The Costs of Being Sustainable

Emanuele Chini* Roman Kräussl† Denitsa Stefanova‡§

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Abstract

We assess the sustainability footprint of mutual funds through the companies they hold. Instead of relying on ESG ratings, the sustainability of each company is measured based on its average impact—positive or negative—on the 17 United Nations Sustainable Development Goals (SDGs). We document that mutual funds aligned with the SDGs attract more inflows only when they explicitly adopt a sustainability mandate. In contrast, funds without such a mandate see reduced inflows as their alignment with the SDGs increases. It is the negative component that predominantly drives these patterns, suggesting that investors tend to exclude funds with negative SDG alignment rather than increasing capital inflows towards funds with positive SDG contributions. Despite investors' preference for sustainable funds, their actions are primarily focused on avoiding harm through divestments from non-sustainable into "neutral" funds rather than shifting capital towards funds that positively contribute to the SDGs.

Keywords: sustainable development goals, sustainable investing, mutual funds, investor preferences

JEL Classification: G11, G23, Q56

*Department of Finance, University of Luxembourg. E-mail: emanuele.chini@uni.lu

†Bayes Business School (formerly Cass), Hoover Institution at Stanford University, and CEPR. E-mail: roman.kraussl@city.ac.uk

‡Department of Finance, University of Luxembourg. E-mail: denitsa.stefanova@uni.lu

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1 Introduction

The prominence of sustainable investing has increased substantially in the last decade. The number of signatories of the United Nations Principles for Responsible Investment (PRI) has grown from 734 in 2010 to 3,826 in 2021, with total assets under management (AUM) increasing sixfold from US$21 trillion in 2010 to US$121 trillion in 2021.[1] Despite the fact that PRI signatories attract more capital, they do not systematically hold portfolios with a better environmental, social and governance (ESG) profile than their nonsignatory peers (Brandon et al., 2022; Kim and Yoon, 2022). Similarly, funds marketed as sustainable have been found to attract more investor capital than non-ESG funds, as mutual fund investors respond to the perceived sustainability profile of funds revealed by their ratings (Hartzmark and Sussman, 2019; El Ghoul and Karoui, 2017). Fund families also appear to respond to investor demand for sustainability by converting funds to ESG labels if the ability of funds to attract inflows has been lagging behind (Kaustia and Yu, 2021). This trend raises the concern that the motivation for offering sustainable-labeled funds could lie more in marketing rather than reflect responsible purposes.

It is not clear whether funds labeled as sustainable or those with high ESG ratings are ultimately committed to investing in sustainable assets (Brandon et al., 2022; Chen, 2022), and what drives investor preferences for these funds (Green and Roth, 2021; Heeb et al., 2022). In this paper, we contribute to answering these questions by assessing the sustainability 'footprint' of funds through an *objective* product-based measure that is not reliant on company disclosures of ESG policies contrary to *conventional* ESG measures used by investors to infer the sustainability of funds.

Investors typically assess the sustainability performance of their holdings using ESG ratings (Rzeźnik et al., 2022). Despite the popularity of these metrics, their interpretation can be difficult for three reasons. First, the methodologies underlying the construction of ESG scores by different rating providers are often proprietary and opaque. The lack of a standardized approach to constructing them is reflected in the divergence between the scores of different providers (Berg et al., 2022), leaving investors with a fair degree of uncertainty about the ESG performance of a security. Second, ESG ratings aggregate many different pieces of information that are difficult to disentangle by looking at the ratings alone. For example, if a company's E, S and G performance is combined in a composite ESG score, the latter could hide a high degree of heterogeneity in a firm's perfor-

[1] See `https://www.unpri.org/about-us/about-the-pri`

mance across the three dimensions. Third, most ESG metrics come from self-reported information, lacking transparency and objectivity. Marquis et al. (2016) and Diouf and Boiral (2017) document how companies selectively disclose relatively benign impacts, creating an impression of transparency while masking their true performance. Similarly, Chen (2022) finds that the three major environmental rating providers (MSCI, Refinitiv and Sustainalytics) assign higher scores to companies with better communication strategies, controlling for effective environmental commitment. As a result, ESG investors face the risk of not holding a sustainable portfolio and therefore misallocating their capital.

In this paper, we assess the sustainability footprint of mutual funds through the profile of the companies they hold. We depart from the conventional practice of considering ESG scores in order to evaluate the ESG profile of a firm. Rather, we define the sustainability of a firm by the impact of its products and services on the 17 UN Sustainable Development Goals (SDGs). The impact can be positive or negative. The SDG alignment of a firm is a much broader measure of its sustainability than the E, S and G ratings. SDGs address the full spectrum of global macrosystemic issues that matter to all stakeholders, all businesses, and all countries.[2] We retrieve firms' sustainability alignment scores from product-based SDG metrics developed by Util, a data provider. The SDG alignment scores of firms are obtained by mapping their products and services to a broad range of sustainability concepts that span the SDGs. The scores are also adjusted geographically to reflect variations in the relative importance of SDGs across geographies. Util's methodology assesses both the positive and the negative impact of companies on SDGs. Consequently, we are able to clearly distinguish companies that contribute to the advancement of SDGs from those that have detrimental impacts. In contrast, standard ESG scores are more difficult to interpret as a low ESG score could mean that a company does not have a good sustainability standing, but also that it is not sufficiently transparent in reporting its ESG policies.

Util employs natural language processing (NLP) and a knowledge graph infrastructure to capture and assess the relationship between each product or service category and the various sustainability concepts. The NLP model uses a vast pool of unstructured data consisting of more than 120 million peer-reviewed academic articles to identify the presence of relationships, as well as the magnitude and direction of impact of firms' products and services categories on these fine-grained sustainability concepts. Firms' scores are obtained by aggregating these individual impacts by weighing the product/service categories by the revenues that the firm derives from

[2]They were established in 2015 by 193 countries "to end poverty, protect the planet, and ensure that all people enjoy peace and prosperity by the year 2030". See `https://www.undp.org/sustainable-development-goals`

them. They are further aggregated at the firm level into the 17 distinct SDGs to obtain a set of positive and negative impact scores per firm. The sustainability metrics that we use in our analysis thus provide an objective and evidence-based view of a company's impact. They do not rely on self-reported company disclosures or on the degree of transparency of these disclosures. In this way, the bias due to companies choosing what to disclose and analysts judging what is relevant in determining a sustainability score is substantially reduced.

We are not the first to analyse to what extent sustainable mutual funds are effectively taking into account ESG/sustainability aspects. Our study is also not the first to measure sustainability with SDGs alignment. For example, Morningstar provides SDG scores at the fund level (the "Average Revenue Percentage") that are calculated as a weighted average of the holding-level revenue percentage contributing to a particular SDG. However, to the best of our knowledge, we are the first to use a data set that completely ignores self-reported information on company sustainability policies and is based on objective scientific literature. Contrary to the SDG alignment scores that we use in our analysis, Morningstar metrics are based on firm-level scores from Sustainalytics that are heavily based on company-reported ESG policies. In addition, their coverage does not cover the entire spectrum of SDGs.

In our analysis, we consider the sustainability footprint of equity mutual funds in four dimensions aggregated across SDGs: *economy & infrastructure*, *environment*, *basic needs* and *social progress*. We document that on average, the funds' portfolios are negatively aligned with environmental goals, while having a positive alignment with economic & infrastructure and social goals. In stark contrast to this pattern, Morningstar funds' SDG scores reveal that mutual funds perform best along the basic needs dimension, primarily due to high scores of large funds, while social progress scores are the lowest for all funds.

Given an objective measure of the sustainability profile of a mutual fund based on the SDG alignment scores from Util, our paper addresses three main questions. First, we examine whether, in their allocation decisions, fund investors incorporate information about the sustainability impact of the funds they invest in. In particular, we investigate whether fund flows are associated with the sustainability score of the fund portfolio prior to the investment decision. We find that, on average, overall mutual fund flows are negatively associated with the extent to which a fund is aligned with the achievement of sustainability goals: Funds that hold companies with a negative impact on SDGs attract more flows. However, for funds with a clear sustainability mandate in their prospectus, a higher alignment of the portfolio with the 17 SDGs is associated with higher subsequent

investor flows. Furthermore, we find that these results are mainly driven by funds whose portfolios have a negative impact on SDGs: Funds that are positively aligned with SDGs do not attract flows, while those with a predominantly negative alignment experience outflows.

Second, we investigate the relationship between the sustainability profile of a fund and its market performance. We find that on average, funds investing in more SDG-aligned companies experience lower returns than funds investing in less SDG-aligned companies. On average, a 1% increase in the SDG alignment of a fund portfolio is associated with a 0.01% decrease in fund monthly abnormal returns, obtained from the five-factor Fama-French model augmented with momentum (Fama and French, 2015; Carhart, 1997). We find that the different dimensions of sustainability have distinct effects on abnormal returns. Funds with a higher positive impact on basic needs SDGs experience lower returns than their peers. In contrast, funds whose portfolios align more positively with SDGs related to economy & infrastructure have higher abnormal returns. Importantly, we find that funds with a sustainability mandate perform worse on average than non-sustainable funds. However, an increase in the alignment of their portfolios with SDGs is associated with an improved performance.

Our findings highlight the fact that on average, funds that are positively aligned with SDGs attract inflows only if they have a sustainability mandate in their prospectus or other regulatory filings. For funds without a sustainability mandate, the relationship is reversed: Funds that are more aligned with the SDGs attract fewer flows. When we decompose the SDG aligned scores into their positive and negative components, we find that it is mainly the negative component that drives our results. These findings are consistent with the fact that sustainable investors are primarily guided by an exclusionary approach when it comes to allocating their assets (Dimson, 2020). This suggests that, despite investors' preference for sustainable funds, investors limit their actions to excluding funds that are negatively aligned with the SDGs rather than increasing their capital inflows towards funds that are positively aligned. These findings highlight the fact that investors divest from non-sustainable funds into "neutral" funds, instead of contributing to the goal of advancing the SDGs by investing in positively aligned funds.

Our paper contributes to the strand of literature related to understanding how investors value the non-pecuniary aspects of financial assets. Green and Roth (2021), Oehmke and Opp (2023), Pastor et al. (2021) and Pedersen et al. (2021) derive theoretical implications when economic agents have preferences for sustainable investing. Hong and Kacperczyk (2009) find that investors require a premium to hold 'sin' companies, and

Bolton and Kacperczyk (2021, 2023) find similar results for high-emitting companies. Hartzmark and Sussman (2019) argue that investors value sustainability and that they believe sustainability to be an indicator of positive future returns, even though this does not appear in the data. Baker et al. (2022) find that investors, on average, are willing to pay 20 basis points more per year for funds with an ESG mandate. Our paper complements these findings by examining how investors' preferences align with different dimensions of sustainability. We find evidence that institutional investors incorporate information about the sustainability alignment of mutual funds when they make their capital allocation decisions, beyond the information contained in publicly available ESG ratings. Investors differentiate between different aspects of sustainability. The fund flow patterns that we reveal are suggestive of institutional investors' preferences for 'remunerative' sustainability.

