.477*** (0.088)
Past 12-Month Flow (%)	0.001* (0.000)	0.000 (0.000)	0.000** (0.000)	0.001** (0.000)
Past 36-Month Abnormal Return (%)	0.076 (0.074)	0.016 (0.041)	-0.025 (0.053)	-0.072 (0.084)
Log (Management Company AUM)	-0.020 (0.016)	0.007 (0.009)	-0.011 (0.010)	-0.065*** (0.017)
Log (Management Company Age)	-0.420*** (0.104)	-0.256*** (0.079)	0.111 (0.091)	0.436*** (0.152)
Pseudo R-squared	0.0125			
Observations	278,529			

Panel B: Subsamples by Broad Investment Category

	FI & Allocation Funds				Domestic Equity Funds				International Equity Funds			
	Low	Below Average	Above Average	High	Low	Below Average	Above Average	High	Low	Below Average	Above Average	High
ESG Fund	1.004 (0.818)	0.285 (0.603)	1.742*** (0.334)	3.136*** (0.404)	-0.203 (0.283)	0.201 (0.163)	0.507** (0.210)	1.428*** (0.230)	-0.713 (0.567)	-0.441 (0.281)	0.560** (0.256)	1.500*** (0.274)
Log (Fund AUM)	0.029 (0.036)	0.001 (0.023)	-0.101*** (0.028)	-0.082 (0.050)	0.009 (0.024)	0.025 (0.016)	-0.035** (0.015)	0.020 (0.026)	-0.032 (0.045)	0.007 (0.025)	0.038 (0.023)	0.048 (0.043)
Log (Fund Age)	-0.119 (0.111)	0.066 (0.063)	0.105 (0.089)	0.038 (0.148)	-0.095 (0.070)	-0.068 (0.046)	0.011 (0.045)	-0.111 (0.074)	-0.080 (0.113)	-0.028 (0.062)	0.110* (0.061)	0.005 (0.098)
Star Rating	-0.162*** (0.055)	-0.040 (0.035)	0.034 (0.041)	0.058 (0.087)	-0.255*** (0.048)	-0.129*** (0.026)	0.095*** (0.027)	0.116*** (0.043)	-0.111 (0.071)	-0.084** (0.035)	0.015 (0.033)	0.174*** (0.057)
Expense Ratio (%)	0.529*** (0.153)	0.243** (0.102)	0.010 (0.129)	0.496** (0.221)	0.516*** (0.115)	0.088 (0.071)	0.064 (0.075)	0.204* (0.117)	0.196 (0.179)	-0.103 (0.111)	0.129 (0.100)	0.233 (0.159)
Past 12-Month Flow (%)	0.001 (0.001)	-0.000 (0.001)	0.001** (0.000)	0.001** (0.001)	0.001 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.001)	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)
Past 36-Month Abnormal Return (%)	-0.867*** (0.316)	-0.688*** (0.209)	-0.962*** (0.207)	-1.080** (0.425)	0.160 (0.101)	-0.000 (0.059)	0.123* (0.063)	0.123 (0.104)	0.075 (0.120)	0.139* (0.071)	-0.007 (0.071)	-0.128 (0.105)
Log (Management Company AUM)	-0.061* (0.035)	0.002 (0.021)	-0.045* (0.026)	-0.082* (0.043)	-0.005 (0.022)	0.010 (0.013)	0.006 (0.013)	-0.054** (0.022)	-0.021 (0.035)	0.009 (0.020)	-0.052*** (0.019)	-0.090*** (0.031)
Log (Management Company Age)	-0.412** (0.188)	-0.453*** (0.134)	0.214 (0.183)	0.431 (0.312)	-0.519** (0.251)	-0.108 (0.166)	-0.060 (0.183)	0.044 (0.245)	-0.337* (0.177)	-0.103 (0.121)	0.190 (0.135)	0.632** (0.252)
Pseudo R-squared	0.0279				0.0104				0.0120			
Observations	67,505				129,883				81,141			

Table 7: Fitted Probabilities and Marginal Effects of ESG Label on Morningstar Sustainability Ratings

This table reports fitted probabilities and marginal effects (differences) for the ESG label on Morningstar sustainability ratings as estimated from the multinomial logit regressions of Table 6. Our sample is separated into fixed-income & allocation funds, domestic equity funds, as well as international equity funds. In all the regressions we control for both fund and management company characteristics. Fund controls include log of fund size (USD million), log of fund age (months), Morningstar star ratings, gross expenses ratio, past 12-month cumulative flows and past 36-month abnormal return. Management company controls include log of total assets under management (USD billion) and log of age (months). Standard errors are clustered at fund and year-month level. *, ** and *** indicate statistical significance at the 10%, 5% and 1% levels, respectively.