More generally, our paper contributes to studies on portfolio allocation choices of mutual funds. Atta-Darkua et al. (2023) document that institutional investors that join climate related investor initiatives decarbonize their equity portfolios. Ceccarelli et al. (2024) show that mutual funds actively reduced their exposure to firms with high carbon risk scores after the release of Morningstar's novel carbon risk metrics in April 2018. Brandon et al. (2022) demonstrate that institutional investors signatories of PRI exhibit portfolio-level ESG scores that are at best similar to those of peer institutional investors nonsignatories. Furthermore, US signatories do not improve the ESG scores of portfolio companies after investing in them. Kim and Yoon (2022) find a significant increase in fund flows to PRI signatory funds regardless of their prior fund-level ESG score. Although signatories do not subsequently improve their fund-level ESG scores, a substantial proportion of funds rely on their PRI status to attract capital without making notable changes to ESG. They also observe that funds attracting below-average flows are more likely to be repurposed as ESG funds. Kaustia and Yu (2021) study the potential greenwashing behavior of mutual fund companies. They find that a self-designated ESG label helps mutual funds attracting more flows than their non-ESG peers with otherwise similar characteristics even if the self-designated ESG label is in conflict with Morningstar's ratings. This result highlights potential greenwashing motivations.

Parise and Rubin (2023) and Huang et al. (2024) show that ESG mutual funds manipulate their ESG ratings by increasing their holdings in high-ESG companies immediately before mandatory portfolio disclosure. As a result, disclosed portfolios receive substantially higher ratings than actual portfolios. They document that ESG manipulators earn higher risk adjusted returns and attract more investor flows. Ammann et al. (2019) study the

effect of the introduction of Morningstar's Sustainability Rating in March 2016 on mutual fund flows. Their findings suggest that retail investors shift money away from low-rated funds and into high-rated funds. On the other hand, institutional investors react much more weakly to the publication of the ratings. Couvert (2022) analyzes the impact of the mutual funds' announced policies regarding how they generally vote on the different ballot items at the shareholder meetings of their portfolio firms. The author shows that given the discrepancy between the announced and revealed preferences, portfolio firms do not adopt the announced environmental and social preferences of their mutual fund shareholders. The results shed light on a growing concern among mutual funds' investors and policymakers, namely that mutual funds' public statements and policy positions reflect marketing rather than stewardship intentions.

A different approach to study how ESG is effectively integrated in investment decisions by fund managers is to analyze how different incentives influence the asset allocation of ESG funds. Chen and Dai (2023) examine how equity mutual fund managers make decisions on investing in ESG stocks. The authors find that mutual funds whose flows are highly sensitive to performance are less inclined to hold stocks with high ESG score in their portfolio. Moreover, fund managers whose compensations are explicitly linked to fund performance invest less in ESG stocks. Similarly Orlov et al. (2023) explore how fund managers' investment decisions vary with the personal investments of managers in the funds they manage. Co-investing managers exhibit significantly lower ESG performance in the funds they manage than their peers. Lowry et al. (2023) find that ESG funds with higher incentives to engage with portfolio firms adopt longer-term investment strategies and implement less negative screening. Strikingly, only investments by committed ESG funds contribute to real ESG-improvements.

Pastor et al. (2023) quantify the actual amount of assets under management (AUM) that are effectively invested according to the ESG paradigm. Strikingly, they find that the total amount of ESG investments is substantially lower than the aggregate AUM of funds that claim to be aligned with the ESG principles in their investment decisions. Our approach in identifying the sustainability alignment of mutual funds is similar in that it measures the degree of SDG alignment of a fund through the sustainability profile of the assets it holds and not through the self-proclaimed ESG mandate of the fund.

Much less work has been done on understanding to what extent ESG ratings reflect the same information contained in the SDGs. To measure the SDG footprint of a firm, Bekaert et al. (2023) use a comprehensive

set of unstructured data, including news articles, self-reported company data, NGO reports and social media to create daily SDG scores at the company level. They find that following an ESG investment paradigm yields an SDG aligned portfolio. Our approach differs in that our SDG metrics are not derived from self-reported information, which makes our data bias-free. In addition, following standard ESG ratings does not reveal the fund flow—sustainability pattern that we find for SDG alignment.

The remainder of this paper is organized as follows. Section 2 presents the data and discusses our approach. Section 3 discusses our results, while Section 4 concludes.

2 Data

2.1 Product-Based Sustainability Metrics

We assess the sustainability characteristics of a fund through the firms it holds. Rather than relying on the ESG ratings of the firms published by rating providers, we go down to the level of the individual product categories that make up the product and services portfolio of a firm. We then consider the alignment of the individual product categories with each of the 17 UN SDGs. The alignment scores are aggregated at the firm level based on the revenue stream generated by any given product category offered by the firm each year. Product-based scores are provided by Util and are updated annually, with the sample period starting in 2015.

To the best of our knowledge, we are the first academic study to use these data. There are two main aspects to the innovative features of this data set. First, company ratings are related to the UN 17 SDGs, giving a greater granularity to the definition of sustainability than the three dimensions of ESG. Second, the methodology used by Util completely excludes self-reported information on the sustainability practices of individual companies or the ESG mandate of the fund. In this way, the ratings are not influenced by the information that the companies decide to report.

Util's methodology of assigning sustainability alignment scores to firms starts by mapping companies to their products and services using the revenues they derive from them.[3] Then, through natural language process-

[3]It is important to note that Util is not the only provider of sustainability scores based on companies' revenues. A notable example is Trucost that computes the environmental impact attributable to a company by mapping company's revenues to relevant sectors and then aggregating the impact of the sectors at the company level. (Trucost, 2020). Bloomberg also released its SDG impact alignment scores in 2023. These scores are based on the share of revenues that impact one or more SDGs. Revenues are mapped into sectors and the

ing (NLP) models, 120 million peer-reviewed articles are analyzed to find evidence of the impact of products on a sustainability concept (more than 2,000 sustainability concepts are used at that stage). The algorithm searches for over 120 million academic articles to identify reliable evidence of the relationship between a product or service and a sustainability concept. It identifies instances where a product or a service and a sustainability concept are cited in the same context and proceeds by establishing whether the product or service positively or negatively affects the sustainability concept. From this corpus containing more than 120 million articles, Util identifies 125 million pieces of evidence and classifies them in one of the following three categories: product/service contributes positively to the sustainability concept; product/service contributes negatively to the sustainability concept; or the evidence does not speak about the product/service impact. The process takes into account the volume and the consensus within the evidences. Furthermore, it assigns greater weight to more recent sources and more reputable publications. This procedure acknowledges that even peer-reviewed scientific literature can be biased, as it may sometimes be influenced by private interests. However, this weighting scheme reduces the risk that the results are driven by a small number of studies.

The final step of Util's methodology involves mapping these sustainability concepts to the 17 SDGs. Products/services are classified across five categories for each SDG: very negative, negative, neutral, positive and very positive. These ratings are adjusted geographically to take into account whether a company is selling its products/services where they matter the most, or at least where they are less harmful. For any given country and SDG, Util calculates a "need" factor representing the country's level of need for products addressing particular outcomes related to that SDG. The product impact score and the SDG "need" factor are combined to obtain a metric for every combination of product, country, and SDG. Then, to obtain a score at the company level, the geographically adjusted product-level alignment scores are weighted according to the contribution of the products to the total firm revenues in a given year and are aggregated within the firm.

Util provides firms' alignment scores at the individual SDG level, at the macro area level, and at the overall sustainability level, which forms a unique score aggregating all 17 SDG scores. There are four macro area levels: *Economy & Infrastructure* (aggregating SDGs 8, 9, 11 and 17, and namely Decent Work & Economic Growth, Industry, Innovation & Infrastructure, Sustainable Cities & Communities, and Partnerships for the Goals, respectively), *Environment* (aggregating SDGs 12, 13, 14 and 15, corresponding to Responsible Con-

impact of sectors on the SDGs is assessed through the sector impact map of the UN Environmental Program Finance Initiative (UNEP FI) (Bloomberg, 2024).

sumption & Production, Climate Action, Life Below Water, and Life on Land), *Basic Needs* (aggregating SDGs 1, 2, 3, 6 and 7, namely No Poverty, Zero Hunger, Good Health & Well Being, Clean Water & Sanitation, and Affordable & Clean Energy, respectively), and *Social Progress* (comprising SDGs 4, 5, 10 and 16 that correspond to Quality Education, Gender Equality, Reduced Inequalities, and Peace, Justice & Strong Institutions, respectively).

For each of these dimensions, Util provides a positive, negative, and net impact score, calculated as the difference between the positive and negative impact scores. Specifically, the positive (resp. negative) component takes into account only the company revenues coming from products having a positive (resp. negative) impact on a specific SDG. The sustainability alignment score of a firm for a given macro area level is calculated as the average of all the net percentage revenue alignment values for each SDG assigned to that macro area, multiplied by 100. The aggregation approach reflects the fact that averaging net revenue alignments does not produce a metric that can be interpreted as a percentage revenue alignment, but rather as a scoring metric to evaluate a company's sustainability performance. In our analysis, we use net, positive, and negative alignment scores. Table 1 shows the descriptive statistics of firm-level SDG alignment scores.

Positive and negative alignment scores can range between 0 and 100, while the net alignment score of a firm can take values between -100 and 100. The overall net SDG alignment score for the firms in our sample is -0.82, while the median company has neutral net alignment to the SDGs overall. The highest mean net alignment of firms is to SDGs under the *Economy and Infrastructure* macro area with a positive average score of 17.94 for SDG 8, Decent Work & Economic Growth. Firms are on average negatively aligned to SDGs under the *Environment* and *Basic Needs* themes. The lowest net alignment on average is observed for SDG 15, Life on Land.

The SDG alignment scores that we use are product-based, derived from the SDG impact of the products and services in a company's portfolio. The cross-sectional variation in the alignment scores across companies can be due to the variation across the impact metrics of individual product categories or to differences in the weights of different product categories across companies' portfolios. To the extent that firms exhibit similarities in their product portfolio composition within industry sectors, the latter can potentially account for a significant part of the variation in SDG alignment scores across firms. To appreciate the extent to which indistries explain the variation in SDG alignment across the firms in our sample, we regress the average firm positive or negative

Table 1

Descriptive Statistics of the SDG Alignment Scores at the Company Level

This table presents the descriptive statistics of SDG alignment scores at the holdings level, containing 10,068 securities. *tot SDGs* is the total 17 SDG alignment score of a company. *Basic Needs* combines SDGs 1, 2, 3, 6 and 7. *Social Progress* aggregates SDGs 4, 5, 10 and 16. *Environment* aggregates SDGs 12, 13, 14 and 15. *Econ&Infra* aggregates alignment along SDGs 8, 9, 11 and 17. The sample spans Jan 2015—Dec 2021.

		Positive Alignment					Negative Alignment					Net Alignment				
		mean	std	min	median	max	mean	std	min	median	max	mean	std	min	median	max
Basic needs	SDG 1	2.15	5.47	0	0	78.5	2.68	6.53	0	0	87.46	-0.54	9.09	-87.46	0	78.5
	SDG 2	4.22	9.77	0	0	75.86	1.6	7.48	0	0	71.54	2.63	12.77	-71.54	0	75.86
	SDG 3	7.1	11.92	0	0	83.42	12.49	18.22	0	0	87.48	-5.39	24.9	-87.48	0	83.42
	SDG 6	2.47	8.09	0	0	77.19	10.68	19.8	0	0	94.54	-8.21	22.27	-94.54	0	77.19
	SDG 7	3.8	9.87	0	0	72.69	0	0.18	0	0	18.83	3.79	9.87	-17.83	0	72.69
	Basic needs	3.97	5.37	0	2.08	53.66	5.62	8.47	0	0.1	60.32	-1.65	10.45	-53.77	0	53.62
Social Progress	SDG 4	5.76	9.63	0	0.01	90.32	0.12	1.45	0	0	43.88	5.64	9.8	-43.88	0.01	90.32
	SDG 5	2.39	8.39	0	0	83.64	0.58	5.05	0	0	88.15	1.81	9.91	-88.15	0	83.64
	SDG 10	4.12	12.28	0	0	83.78	2.65	8.43	0	0	89.58	1.47	15.54	-89.58	0	83.78
	SDG 16	2.08	6.59	0	0	70.26	2.78	9.48	0	0	75.44	-0.69	11.98	-75.44	0	70.26
	Social Progress	3.59	6.82	0	0.13	61.73	1.53	4.56	0	0	62.07	2.07	8.49	-62.07	0	61.73
Environment	SDG 12	2.48	7.02	0	0	76.66	7.79	13.46	0	0	90.28	-5.31	16.03	-90.28	0	76.66
	SDG 13	5.82	11.24	0	0	84.92	6.78	13.82	0	0	86.94	-0.96	19.51	-86.94	0	84.92
	SDG 14	1.17	6.09	0	0	70.13	19.35	27.4	0	0	96.6	-18.18	28.57	-96.6	0	70.08
	SDG 15	0.93	5.92	0	0	82.19	21.75	27.91	0	1.13	94.18	-20.82	28.98	-94.18	-0.65	82.19
	Environment	2.62	5.45	0	0	56.36	14.25	18.79	0	2.69	73.5	-11.63	20.38	-73.5	-0.66	56.36
Economy and Infrastructure	SDG 8	18.14	15.21	0	17.4	91.82	0.2	2.65	0	0	64.55	17.94	15.65	-64.55	17.4	91.82
	SDG 9	18.2	20.56	0	10.41	93.7	0.88	5.29	0	0	86.94	17.32	21.84	-86.94	10	93.7
	SDG 11	2.79	9.77	0	0	99.62	17.08	25.02	0	0	99.68	-14.29	28.08	-99.68	0	99.62
	SDG 17	11.93	18.23	0	0	91.44	0	0	0	0	0	11.93	18.23	0	0	91.44
	Econ&Infra	13.59	13.35	0	9.94	78.28	2.01	4.18	0	0	38.39	11.57	13.94	-26.95	7.71	78.28
	tot SDGs	5.65	5.86	0	4.14	50.76	6.47	8.56	0	1.64	40.86	-0.82	10.4	-34.06	0	50.76

Table 2

Sectoral Components of SDG Alignment Scores

This table presents the estimates of cross-sectional regressions of average SDG alignment scores—positive or negative—at the company level, on sectoral dummies. tot SDGs is the total 17 SDG alignment score of a company. Basic Needs combines SDGs 1, 2, 3, 6 and 7. Social Progress aggregates SDGs 4, 5, 10 and 16. Environment aggregates SDGs 12, 13, 14 and 15. EconInfra aggregates alignment along SDGs 8, 9, 11 and 17. The sample spans Jan 2015—Dec 2021.

	tot SDGs		env SDGs		eco SDGs		basic needs SDGs		social progress SDGs	
	+	-	+	-	+	-	+	-	+	-
Utilities	0.09	0.21	0.04	0.43	0.22	0.07	0.09	0.18	0.02	0.01
Financial Services	0.09	0.01	0.04	0.03	0.22	0.00	0.04	0.01	0.09	0.00
Services	0.06	0.04	0.03	0.07	0.12	0.01	0.04	0.03	0.05	0.03
Food & Beverage	0.03	0.07	0.01	0.15	0.03	0.01	0.06	0.06	0.01	0.03
Energy	0.06	0.28	0.01	0.47	0.19	0.05	0.04	0.28	0.00	0.15
Health Care	0.02	0.01	0.00	0.01	0.01	0.00	0.04	0.01	0.01	0.00
Transport	0.05	0.11	0.03	0.26	0.13	0.06	0.02	0.07	0.01	0.00
Technology	0.05	0.01	0.02	0.02	0.12	0.00	0.04	0.01	0.03	0.00
Materials	0.04	0.11	0.03	0.23	0.09	0.04	0.03	0.1	0.01	0.02
Communications	0.07	0.01	0.03	0.01	0.15	0.00	0.05	0.01	0.09	0.02
Industrial	0.05	0.07	0.05	0.15	0.11	0.02	0.03	0.05	0.02	0.01
Consumer Goods	0.05	0.11	0.02	0.24	0.14	0.02	0.02	0.07	0.04	0.02
R^2	0.24	0.57	0.10	0.51	0.40	0.31	0.07	0.58	0.25	0.34

alignment scores—overall and for the four SDG macro areas—on industry sector dummies. Table 2 reports the results.

Industry sectors account for 24% (57%) of the cross-sectional variance of positive (negative) SDG alignment scores across firms. While they explain more than 50% of the variation in negative *Environmental* and *Basic Needs* alignment, less than 10% of the variation in the respective positive SDG scores is attributable to industries. For *Social Progress* and *Economy & Infrastructure* scores, there are no sizeable differences between positive and negative scores, and industries account for about a third of the variation in those scores across firms.

Given the methodology behind our SDG alignment scores, the variation of SDG scores for a firm over time is likely due primarily to changes in its product portfolio composition. In Table 3, we report the transition matrix of the overall net SDG alignment scores across five score groups defined according to the cross-sectional standard deviation of the score in any given year. Consistent with the intuition that firm's production and hence firms' product and service portfolios do not change swiftly, the probability that a company remains in the same SDG score group from one year to the next is above 80%.

Table 3
Transition Matrix

For each period and for each of the 5 scores, we divide SDG scores in 5 bundles: observations greater than one cross-sectional standard deviation σ_t, observation greater than 0 but smaller than σ_t, observation equal to 0, observation greater than $-\sigma_t$ but smaller than 0, and observation smaller than $-\sigma_t$. Then we compute the probability for companies to move from one SDG score group to another in the next period. x_t indicates the SDG score at time t. The sample spans Jan 2015—Dec 2021.

	$x_t < -\sigma_t$	$-\sigma_t < x_t < 0$	$x_t = 0$	$0 < x_t < \sigma_t$	$x > \sigma_t$
$x_{t-1} < -\sigma_{t-1}$	95.22 %	3.86 %	0.42 %	0.46 %	0.04 %
$-\sigma_{t-1} < x_{t-1} < 0$	4.48 %	87.89 %	0.89 %	6.59 %	0.14 %
$x_{t-1} = 0$	0.70 %	4.67 %	82.77 %	11.45 %	0.38 %
$0 < x_{t-1} < \sigma_{t-1}$	0.20 %	2.30 %	1.12 %	94.01 %	2.37 %
$x_{t-1} > \sigma_{t-1}$	0.00 %	0.27 %	0.16 %	3.32 %	96.23 %

How different are the product-based SDG alignment scores from ESG ratings published by standard data providers? To address this question, in Table 4 we report the correlation estimates between the product-based net scores from Util and standard ESG metrics provided by MSCI and Refinitiv (now LSEG), as well as carbon emissions from Trucost. The correlation between the overall SDG score and the two ESG ratings from MSCI and Refinitiv is close to zero in absolute terms. Interestingly, in the cross section, Environmental SDG alignment scores are positively correlated with the MSCI Environmental ratings (with a correlation estimate of 0.15) and negatively correlated with the corresponding Refinitiv Environmental ratings (with a correlation of -0.14). There is no straightforward mapping between the environmental, social and governance dimensions of ESG ratings and the four groups of SDGs. Nevertheless, none of the pairwise correlation coefficient estimates exceeds 20% in absolute terms. Contrary to ESG ratings, Scope 1, 2 and 3 carbon emissions are more highly and negatively correlated with the product-based SDG scores (and Environmental SDG scores in particular).

2.2 Mutual Fund SDG Alignment Scores

We obtain mutual fund data from the CRSP Mutual Funds database and Morningstar Direct. We merge the two data sets based on ticker symbols and fund names. We discard all fund-quarter observations for which we do not observe at least 95% of the holdings of the fund. Our sample spans from January 2015—the first date for which SDG scores are available from Util—to December 2021. The sample is composed of 1,709 US mutual

Table 4

Correlations Between the SDG Alignment Scores and Standard ESG Ratings

This table presents the correlations between net SDG alignment scores and standard ESG metrics at the company level, containing 1,851 securities. tot SDGs is the total 17 SDG alignment score of a company. Basic Needs combines SDGs 1, 2, 3, 6 and 7. Social Progress aggregates SDGs 4, 5, 10 and 16. Environment aggregates SDGs 12, 13, 14 and 15. EconInfra aggregates alignment along SDGs 8, 9, 11 and 17. For ESG standard metrics, we use the ESG, environmental, social, and governance ratings provided by both Refinitiv and MSCI, along with Trucost emissions and intensity data. These are cross-sectional correlations calculated using the time-series averages of ratings and scores. The sample spans Jan 2015—Dec 2021.

	tot SDGs	Env.	Econ& Infra	Basic Needs	Social Progress
tot SDGs	1.00	0.91	0.54	0.87	0.69
Env.	0.91	1.00	0.27	0.78	0.42
Econ&Infra	0.54	0.27	1.00	0.27	0.52
Basic Needs	0.87	0.78	0.27	1.00	0.58
Social Progress	0.69	0.42	0.52	0.58	1.00
ESG MSCI	-0.01	-0.01	-0.04	0.01	0.02
E MSCI	0.07	0.15	-0.20	0.15	-0.06
S MSCI	-0.12	-0.09	-0.14	-0.07	-0.10
G MSCI	0.04	-0.01	0.15	-0.03	0.11
ESG Refinitiv	-0.05	-0.06	-0.02	-0.03	-0.06
E Refinitiv	-0.13	-0.14	-0.03	-0.10	-0.13
S Refinitiv	-0.01	0.01	-0.06	0.02	-0.06
G Refinitiv	-0.09	-0.13	0.02	-0.10	-0.04
Carbon-Scope 1	-0.23	-0.28	0.00	-0.23	-0.11
Carbon-Scope 2	-0.15	-0.17	-0.01	-0.13	-0.09
Carbon-Scope 3	-0.19	-0.21	-0.07	-0.17	-0.12
Carbon Intensity-Scope 1	-0.28	-0.36	0.00	-0.27	-0.10
Carbon Intensity-Scope 2	-0.18	-0.17	-0.11	-0.15	-0.14
Carbon Intensity-Scope 3	-0.39	-0.36	-0.29	-0.28	-0.24

funds for which we observe SDG scores for at least 67% of fund's holdings during at least one period.[4] We match fund holdings with Util SDG ratings based on 8-digit CUSIP codes. Our final sample of fund holdings contains a total of 10,068 securities across 5,660 fund share classes. It is composed of funds in the following Morningstar global categories: US Equity Large Cap Blend, US Equity Large Cap Growth, US Equity Large Cap Value, US Equity Mid Cap, and US Equity Small Cap.