	Fitted Probabilities and Marginal Effects				
	One globe	Two globes	Three globes	Four globes	Five globes
<i>All Funds</i>					
No ESG Label	0.088	0.256	0.390	0.193	0.073
ESG Label	0.048	0.166	0.247	0.263	0.275
Differences	-0.040**	-0.090***	-0.143***	0.070**	0.202***
	(0.013)	(0.020)	(0.024)	(0.023)	(0.026)
<i>FI & Allocation Funds</i>					
No ESG Label	0.084	0.292	0.448	0.132	0.045
ESG Label	0.081	0.137	0.158	0.264	0.361
Differences	-0.003	-0.155**	-0.290***	0.132**	0.316***
	(0.056)	(0.057)	(0.050)	(0.049)	(0.066)
<i>Domestic Equity Funds</i>					
No ESG Label	0.089	0.249	0.377	0.204	0.081
ESG Label	0.051	0.213	0.264	0.238	0.235
Differences	-0.038**	-0.036	-0.113***	0.034	0.154***
	(0.014)	(0.030)	(0.030)	(0.030)	(0.033)
<i>International Equity Funds</i>					
No ESG Label	0.089	0.238	0.363	0.226	0.085
ESG Label	0.033	0.114	0.271	0.295	0.286
Differences	-0.056**	-0.124***	-0.092*	0.069	0.201***
	(0.019)	(0.028)	(0.042)	(0.042)	(0.044)

Table 8: Do ESG Labels Indicate Better ESG performance? Disaggregated by Investment Region and Pillar

This table reports results of OLS regressions of fund-level standardized Morningstar environmental, social or governance scores on fund ESG label dummy and controls. Our sample is separated into equity funds, fixed-income & allocation funds, domestic equity funds as well as international equity funds. In all regressions we control for both fund and management company characteristics. Fund controls include log of fund size (USD million), log of fund age (months), Morningstar star ratings, gross expenses ratio, past 12-month cumulative flows and past 36-month abnormal return. Management company controls include log of total assets under management (USD billion) and log of age (months). We also include month×Morningstar category fixed effects. Standard errors are clustered at fund and year-month level. *, ** and *** indicate statistical significance at the 10%, 5% and 1% levels, respectively.

	Environmental Score	Social Score	Governance Score
<i>All Funds</i>			
ESG Label	0.199*** (0.038)	0.305*** (0.040)	0.248*** (0.039)
R-squared	0.709	0.699	0.599
Observations		217,710	
<i>FI & Allocation Funds</i>			
ESG Label	0.211*** (0.075)	0.274*** (0.086)	0.197*** (0.069)
R-squared	0.401	0.472	0.416
Observations		50,792	
<i>Domestic Equity Funds</i>			
ESG Label	0.243*** (0.050)	0.340*** (0.064)	0.296*** (0.063)
R-squared	0.726	0.724	0.613
Observations		102,788	
<i>International Equity Funds</i>			
ESG Label	0.133* (0.072)	0.297*** (0.060)	0.226*** (0.060)
R-squared	0.739	0.684	0.608
Observations		64,128	

Table 9: Annual Voting Support to ESG Initiatives: ESG vs. Non-ESG Funds

This table reports average annual voting support (in %) for ESG initiatives by ESG and non-ESG Funds. We report group mean and results for a t-test of differences in mean. Observations are in fund-year level. *, ** and *** indicate statistical significance at the 10%, 5% and 1% levels, respectively.