To obtain a sustainability score at the fund level, we adopt the following methodology. First, for every quarter t we compute the weighted average score of a fund's holdings using the SDG alignment scores of the firms in its portfolio for that quarter. We consider both the overall SDG alignment scores and the four components of each score (economy & infrastructure, environment, basic needs, and social progress). We use positive, negative, and net SDG alignment scores. Specifically, we define $s_{i,t}^{k^*}$ as the sustainability rating of fund i at time t along dimension $k \in \{$*tot SDGs*, *economy* & *infrastructure*, *environment*, *basic needs*, *social progress*$\}$, and alignment $* \in \{$*pos*, *neg*, *net*$\}$ as:

$$s_{i,t}^{k^*} = \sum_{j \in i} w_{j,i,t} \text{SUS}_{j,t}^{k^*} , \tag{1}$$

where $w_{j,i,t}$ is the weight of security j in fund i at time t, and $\text{SUS}_{j,t}^{k^*}$ is the SDG alignment score of security j for dimension k^* at time t.

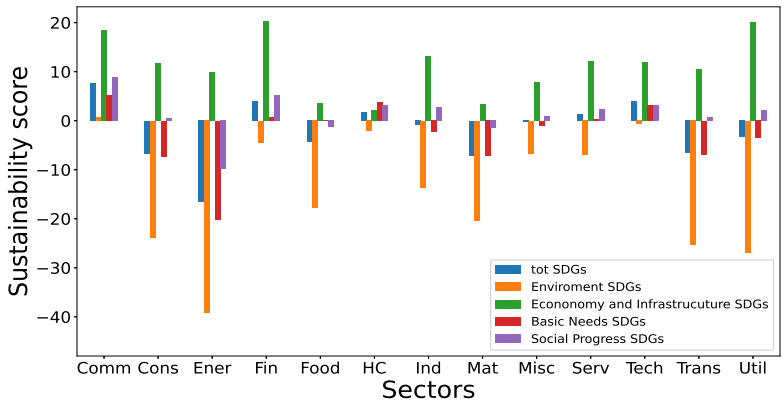
Figure 1 reports the industry sector breakdown of net SDG alignment scores at the firm level. Panel A plots the scores for the full sample of firms covered by Util. Panel B restricts the sample to firms that constitute mutual fund holdings. There is substantial heterogeneity in SDG scores across sectors. Firms tend to have a negative net alignment with Environmental SDGs on average across industries, while Economy & Infrastructure SDGs display largely positive net alignment, consistent with the aggregate statistics reported in Table 1. The pattern remains qualitatively similar in the subset of firms held by the mutual funds in our sample.

Panel A of Figure 2 summarizes the fund-level sustainability scores $s_{i,t}^{k^*}$ based on net SDG alignment for different fund categories. Large funds have the highest SDG alignment scores and they are positive on average. Mid-cap and small funds display a neutral SDG alignment on average. The total SDG scores however hide a substantial degree of heterogeneity in the alignment of fund portfolios along different sustainability goals.

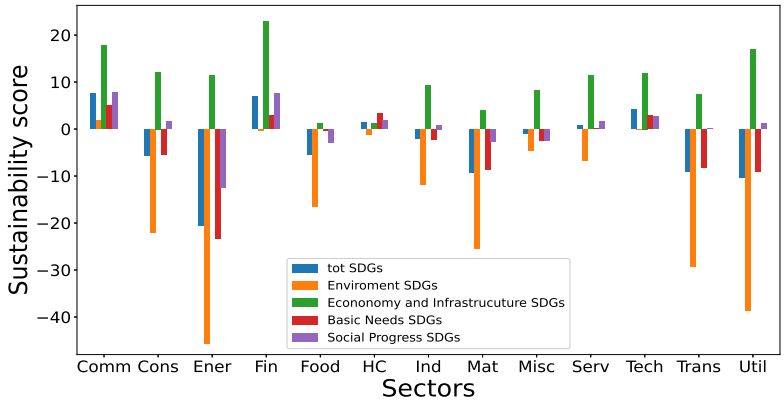
[4]To determine the threshold 67%, we follow Morningstar's methodology for their fund sustainability 'globe' rating, which follows a similar bottom-up approach of determining a fund's rating from the ratings of the companies it holds.

Figure 1: **Net Average SDG Alignment Scores Across Sectors at Firm Level**

This figure presents the average sustainability for different dimensions across different sectors. The sectors are defined by Util and are Energy (Ener), Financial Services (Fin), Food & Beverage (Food), Health Care (HC), Industrial (Ind), Materials (Mat), Miscellaneous (Misc), Services (Serv), Technology (Tech), Transport (Trans), Utilities (Util). *tot SDGs* is the total 17 SDG alignment score of a company. *Economy & Infrastructure SDGs* aggregates alignment along SDGs 8, 9, 11 and 17. *Environment SDGs* aggregates SDGs 12, 13, 14 and 15. *Basic Needs SDGs* combines SDGs 1, 2, 3, 6 and 7. *Social Progress SDGs* aggregates SDGs 4, 5, 10 and 16. The sample spans January 2015—Dec 2021.



(a) *Panel A: Util universe*



(b) *Panel B: Mutual Fund holdings*

Funds are highly positively aligned on average with *economy & infrastructure* goals, while they are highly negatively aligned with *environment* SDGs.

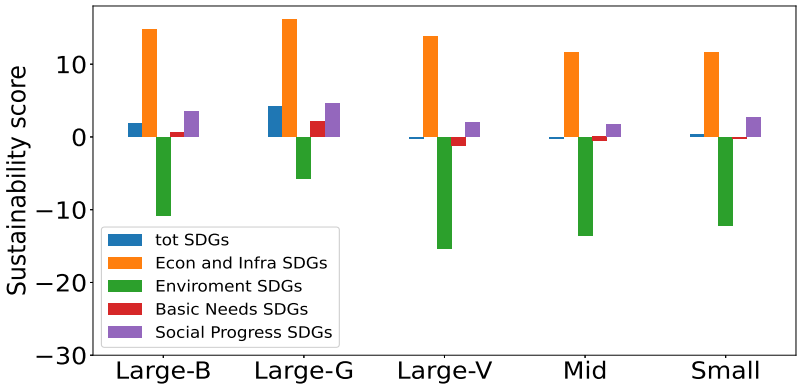
For comparison, in Panel B of Figure 2, we show similar SDG-based metrics provided by Morningstar. Morningstar provides Average Revenue Percentage scores at the fund level for each SDG with the exception

of SDGs 1, 8, 16, and 17.[5] For a particular fund, this score provides the weighted average of the holding-level revenue percentage contributing to a particular SDG. Using the same mapping scheme used by Util, we aggregate these different scores at the individual SDG level in the four different dimensions (*economy & infrastructure*, *environment*, *basic need*s, and *social progress*). We also obtain a metric of overall sustainability. The SDG scores from Morningstar reveal a substantially different pattern. Funds, especially large ones, appear to fare best along the *basic needs* dimension. Small and mid-cap funds, on the other hand, perform best along *environment* SDGs. Comparing the two panels in Figure 2, we can conclude that the product-based SDG alignment metrics from Util and the Morningstar sustainability metrics based on company disclosures reflect substantially different information.

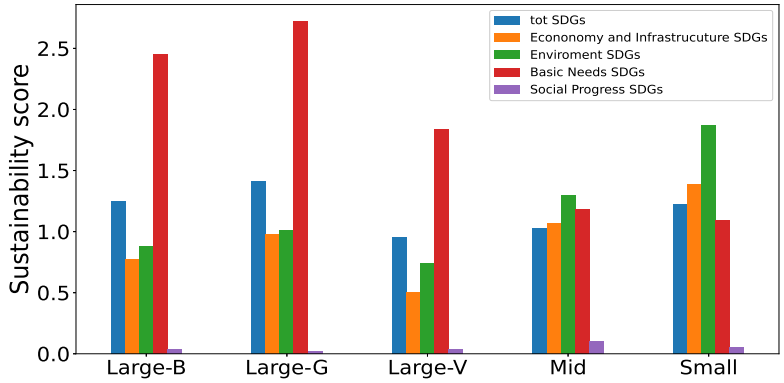
[5]SDGs 1, 8, 16 and 17 are: *no poverty*, *decent work & economic growth*, *peace, justice & strong institutions*, and *partnership for the 17 goals*, respectively. Morningstar's motivation for not providing the score related to these SDGs is that the contribution of companies to these SDGs is difficult to quantify.

Figure 2: **Average Sustainability Scores Across Fund Categories at Fund Level**

This figure presents the average sustainability for different dimensions across different fund categories. Panel A shows sustainability based on Util net scores, while Panel B shows the sustainability scores based on SDGs scores provided by Morningstar. Fund categories are defined by Morningstar and are US Equity Large Cap Blend (Large-B), US Equity Large Cap Growth (Large-G), US Equity Large Cap Value (Large-V), US Equity Mid Cap (Mid), US Equity Small Cap (Small). *tot SDGs* is the total 17 SDG alignment score of a company. *Economy & Infrastructure SDGs* aggregates alignment along SDGs 8, 9, 11 and 17. *Environment SDGs* aggregates SDGs 12, 13, 14 and 15. *Basic Needs SDGs* combines SDGs 1, 2, 3, 6 and 7. And *Social Progress SDGs* aggregates SDGs 4, 5, 10 and 16. The sample spans Jan 2015—Dec 2021.



(a) *Panel A: Util*



(b) *Panel B: Morningstar*

2.3 Mutual Fund Flows and Returns

Following Sirri and Tufano (1998), we define flows of fund i as the monthly growth of total net assets, net of returns:

$$\text{Flow}_{i,t} = \frac{\text{mtna}_{i,t} - \text{mtna}_{i,t-1}(1 + \text{mret}_{i,t-1})}{\text{mtna}_{i,t-1}} , \tag{2}$$

where $mtna_{i,t}$ is the total net assets of fund i in month t and $mret_{i,t}$ is return of fund i in month t, obtained from CRSP.

We define monthly excess returns (mxret) as the monthly fund returns in excess of the risk-free asset and the monthly abnormal returns as in Kaniel et al. (2023). Abnormal return for each fund-month observation are relative to the Fama-French five factor model and momentum (Fama and French, 2015; Carhart, 1997). First, factor loadings are estimated over the prior 36 months:

$$\text{mxret}_{i,t-36:t-1} = \alpha_i + f_{t-36:t-1}\hat{\beta}_{i,t-1} + \epsilon_{i,t-36:t-1} , \tag{3}$$

where $\text{mxret}_{i,t-36:t-1}$ and $f_{t-36:t-1}$ are the vector and the matrix containing respectively fund i's and factors excess returns from $t-36$ to $t-1$, and $\hat{\beta}_{i,t-1}$ is the vector containing the factor loadings estimated in the time window $[t-36 : t-1]$. Then abnormal returns $\text{mabn}_{i,t}$ are computed as:

$$\text{mabn}_{i,t} = \text{mxret}_{i,t} - f_t\hat{\beta}_{i,t-1} . \tag{4}$$

We winsorize all the continuous variables at the 1% level. Table 5 shows descriptive statistics of fund characteristics and fund sustainability.

Table 5
Descriptive Statistics at Fund Level

This table presents the descriptive statistics of our sample containing 1,709 mutual funds over the period Jan 2015 - June 2023. The top three panels present the descriptive of the sustainability ratings of the funds in the sample. *Net alignment* is computed as the *Positive alignment* minus *Negative alignment*, *Positive alignment* measures the positive impact of the fund on the different SDG dimensions, and *Negative alignment* measures the negative impact of the fund on the different SDG dimensions. The SDG dimensions are following: *tot SDGs* is the total SDG alignment score of a fund. *Econ&Infra* aggregates alignment along SDGs 8, 9, 11 and 17. *Environment* aggregates SDGs 12, 13, 14 and 15. *Basic Needs* combines SDGs 1, 2, 3, 6 and 7. And *Social Progress* aggregates SDGs 4, 5, 10 and 16. The bottom panel reports the descriptive statistics of the following fund characteristics and performance metrics: total net assets, monthly returns (*mret*), monthly returns in excess of the risk free rate (*mxret*), monthly abnormal returns (*mabn*) obtained from the Fama-French five factor model augmented with momentum (Fama and French, 2015; Carhart, 1997), fund flows defined as the monthly growth of total net assets, net of returns (*flows*), fund *expense ratio*, fund *age* in years, and the overall fund rating from Morningstar (*MS stars*). The sample spans January 2015—December 2021, except for MS stars, where the data begins in October 2018.

		mean	std	min	median	max
Net alignment	tot SDGs	1.56	2.41	-13.16	1.21	11.04
	Econ&Infra	13.66	3.01	5.18	13.68	24.21
	Environment	-10.74	5.24	-42.4	-10.66	13.14
	Basic Needs	0.44	1.89	-15.32	0.44	11.56
	Social Progress	3.18	1.78	-7.39	2.89	9.82
Positive alignment	tot SDGs	6.49	1.24	2.36	6.6	13.54
	Econ&Infra	15.08	2.9	3.28	15.53	28.14
	Environment	2.69	0.74	0.24	2.68	16.53
	Basic Needs	4.41	0.8	0.83	4.43	13.42
	Social Progress	4.69	1.58	0.15	4.53	12.08
Negative alignment	tot SDGs	5.32	2.04	0.35	5.34	19.5
	Econ&Infra	1.5	0.76	-0.05	1.46	8.5
	Environment	10.98	4.29	0.43	11.05	41.36
	Basic Needs	4.27	1.82	0.14	4.19	19.43
	Social Progress	1.77	0.86	-0.24	1.65	10.25
Fund characteristics	total net assets (mil)	887.72	2501.36	1.3	107.5	17301.52
	mret (%)	1.02	4.89	-12.07	1.31	13.47
	mxret (%)	0.92	4.90	-12.54	1.23	13.47
	mabn (%)	-0.09	1.74	-23.67	-0.11	25.18
	flows (%)	-0.44	4.99	-19.27	-0.62	29.24
	expense ratio (%)	0.91	0.43	0.05	0.85	2.32
	age (Y)	16.29	10.25	1.53	15.31	98.53
	MS stars	3.02	0.98	1	3	5

3 Discussion of Results

We start by obtaining the sustainability ratings of individual funds based on the SDG alignment scores of their holdings: we compute both the positive, negative, and net alignment rating as described in Section 2 for each one of the five sustainability dimension (*tos SDGs*, *Economy & Infrastructure*, *Environment*, *Basic Needs*, and

Social Progress). In a first step, we assess whether investors have any preference for fund sustainability, and if so, which dimensions drive this relation. Then we analyze the impact of sustainability on fund returns.

3.1 Fund Flows and Sustainability

We first study whether investors preferences are related to different dimensions of sustainability. We run a series of panel regressions and, in particular, regress fund flows (defined in Equation 2) on each sustainability measure $s^k_{i,t}$, alongside a set of fund characteristics as controls. We also include Morningstar category-by-year-month fixed effects to control for time variation by category:

$$\text{flow}_{i,t} = \gamma^k_{gc,t} + \alpha^k + \beta^k s^k_{i,t-1} + \delta^k x_{i,t-1} + \epsilon^k_{i,t} \, . \tag{5}$$

We regress fund flows on each sustainability measure $s^{k^*}_{i,t}$ in the prior month.We include $\gamma^k_{gc,t}$ as Morningstar global category-by-year-month fixed effects to control for time variation by category alongside a set of lagged fund characteristics as controls $x_{i,t-1}$. Controls are the fund return in the prior month, the return over the prior 12 months, the return over the prior 24 months, the log fund size in the prior month, the expenses ratio, the Morningstar rating in the prior month, the flow in the prior month, and the log of fund age.

Table 6 presents the results for the overall SDG score, reflecting the *net alignment* of funds along all SDGs, as well as for its decomposition into the *Economy & Infrastructure*, *Environment*, *Basic Needs*, and *Social Progress* dimensions. The overall net sustainability score does not appear to be associated with subsequent fund flows. However, when we consider the separate components of the score, a different pattern emerges. Within fund category and time cells, funds with high economy, infrastructure, and social progress alignment attract significantly less inflows relative to their peers that are worse along these SDGs. Environmental and basic needs alignment does not appear to be associated with subsequent investor flows. In all regressions, we include a set of controls. We note that flows are positively related with past returns, past flows, and Morningstar star ratings, whereas they are negatively related with expenses ratios, fund age and size. Standard errors are clustered by entity. In unreported results we cluster standard errors by entity and month, and by fund and month, and results do not change.

Table 6
Sustainability Alignment and Fund Flows

This table reports parameter estimates of the regression of fund flows on the net sustainability score of the fund in the prior month (*sus. score*$_{t-1}$) and a set of controls, as given in Equation (5). The dependent variable is fund flows, which is regressed on different proxies for funds sustainability: the sustainability score *tot SDGs*, and the four component scores *Econ&Infra*, which aggregates alignment along SDGs 8, 9, 11 and 17, *Environment* aggregating SDGs 12, 13, 14 and 15, *Basic Needs* which combines SDGs 1, 2, 3, 6 and 7, and *Social Progress* which aggregates SDGs 4, 5, 10 and 16. All columns include as additional controls the log of size in the prior month, the Morningstar star rating in the prior month, the return in the prior month, the return over the prior 12 months, the return over the prior 24 months, the expense ratio, the log of fund age, and the fund flow in the prior month. In addition, all columns include the year $\times$ Morningstar global category $\times$ month fixed effects. The sample spans Jan 2015—Dec 2021, and our analysis is at the share class level. $*$, $**$, and $***$ indicate significance at the 10%, 5%, and 1% levels, respectively. Standard errors are in parentheses.

		tot SDGs	Econ& Infra	Env.	Basic Needs	Social Progress
sus. score$_{t-1}$		-0.0006***	-0.0001	-0.0003***	-0.0007***	-0.0004**
		(0.0001)	(0.0001)	(0.0001)	(0.0002)	(0.0002)
constant	-0.0134***	-0.0136***	-0.0113***	-0.0172***	-0.0141***	-0.0123***
	(0.0013)	(0.0013)	(0.0018)	(0.0015)	(0.0013)	(0.0013)
log TA$_{t-1}$	-0.0006***	-0.0006***	-0.0006***	-0.0006***	-0.0006***	-0.0006***
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
MS stars$_{t-1}$	0.0046***	0.0046***	0.0046***	0.0046***	0.0046***	0.0046***
	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)
r_{t-1}	0.0594***	0.059***	0.06***	0.0578***	0.0586***	0.06***
	(0.0102)	(0.0102)	(0.0102)	(0.0102)	(0.0102)	(0.0102)
$r_{t-12:t-1}$	0.5939***	0.5786***	0.6024***	0.5661***	0.5681***	0.5985***
	(0.0462)	(0.0464)	(0.0469)	(0.047)	(0.047)	(0.0463)
$r_{t-24:t-1}$	0.8534***	0.9532***	0.8221***	1.0063***	0.9702***	0.8407***
	(0.0792)	(0.081)	(0.0796)	(0.0837)	(0.0824)	(0.0793)
exp ratio	-0.0017***	-0.0016***	-0.0017***	-0.0016***	-0.0017***	-0.0017***
	(0.0005)	(0.0005)	(0.0005)	(0.0005)	(0.0005)	(0.0005)
log age	-0.007***	-0.0069***	-0.007***	-0.0069***	-0.0069***	-0.0069***
	(0.0004)	(0.0004)	(0.0004)	(0.0004)	(0.0004)	(0.0004)
flows$_{t-1}$	0.1815***	0.181***	0.1814***	0.181***	0.1811***	0.1814***
	(0.0078)	(0.0078)	(0.0078)	(0.0078)	(0.0078)	(0.0078)
observations	160649	160649	160649	160649	160649	160649
R^2	0.0872	0.0876	0.0872	0.0875	0.0875	0.0873
R^2 between	0.2319	0.2327	0.2328	0.2309	0.232	0.2347
Cat by YM FE	YES	YES	YES	YES	YES	YES

We further consider a decomposition of the net sustainability scores into positive and negative alignment scores. This distinction is motivated by the different criteria that investors might have in choosing funds to invest in: Investors who apply exclusions criteria can have different sustainability preferences compared to investors who apply a best-in-class approach. A single metric of net alignment would mask this distinction. Therefore, we also run the panel regression in the following specification:

$$\text{flow}_{i,t} = \gamma^k_{gc,t} + \alpha^k + \beta^{k^+} s^{k^+}_{i,t-1} + \beta^{k^-} s^{k^-}_{i,t-1} + \delta^k x_{i,t-1} + \epsilon^k_{i,t} \,, \tag{6}$$

where $s^{k^+}_{i,t-1}$ and $s^{k^-}_{i,t-1}$ correspond to positive, resp. negative alignment with sustainability score k.