	Non-ESG Funds (%)	ESG Funds (%)	ESG - Non-ESG (%)
% Support - All Shareholder Resolutions	29.5	40.0	10.5***
% Support - All Management Resolutions	64.4	55.4	-9.0***
% Support - Environmental & Social	36.8	60.5	23.6***
% Support - Governance (Shareholder)	47.7	58.9	11.1***

Table 10: Number and AUM of Greenwashers

This table reports the number of funds and fund-year observations, as well as assets under management (USD billion) for greenwashers and true ESG funds. We define greenwashers as ESG funds with average, below average or low Morningstar Sustainability Ratings (1, 2, or 3 globes) and low support (less than 60%, 70% and 80%, respectively) for ESG resolutions initiated by shareholders. True ESG funds are defined as ESG funds with either above average or high Morningstar Sustainability Ratings (4 or 5 globes) or high support (more than 60%, 70% and 80%, respectively) for ESG resolutions initiated by shareholders. We require that both Morningstar Sustainability Ratings and voting support data are available to classify funds as greenwashers and true ESG funds. We also report in parentheses the ratio of greenwashers and non-greenwashers, with respect to number of funds, number of fund-year observations and assets under management for all ESG funds.

	Funds	Monthly obs.	AUM in USD billion
<i>Threshold: 70% Support for ESG Resolutions</i>			
Greenwashers	70	1,534	64.8
	(34.3%)	(28.0%)	(44.9%)
True ESG	134	3,935	79.4
	(65.7%)	(72.0%)	(55.1%)
<i>Threshold: 60% Support for ESG Resolutions</i>			
Greenwashers	66	1,356	55.0
	(32.5%)	(24.8%)	(38.1%)
True ESG	137	4,113	89.2
	(67.5%)	(75.2%)	(61.9%)
<i>Threshold: 80% Support for ESG Resolutions</i>			
Greenwashers	75	1,715	66.4
	(36.1%)	(31.4%)	(46.0%)
True ESG	133	3,754	77.8
	(63.9%)	(68.6%)	(54.0%)

Table 11: Determinants of Greenwashers

This table reports estimated coefficients and standard errors of a logit model for the Greenwasher dummy, which equals 1 if the fund is a Greenwasher according to our definition, and 0 otherwise. The sample is restricted to ESG funds. In all the regressions we control for both fund and management company characteristics. Fund controls include log of fund size (USD million), log of fund age (months), Morningstar star ratings, gross expenses ratio, past 12-month cumulative flows and past 36-month abnormal return. Management company controls include log of total assets under management (USD billion) and log of age (months). Standard errors are clustered at fund and year-month level. *, ** and *** indicate statistical significance at the 10%, 5% and 1% levels, respectively.

Minimum % Support for ESG Initiatives	Dependent Variable		
	Dummy of Greenwasher		
	60%	70%	80%
Log (Fund AUM)	0.221*	0.168	0.181*
	(0.114)	(0.105)	(0.104)
Log (Fund Age)	0.178	0.235	0.213
	(0.331)	(0.302)	(0.259)
Star Rating	-0.635***	-0.633***	-0.574***
	(0.161)	(0.150)	(0.138)
Expense Ratio (%)	-0.467	-0.359	0.130
	(0.670)	(0.573)	(0.480)
Past 12-Month Flow (%)	-0.015	-0.012	-0.008
	(0.013)	(0.010)	(0.008)
Past 36-Month Abnormal Return (%)	-0.532	-0.386	-0.316
	(0.444)	(0.420)	(0.397)
UNPRI Signatory	-0.894*	-0.786*	-0.993**
	(0.497)	(0.450)	(0.404)
Log (Management Company AUM)	0.505***	0.466***	0.418***
	(0.125)	(0.111)	(0.103)
Log (Management Company Age)	-5.883***	-5.216***	-4.357***
	(1.933)	(1.779)	(1.607)
Pseudo R-squared	0.284	0.247	0.219
Observations	3,479	3,479	3,479

Table 12: Fitted Probabilities and Marginal Effects of Greenwashers Determinants

This table reports fitted probabilities and marginal effects of the logit model in Table 11. Fund controls include log of fund assets under management (USD million), log of fund age (months), Morningstar star ratings, gross expenses ratio, past 12-month cumulative flows and past 36-month abnormal return. Management company controls include log of total assets under management (USD billion) and log of age (months). Standard errors are clustered at fund and year-month level. *, ** and *** indicate statistical significance at the 10%, 5% and 1% levels, respectively.