Table 7 reports the results. We document a markedly different relationship between fund portfolio sustainability scores and subsequent fund flows along positive and negative SDG alignment scores. Funds with portfolios that are more negatively aligned with SDGs attract significantly higher investor flows in the next period. The opposite holds for funds with positively aligned portfolios. The pattern is confirmed across the four different dimensions of sustainability in terms of sign, while significance in the flow—sustainability relationship is established predominantly for the negative component of sustainability metrics (with the exception of the social progress dimension): the more negative the SDG impact of the fund is, the higher the inflows.

In their allocation decisions, investors might be motivated by the stated sustainability objective of the fund rather than by its sustainability score as inferred by the companies held in its portfolio. In addition, retail and institutional investors may differ in their preferences for sustainability, while some institutional investors may be bound by a mandate to invest along sustainability-linked objectives. Therefore, we also account for funds with a clear sustainability objective[6] and for the prevalence of institutional investors in the following specifications in Equation (7):

[6]Morningstar defines a fund as sustainable investment product if in the prospectus or other regulatory filings it is described as focusing on sustainability, impact investing, or environmental, social or governance factors. Funds must claim to have a sustainability objective, and/or use binding ESG criteria for their investment selection. Funds that employ only limited exclusions or only consider ESG factors in a non-binding way are not considered to be a sustainable investment product. Sustainable funds, on average, have higher sustainability alignment scores than their non-sustainable peers. However, these funds are negatively aligned on average with some sustaninability goals (e.g. along the environmental dimension).

Table 7

Positive and Negative Sustainability Alignment and Fund Flows

This table reports parameter estimates of the regression of fund flows on the sustainability score of the fund in the prior month disaggregate in the positive alignment (*sus. score*$_{t-1}$ pos) and the negative alignment (*sus. score*$_{t-1}$ neg), and a set of controls, as given in Equation (6). The dependent variable is fund flows, which is regressed on different proxies for funds sustainability: the sustainability score *tot SDGs*, and the four component scores *Econ&Infra*, which aggregates alignment along SDGs 8, 9, 11 and 17, *Environment* aggregating SDGs 12, 13, 14 and 15, *Basic Needs* which combines SDGs 1, 2, 3, 6 and 7, and *Social Progress* which aggregates SDGs 4, 5, 10 and 16. All columns include as additional controls the log of size in the prior month, the Morningstar star rating in the prior month, the return in the prior month, the return over the prior 12 months, the return over the prior 24 months, the expense ratio, the log of fund age, and the fund flow in the prior month. In addition, all columns include the year $\times$ Morningstar global category $\times$ month fixed effects. The sample spans Jan 2015—Dec 2021, and our analysis is at the share class level. $*$, $**$, and $***$ indicate significance at the 10%, 5%, and 1% levels, respectively. Standard errors are in parentheses.

		tot SDGs	Econ& Infra	Env.	Basic Needs	Social Progress
sus. score$_{t-1}$ pos		-0.0004	-0.0001	0.0002	-0.0002	-0.0003*
		(0.0002)	(0.0001)	(0.0003)	(0.0004)	(0.0002)
sus. score$_{t-1}$ neg		0.0008***	0.0018***	0.0003***	0.0007***	0.0006*
		(0.0002)	(0.0004)	(0.0001)	(0.0002)	(0.0003)
constant	-0.0134***	-0.0164***	-0.0154***	-0.0188***	-0.0167***	-0.013***
	(0.0013)	(0.0022)	(0.0021)	(0.0019)	(0.0023)	(0.0017)
log TA$_{t-1}$	-0.0006***	-0.0006***	-0.0006***	-0.0006***	-0.0006***	-0.0006***
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
MS stars$_{t-1}$	0.0046***	0.0046***	0.0046***	0.0045***	0.0045***	0.0046***
	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)
r_{t-1}	0.0594***	0.0582***	0.0583***	0.0575***	0.0583***	0.0598***
	(0.0102)	(0.0102)	(0.0102)	(0.0102)	(0.0102)	(0.0102)
$r_{t-12:t-1}$	0.5939***	0.5667***	0.5777***	0.5595***	0.5641***	0.5953***
	(0.0462)	(0.0475)	(0.0476)	(0.0473)	(0.0471)	(0.0468)
$r_{t-24:t-1}$	0.8534***	1.0092***	0.968***	1.0395***	1.0005***	0.8513***
	(0.0792)	(0.0854)	(0.0842)	(0.0847)	(0.0844)	(0.0805)
exp ratio	-0.0017***	-0.0016***	-0.0017***	-0.0016***	-0.0016***	-0.0017***
	(0.0005)	(0.0005)	(0.0005)	(0.0005)	(0.0005)	(0.0005)
log age	-0.007***	-0.0069***	-0.0069***	-0.0069***	-0.0069***	-0.0069***
	(0.0004)	(0.0004)	(0.0004)	(0.0004)	(0.0004)	(0.0004)
flows$_{t-1}$	0.1815***	0.181***	0.181***	0.181***	0.1811***	0.1814***
	(0.0078)	(0.0078)	(0.0078)	(0.0078)	(0.0078)	(0.0078)
observations	160649	160649	160649	160649	160649	160649
R^2	0.0872	0.0876	0.0875	0.0875	0.0875	0.0873
R^2 between	0.2319	0.2317	0.2316	0.2306	0.2313	0.2346
Cat by YM FE	YES	YES	YES	YES	YES	YES

$$
\begin{aligned}
\text{flow}_{i,t} = \quad & \gamma^k_{gc,t} + \alpha^k + \gamma^k \mathbb{S} + \iota^k \mathbb{I} \\
& + \beta^k s^k_{i,t-1} + \zeta^k s^k_{i,t-1} \mathbb{S} + \eta^k s^k_{i,t-1} \mathbb{I} \\
& + \delta^k x_{i,t-1} + \epsilon^k_{i,t} \, ,
\end{aligned} \tag{7}
$$

where $\mathbb{S}$ and $\mathbb{I}$ are dummies indicating whether the fund has a clear sustainability objective, and whether the share class is for institutional investors, respectively. We interact these two dummies with the sustainability scores $s^k_{i,t-1}$.

We report results in Table 8. In general, institutional investor share classes attract significantly more investor capital. Similarly, funds with a sustainability mandate attract significantly higher inflows relative to funds without such a mandate. Interestingly, when we account for funds with such a mandate, the relationship between the overall fund's SDG score and subsequent investor flows becomes significantly negative. Investors appear to allocate more capital to sustainable funds when they are more aligned with overall SDGs. The same holds for the environmental and the basic needs dimension. On the other hand, institutional investors allocate significantly less capital to funds that are more aligned with economy and infrastructure SDGs.

Finally, we augment the specification in Equation (7) by considering the positive and negative alignment of funds to SDGs:

$$
\begin{aligned}
\text{flow}_{i,t} = \quad & \gamma^k_{gc,t} + \alpha^k + \gamma^k \mathbb{S} + \iota^k \mathbb{I} \\
& + \beta^{k^+} s^{k^+}_{i,t-1} + \zeta^{k^+} s^{k^+}_{i,t-1} \mathbb{S} + \eta^{k^+} s^{k^+}_{i,t-1} \mathbb{I} \\
& + \beta^{k^-} s^{k^-}_{i,t-1} + \zeta^{k^-} s^{k^-}_{i,t-1} \mathbb{S} + \eta^{k^-} s^{k^-}_{i,t-1} \mathbb{I} \\
& + \delta^k x_{i,t-1} + \epsilon^k_{i,t} \, ,
\end{aligned} \tag{8}
$$

where we interact the sustainable fund and institutional investor dummies $\mathbb{S}$ and $\mathbb{I}$ with the sustainability scores $s^{k^+}_{i,t-1}$ and $s^{k^-}_{i,t-1}$. Results are reported in Table 9.

Table 8

Sustainability Alignment, Sustainability Mandate, and Institutional Investor Fund Flows

This table reports parameter estimates of the regression of fund flows on the sustainability score of the fund in the prior month (*sus. score*$_{t-1}$), an interaction term including the sustainability score in the prior month and a sustainable fund dummy variable (*sus. score*$_{t-1}$ *Sust Fund), an interaction term including the sustainability score in the prior month and an institutional investor dummy variable (*sus. score*$_{t-1}$*Inst) and a set of controls, as given in Equation (7). The dependent variable is fund flows, which is regressed on different proxies for funds sustainability: the sustainability score *tot SDGs*, and the four component scores *Econ&Infra*, which aggregates alignment along SDGs 8, 9, 11 and 17, *Environment* aggregating SDGs 12, 13, 14 and 15, *Basic Needs* which combines SDGs 1, 2, 3, 6 and 7, and *Social Progress* which aggregates SDGs 4, 5, 10 and 16. All columns include as additional controls the log of size in the prior month, the Morningstar star rating in the prior month, the return in the prior month, the return over the prior 12 months, the return over the prior 24 months, the expense ratio, the log of fund age, and the fund flow in the prior month. In addition, all columns include the year $\times$ Morningstar global category $\times$ month fixed effects. The sample spans Jan 2015—Dec 2021, and our analysis is at the share class level. $*$, $**$, and $***$ indicate significance at the 10%, 5%, and 1% levels, respectively. Standard errors are in parentheses.

		tot SDGs	Econ& Infra	Env.	Basic Needs	Social Progress
sus. score$_{t-1}$		-0.0006***	0.0001	-0.0003***	-0.0008***	-0.0003*
		(0.0002)	(0.0001)	(0.0001)	(0.0002)	(0.0002)
sus. score$_{t-1}$*Sust Fund		0.0012***	-0.0002	0.0008***	0.0021***	0.001*
		(0.0004)	(0.0004)	(0.0002)	(0.0005)	(0.0006)
sus. score$_{t-1}$*Inst		-0.0004**	-0.0004**	-0.0001	-0.0003	-0.0003
		(0.0002)	(0.0001)	(0.0001)	(0.0002)	(0.0002)
constant	-0.0156***	-0.016***	-0.0163***	-0.0196***	-0.0166***	-0.0146***
	(0.0014)	(0.0014)	(0.002)	(0.0017)	(0.0014)	(0.0014)
Sust Fund	0.0056***	0.0031***	0.0087	0.0116***	0.0035***	0.0022
	(0.0011)	(0.0012)	(0.0058)	(0.0023)	(0.0011)	(0.0021)
Inst	0.0014***	0.002***	0.0063***	0.0007	0.0016***	0.0023***
	(0.0004)	(0.0005)	(0.0021)	(0.0009)	(0.0004)	(0.0008)
log TA$_{t-1}$	-0.0006***	-0.0006***	-0.0006***	-0.0006***	-0.0006***	-0.0006***
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
MS stars$_{t-1}$	0.0046***	0.0046***	0.0047***	0.0045***	0.0046***	0.0046***
	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)
r_{t-1}	0.0594***	0.0586***	0.06***	0.0573***	0.0579***	0.06***
	(0.0102)	(0.0102)	(0.0102)	(0.0102)	(0.0102)	(0.0102)
$r_{t-12:t-1}$	0.5932***	0.5721***	0.6018***	0.5581***	0.5531***	0.5975***
	(0.0462)	(0.0463)	(0.0469)	(0.047)	(0.0471)	(0.0463)
$r_{t-24:t-1}$	0.8484***	0.9642***	0.8142***	1.0258***	1.0105***	0.8299***
	(0.0787)	(0.0805)	(0.0792)	(0.0833)	(0.0819)	(0.0788)
exp ratio	-0.0015***	-0.0014***	-0.0015***	-0.0014**	-0.0015***	-0.0016***
	(0.0005)	(0.0005)	(0.0005)	(0.0005)	(0.0005)	(0.0005)
log age	-0.0065***	-0.0064***	-0.0065***	-0.0065***	-0.0064***	-0.0065***
	(0.0004)	(0.0004)	(0.0004)	(0.0004)	(0.0004)	(0.0004)
flows$_{t-1}$	0.1806***	0.1799***	0.1805***	0.1799***	0.1798***	0.1805***
	(0.0078)	(0.0078)	(0.0078)	(0.0078)	(0.0078)	(0.0078)
observations	160649	160649	160649	160649	160649	160649
R^2	0.0879	0.0885	0.088	0.0884	0.0885	0.088
R^2 between	0.2361	0.239	0.238	0.2361	0.2378	0.2401
Cat by YM FE	YES	YES	YES	YES	YES	YES