Minimum % Support for ESG Initiatives	60%	70%	80%
Log (Fund AUM)	0.032*	0.027	0.031*
	(0.016)	(0.017)	(0.018)
Log (Fund Age)	0.025	0.037	0.037
	(0.047)	(0.048)	(0.044)
Star Rating	-0.091***	-0.100***	-0.098***
	(0.023)	(0.023)	(0.022)
Expense Ratio (%)	-0.067	-0.057	0.022
	(0.095)	(0.091)	(0.082)
Past 12-Month Flow (%)	-0.002	-0.002	-0.001
	(0.002)	(0.002)	(0.001)
Past 36-Month Abnormal Return (%)	-0.076	-0.061	-0.054
	(0.062)	(0.066)	(0.068)
UNPRI Signatory	-0.128*	-0.125*	-0.170**
	(0.071)	(0.071)	(0.067)
Log (Management Company AUM)	0.072***	0.074***	0.072***
	(0.016)	(0.016)	(0.016)
Log (Management Company Age)	-0.840***	-0.828***	-0.748***
	(0.267)	(0.272)	(0.269)

Table 13: ESG Voting Support of Funds Losing/Keeping Morningstar ESG Label

This table summarizes the voting support for ESG resolutions proposed by shareholders of the funds that either kept or lost their Morningstar ESG label in January 2020. The sample is further divided into funds with 1-3 globes and 4-5 globes of Morningstar sustainability ratings in December 2019.

	Kept Morningstar ESG Label			Lost Morningstar ESG Label		
	25% Quantile	Median	75% Quantile	25% Quantile	Median	75% Quantile
1-3 Globes in Dec 2019	31.6%	66.7%	95.0%	25.0%	50.0%	72.0%
4-5 Globes in Dec 2019	57.7%	88.8%	94.7%	35.7%	57.7%	66.7%

Table 14: Flows to Greenwashers vs. True ESG Funds

This table reports the estimated coefficients and standard errors of flow regressions on indicator variables for different fund types: Greenwashers and True ESG funds. Greenwashers are defined as self-labeled ESG funds with voting support for ESG initiatives in the previous year below 70% and sustainability rating in the previous month equal to “low,” “below average,” or “average”. True ESG funds are defined as self-labeled ESG funds with either voting support for ESG initiatives in the previous year equal to or above 70% or sustainability rating in the previous month equal to “above average” or “high.” We include only observations with valid voting support and sustainability ratings data. Fund controls include the Morningstar star ratings, log of fund assets under management (USD million), log of fund age (months), and gross expenses ratio. Management company controls include log of total assets under management (USD billion) and log of age (months). All controls are lagged one month. We also include month×Morningstar category fixed effects. Standard errors are clustered at fund and year-month level. *, ** and *** indicate statistical significance at the 10%, 5% and 1% levels, respectively.

Dependent Variable: Monthly Flows (%)		
True ESG	1.128*** (0.405)	1.188* (0.608)
Greenwasher	0.480 (0.299)	0.823** (0.365)
True ESG x Institutional		-0.149 (0.592)
Greenwasher x Institutional		-0.840 (0.645)
Institutional		-0.031 (0.149)
Star Rating	0.176*** (0.051)	0.178*** (0.051)
Log (Fund AUM)	0.613*** (0.079)	0.613*** (0.079)
Log (Fund Age)	-1.456*** (0.142)	-1.459*** (0.141)
Expense Ratio (%)	1.345*** (0.260)	1.331*** (0.269)
Log (Management Company AUM)	-0.092** (0.040)	-0.093** (0.040)
Log (Management Company Age)	1.281*** (0.266)	1.281*** (0.265)
Monthly Flows (%)	0.436*** (0.022)	0.436*** (0.022)
R-squared	0.258	0.258
Observations	131,612	131,612
True ESG – Greenwasher	0.6480	0.365
Greenwasher + Greenwasher x Institutional		-0.017
True ESG + True ESG x Institutional		1.039***
True ESG + True ESG x Institutional – (Greenwasher + Greenwasher x Institutional)		1.055**

Figure 1: Cumulative Distribution of Annual Voting Support for Shareholder and Management Resolutions: ESG vs. Non-ESG Funds

This figure compares ESG and non-ESG funds in terms of annual voting support in all shareholder and management resolutions, including percentage of support in all shareholder resolutions, all management resolutions, environmental & social related resolutions and shareholder-proposed governance resolutions. Observations are in fund-year level.