Table 9

Positive-Negative Sustainability Alignment, Sustainability Mandates and Institutional Investor Fund Flows

This table reports parameter estimates of the regression of fund flows on the sustainability score of the fund in the prior month disaggregated in the positive alignment (*sus. score*$_{t-1}$ pos) and the negative alignment (*sus. score*$_{t-1}$ neg), interaction terms including the sustainability scores in the prior month and two dummy variables indicating a sustainable fund label and an institutional investor share class, and a set of controls, as in Equation (8). The columns correspond to different sustainability metrics: the absolute sustainability score *tot SDGs* and the four component scores *Econ&Infra*, *Environment*, *Basic Needs*, and *Social Progress*. All columns include the control variables of Table 8, as well as year $\times$ Morningstar global category $\times$ month fixed effects. The sample spans Jan 2015—Dec 2021, and analysis is at the share class level. $*$, $**$, and $***$ indicate significance at the 10%, 5%, and 1% levels, respectively. Standard errors are in parentheses.

		tot SDGs	Econ& Infra	Env.	Basic Needs	Social Progress
sus. score$_{t-1}$ pos		0.0001	0.0001	0.0005	0.0000	0.0000
		(0.0003)	(0.0001)	(0.0004)	(0.0004)	(0.0002)
sus. score$_{t-1}$ pos*Sust Fund		-0.0003	-0.0006	0.0017	0.0028**	-0.0002
		(0.001)	(0.0005)	(0.0012)	(0.0012)	(0.0006)
sus. score$_{t-1}$ pos*Inst		-0.0009**	-0.0004**	-0.0008	-0.0012**	-0.0006**
		(0.0003)	(0.0001)	(0.0006)	(0.0005)	(0.0003)
sus. score$_{t-1}$ neg		0.0008***	0.0019***	0.0004***	0.0009***	0.0016***
		(0.0002)	(0.0005)	(0.0001)	(0.0002)	(0.0004)
sus. score$_{t-1}$ neg*Sust Fund		-0.002***	-0.0045***	-0.0008***	-0.0018***	-0.0056***
		(0.0006)	(0.0013)	(0.0003)	(0.0007)	(0.0013)
sus. score$_{t-1}$ neg*Inst		0.0001	0.0007	0.0001	0.0002	-0.0009*
		(0.0002)	(0.0005)	(0.0001)	(0.0002)	(0.0005)
constant	-0.0156***	-0.0221***	-0.021***	-0.0222***	-0.0205***	-0.0186***
	(0.0014)	(0.0025)	(0.0023)	(0.0021)	(0.0025)	(0.0019)
Sust Fund	0.0056***	0.0174**	0.0204***	0.0086*	-0.0009	0.0141***
	(0.0011)	(0.0079)	(0.0076)	(0.0045)	(0.0069)	(0.004)
Inst	0.0014***	0.0065**	0.0059**	0.003	0.0062**	0.0058***
	(0.0004)	(0.0027)	(0.0025)	(0.0021)	(0.0026)	(0.0016)
log TA$_{t-1}$	-0.0006***	-0.0006***	-0.0006***	-0.0006***	-0.0006***	-0.0006***
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
MS stars$_{t-1}$	0.0046***	0.0045***	0.0046***	0.0045***	0.0045***	0.0046***
	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)
r_{t-1}	0.0594***	0.0576***	0.0578***	0.0571***	0.0578***	0.0595***
	(0.0102)	(0.0102)	(0.0102)	(0.0102)	(0.0102)	(0.0102)
$r_{t-12:t-1}$	0.5932***	0.558***	0.5692***	0.5522***	0.5507***	0.5877***
	(0.0462)	(0.0475)	(0.0477)	(0.0473)	(0.0472)	(0.0469)
$r_{t-24:t-1}$	0.8484***	1.0315***	0.9945***	1.0539***	1.0248***	0.8634***
	(0.0787)	(0.0849)	(0.0838)	(0.0842)	(0.0838)	(0.08)
exp ratio	-0.0015***	-0.0014***	-0.0015***	-0.0014***	-0.0015***	-0.0016***
	(0.0005)	(0.0005)	(0.0005)	(0.0005)	(0.0005)	(0.0005)
log age	-0.0065***	-0.0064***	-0.0064***	-0.0064***	-0.0064***	-0.0065***
	(0.0004)	(0.0004)	(0.0004)	(0.0004)	(0.0004)	(0.0004)
flows$_{t-1}$	0.1806***	0.1797***	0.1798***	0.1798***	0.1798***	0.1801***
	(0.0078)	(0.0078)	(0.0078)	(0.0078)	(0.0078)	(0.0078)
observations	160649	160649	160649	160649	160649	160649
R^2	0.0879	0.0886	0.0885	0.0884	0.0886	0.0884
R^2 between	0.2361	0.2376	0.2372	0.2359	0.2379	0.2401
Cat by YM FE	YES	YES	YES	YES	YES	YES

Focusing on column (2) of Table 9 that reports the results for the overall SDG score, decomposed into positive and negative alignment, we confirm the results in Table 7: funds with higher negative SDG alignment attract more flows. That is not the case for flows to funds with a sustainability mandate, as a higher negative alignment is associated with lower flows for that category of funds. This result holds across all SDG dimensions, as sustainable funds see an increase in the inflow of capital if they reduce their negative alignment to SDGs. However, on the other hand, sustainable funds do not attract more flows if they improve the positive alignment of their portfolios, apart from alignment to environmental goals. Interestingly, institutional investors direct even less flows to funds that increase the positive SDG alignment of their portfolios.

Overall, to the extent that we can proxy investor preferences for sustainability via the capital allocated to funds with a clear sustainability mandate, we find that investors interested in sustainability divest from funds negatively aligned with SDGs, but there is not a symmetric effect with opposite sign on funds hat are tpositively aligned with SDGs. These findings suggest that sustainable investors are more likely to use an exclusionary approach rather than a best-in-class approach in their portfolio allocation decisions.

3.2 The Information Content of Sustainability Ratings

Our results indicate that, in their capital allocation decisions, investors incorporate information related to the alignment of the assets in their portfolios to sustainable goals. To what extent is that information already available in published fund sustainability ratings? Sustainability has become salient among investors, especially after Morningstar launched their sustainability ratings in 2016 (Hartzmark and Sussman, 2019). In what follows, we incorporate the Morningstar sustainability ratings in our analysis of mutual fund flows.

The Morningstar sustainability fund ratings are obtained as a function of the ESG risk ratings of the underlying portfolio companies as provided by Sustainalytics. The ratings are expressed as categories ranging from 1 to 5 globes, whereby the highest category of 5 globes indicates that the fund portfolio has the lowest ESG risk across peers. Notably, the rating a fund receives is determined relative to other funds in the same Morningstar global category. Relative ratings imply that a fund's portfolio could face a higher ESG risk than another fund's, yet still receive a better rating if both funds belong to different global categories, with their own unique qualification of what is a relatively low or relatively high amount of ESG risk.

Table 10 shows descriptive statistics of fund SDG alignment ratings across Morningstar sustainability cat-

Table 10

Descriptive Statistics: SDG Alignment Scores Across Morningstar Sustainability Rating Categories

This table presents the descriptive statistics of Util SDG alignment scores of 1,709 mutual funds over the period Aug 2018 - Dec 2021 across Morningstar sustainability rating categories. Each panel shows the descriptive statistics of fund SDG scores for a particular Morningsar sustainability rating category represented by the number of globes. *tot SDGs* is the total SDG alignment score of a company. *Econ&Infra* aggregates alignment along SDGs 8, 9, 11, and 17. *Environment* aggregates SDGs 12, 13, 14, and 15. *Basic Needs* combines SDGs 1, 2, 3, 6, and 7. And *Social Progress* aggregates SDGs 4, 5, 10, and 16.).