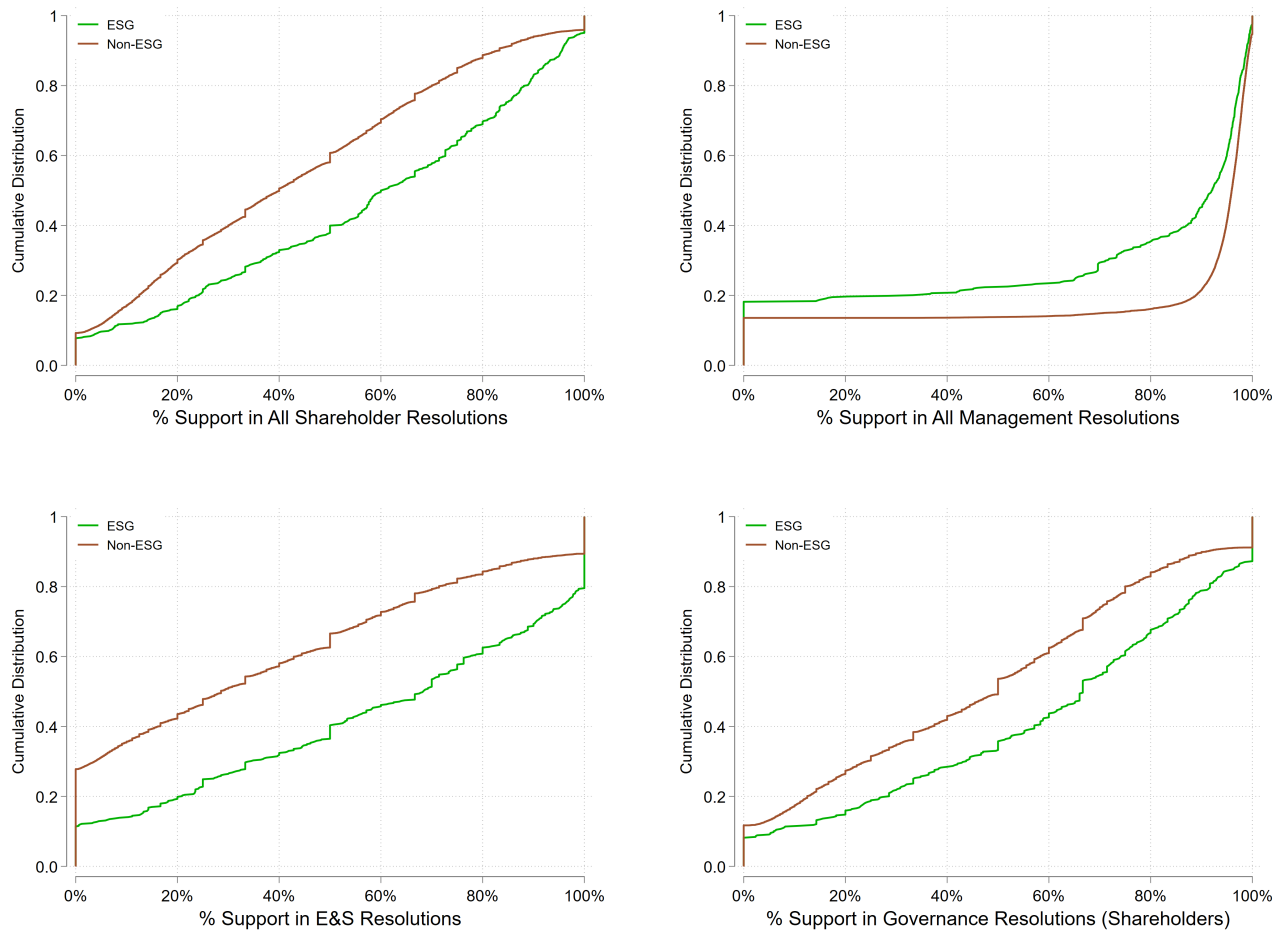


Figure 2: Cumulative Distribution of Annual Voting Support for Shareholder and Management Resolutions: Funds Managed by UNPRI vs. Non-UNPRI Signatories

This figure compares funds managed by UNPRI and Non-UNPRI management companies in terms of annual voting support for all shareholder and management resolutions, including percentage of support in all shareholder resolutions, all management resolutions, environmental & social related resolutions and shareholder-proposed governance resolutions. Observations are in fund-year level.