		Positive alignment					Negative alignment					Net alignment				
Morningstar	Util	mean	std	min	median	max	mean	std	min	median	max	mean	std	min	median	max
1 globes	tot SDGs	6.57	1.13	3.14	6.61	12.05	5.92	2.42	0.63	6.19	17.53	0.42	2.5	-10.75	0.06	7.77
	Econ&Infra	15.19	2.89	6.15	15.58	23.49	1.74	0.94	0	1.76	5.88	13.39	2.83	5.18	13.44	20.91
	Environment	2.83	1.11	0.52	2.72	16.53	11.97	5.14	0.68	12.65	35.28	-12.99	6.46	-41.45	-13.86	6.91
	Basic Needs	4.47	0.82	2.46	4.47	10.31	4.97	2.22	0.16	5.21	16.7	-0.76	2.24	-12.37	-1.03	6.43
	Social Progress	4.71	1.41	1.31	4.56	10.02	2.09	0.96	0.1	1.91	5.14	2.35	1.69	-6.31	2.22	9.17
2 globes	tot SDGs	6.68	1.13	2.97	6.78	12.22	5.25	1.93	0.38	5.25	17.97	1.33	2.35	-12.83	0.87	8.94
	Econ&Infra	15.28	2.74	5.59	15.63	23.84	1.46	0.73	0	1.39	5.62	13.84	2.8	4.49	13.86	23.24
	Environment	2.78	0.69	0.33	2.77	11.56	10.62	4.03	0.5	10.7	35.96	-11.37	5.22	-42.4	-11.69	8.62
	Basic Needs	4.59	0.72	1.81	4.57	8.83	4.33	1.73	0.14	4.23	17.19	0.09	1.85	-14.93	0.03	6.1
	Social Progress	5.04	1.43	0.67	4.91	10.11	1.88	0.82	0.14	1.75	5.92	3.06	1.66	-7.39	2.84	9.2
3 globes	tot SDGs	6.59	1.33	3.16	6.69	12.39	4.99	1.89	0.43	4.88	18.76	1.55	2.4	-13.16	1.08	11.04
	Econ&Infra	15.04	3.1	5.38	15.61	24.56	1.37	0.69	0	1.29	8.5	13.71	3.11	4.05	13.72	24.21
	Environment	2.7	0.66	0.34	2.74	13.82	10.24	4.01	0.77	10.08	34.82	-10.88	5.16	-41.16	-10.9	13.14
	Basic Needs	4.55	0.79	1.86	4.58	12.57	4.03	1.63	0.23	3.9	15.27	0.43	1.78	-15.32	0.4	11.56
	Social Progress	4.98	1.67	0.64	4.79	10.89	1.68	0.69	0.01	1.61	10.25	3.23	1.78	-7.28	2.9	9.93
4 globes	tot SDGs	6.45	1.37	3.03	6.49	12.93	4.59	1.9	0.39	4.37	13.16	1.84	2.43	-12.57	1.52	8.19
	Econ&Infra	14.64	3.13	5.32	15.01	22.78	1.23	0.67	0	1.19	4.68	13.48	3.19	4.88	13.47	22.52
	Environment	2.59	0.68	0.37	2.61	14.26	9.49	4	0.76	9.11	25.43	-9.96	5.05	-40.07	-9.44	1.73
	Basic Needs	4.51	0.82	1.99	4.52	7.56	3.65	1.71	0.36	3.42	12.48	0.79	1.88	-14.66	0.72	5.19
	Social Progress	4.88	1.79	0.33	4.59	10.17	1.55	0.73	0.03	1.44	6.04	3.32	1.87	-6.86	2.98	9.46
5 globes	tot SDGs	6.39	1.19	3.2	6.48	12.51	4.49	1.93	0.48	4.14	16.64	2.09	2.29	-12.08	2.17	10.79
	Econ&Infra	14.42	2.69	8.21	14.58	22.14	1.26	0.79	0.01	1.1	7.16	13.35	2.85	5.9	13.32	20.79
	Environment	2.56	0.76	0.51	2.56	14.48	9.39	4.07	1.12	8.75	32.48	-9.35	5	-39.29	-8.52	12.88
	Basic Needs	4.65	0.87	1.78	4.68	12.16	3.48	1.79	0.43	3.08	12.94	1.27	1.84	-14.05	1.51	10.86
	Social Progress	4.67	1.49	0.31	4.68	9.14	1.5	0.86	0.02	1.32	7.06	3.29	1.67	-6.14	3.13	8.97

egories. We restrict the sample period from October 2018 to December 2021 to reflect the availability as Morningstar globe ratings.[7] The net SDG alignment scores of funds increase from 0.42 on average for funds belonging to the lowest Morningstar sustainability category to 2.09 for 5-globe funds. There is a similar increase in alignment scores across the specific dimensions of sustainability. It is worth noting that funds in all globe categories remain negatively aligned with environmental goals. However, when we decompose the SDG scores into negative and positive alignment, we find that it is the reduction in negative alignment across globe categories that contributes to the increase in net alignment for funds moving from 1 to 5 globes. We find no evidence that funds increase their positive SDG alignment as they move from 1 to a 5-globe rating.

We augment the specification in Equation (8) to include Morningstar sustainability ratings. We then run a panel regression of fund flows on SDG alignment scores, globe category ratings and a set of controls for all funds in our sample for the period 2018–2022. Table 11 shows the results.

Column (1) of Panel A in Table 11 reports the estimation outcome when the only sustainability metric included in the regression is the Morningstar globe fund category. On average, investors allocate less to funds with high globe ratings, except when they consider funds with a sustainability mandate. For such funds, investor flows increase for sustainable funds that have received a higher globe rating in the previous month. These findings confirm the results documented in Table 8 for SDG alignment scores.

Once the SDG scores are included in the analysis, however, we find that Morningstar globe ratings are no longer significantly associated with subsequent fund flows. Investor allocation decisions continue to show a strongly significant and positive association with past negative SDG alignment scores, as documented in Tables 7 and 9. On average, investors allocate more capital to funds that display a higher *negative* alignment of their portfolios to sustainability goals. The result is robust to considering different SDG dimensions. Investors do not show a symmetrical interest in funds that have a higher positive alignment with sustainable goals. If anything, institutional investors invest even less in positively aligned funds (except when the funds are aligned with social progress goals). With the exceptions of environmental goals, investors in funds with a sustainability mandate also do not increase their allocations when these funds improve their alignment to SDGs. Nevertheless, they tend to limit their exposure to negatively aligned funds, primarily driven by social progress considerations.

Overall, our results indicate that it is the *negatively* aligned funds that capture investor flows, across the

[7]Morningstar launched the sustainability rating in March 2016. However, due to a methodology change in 2018, data are available from October 2018.

Table 11

Sustainability and Fund Flows: Controlling for the Morningstar Sustainability Ratings

This table reports parameter estimates of the regression of fund flows on the sustainability score of the fund in the prior month disaggregate in the positive alignment ($sus.\ score_{t-1}$ pos) and the negative alignment ($sus.\ score_{t-1}$ neg), an interaction term including the sustainability scores in the prior month and a sustainable fund dummy variable, an interaction term including the sustainability scores in the prior month and an institutional investor dummy variable, and a set of controls. Panel A includes the Morningstar Sustainability rating (a category of 1 to 5 'globes') both alone and interacted with the dummies. The dependent variable is fund flows, which are regressed on different proxies for funds sustainability: the absolute sustainability score *tot SDGs* (defined in Equation 1), and the four component scores *Econ&Infra*, which aggregates alignment along SDGs 8, 9, 11 and 17, *Environment* aggregating SDGs 12, 13, 14, and 15, *Basic Needs* which combines SDGs 1, 2, 3, 6, and 7, and *Social Progress* which aggregates SDGs 4, 5, 10, and 16. All columns include as additional controls the log of fund size in the prior month, the Morningstar star rating in the prior month, the return in the prior month, the return over the prior 12 months, the return over the prior 24 months, the expense ratio, the log of fund age and the fund flow in the prior month. In addition, all columns include the year $\times$ Morningstar global category $\times$ month fixed effects. The sample spans the period from Oct 2018 to Dec 2021, and analysis is at the share class level. $*$, $**$, and $***$ indicate significance at the 10%, 5%, and 1% levels, respectively. Standard errors are in parentheses.

Panel A: Morningstar globes included

		tot SDGs	Econ& Infra	Env.	Basic Needs	Social Progress
sus. score$_{t-1}$ pos		-0.0001	0.0001	0.0000	-0.0004	-0.0001
		(0.0003)	(0.0001)	(0.0005)	(0.0005)	(0.0003)
sus. score$_{t-1}$ pos*Sust Fund		-0.0001	-0.0005	0.004**	0.0016	-0.0005
		(0.0011)	(0.0005)	(0.0018)	(0.0015)	(0.0008)
sus. score$_{t-1}$ pos*Inst		-0.0008**	-0.0004**	-0.0008	-0.0011*	-0.0004
		(0.0004)	(0.0002)	(0.0007)	(0.0006)	(0.0003)
sus. score$_{t-1}$ neg		0.0009***	0.0019***	0.0004***	0.001***	0.0023***
		(0.0003)	(0.0006)	(0.0001)	(0.0003)	(0.0005)
sus. score$_{t-1}$ neg*Sust Fund		-0.0013*	-0.0019	-0.0004	-0.0014	-0.0052***
		(0.0007)	(0.0018)	(0.0003)	(0.0009)	(0.0019)
sus. score$_{t-1}$ neg*Inst		-0.0001	-0.0002	0.0000	0.0000	-0.0017***
		(0.0003)	(0.0007)	(0.0001)	(0.0003)	(0.0006)
MS globes$_{t-1}$	-0.0006*	-0.0004	-0.0005	-0.0005	-0.0004	-0.0003
	(0.0003)	(0.0004)	(0.0004)	(0.0004)	(0.0004)	(0.0003)
MS globes$_{t-1}$*Sust Fund	0.0028**	0.0021	0.0025*	0.0029**	0.002	0.0018
	(0.0012)	(0.0013)	(0.0013)	(0.0012)	(0.0013)	(0.0013)
MS globes$_{t-1}$*Inst	0.0007	0.0005	0.0005	0.0005	0.0006	0.0003
	(0.0005)	(0.0005)	(0.0005)	(0.0005)	(0.0005)	(0.0005)
constant	-0.0163***	-0.0229***	-0.0223***	-0.0218***	-0.021***	-0.021***
	(0.0019)	(0.0035)	(0.0033)	(0.003)	(0.0033)	(0.0026)
Sust Fund	-0.0022	0.0069	0.0094	-0.0099	-0.0016	0.0112
	(0.0047)	(0.0114)	(0.0103)	(0.0077)	(0.0109)	(0.0074)
Inst	-0.0009	0.0059*	0.0051	0.002	0.0046	0.005**
	(0.0015)	(0.0035)	(0.0033)	(0.0031)	(0.0033)	(0.0024)
observations	98269	98269	98269	98269	98269	98269
R^2	0.0796	0.0802	0.08	0.0801	0.0803	0.0803
R^2 between	0.271	0.2763	0.2747	0.2754	0.2775	0.2778
Cat by YM FE	YES	YES	YES	YES	YES	YES
Controls	YES	YES	YES	YES	YES	YES

Table 11 (cont'd)
Sustainability and Fund Flows: Controlling for the Morningstar Sustainability Ratings

Panel B: Morningstar globes not included

		tot SDGs	Econ& Infra	Env.	Basic Needs	Social Progress
sus. score$_{t-1}$ pos		0.0000	0.0001	0.0001	-0.0004	-0.0001
		(0.0003)	(0.0001)	(0.0005)	(0.0005)	(0.0003)
sus. score$_{t-1}$ pos*Sust Fund		-0.0002	-0.0006	0.0035*	0.0018	-0.0004
		(0.0012)	(0.0005)	(0.0018)	(0.0016)	(0.0008)
sus. score$_{t-1}$ pos*Inst		-0.0009**	-0.0004**	-0.0009	-0.0011*	-0.0004
		(0.0004)	(0.0002)	(0.0007)	(0.0006)	(0.0003)
sus. score$_{t-1}$ neg		0.001***	0.002***	0.0004***	0.0011***	0.0024***
		(0.0002)	(0.0006)	(0.0001)	(0.0003)	(0.0005)
sus. score$_{t-1}$ neg*Sust Fund		-0.0017**	-0.0032**	-0.0006**	-0.0018**	-0.006***
		(0.0007)	(0.0016)	(0.0003)	(0.0008)	(0.0017)
sus. score$_{t-1}$ neg*Inst		-0.0002	-0.0003	-0.0001	-0.0001	-0.0018***
		(0.0003)	(0.0007)	(0.0001)	(0.0003)	(0.0006)
constant	-0.0182***	-0.0244***	-0.0239***	-0.0237***	-0.0222***	-0.0221***
	(0.0016)	(0.0031)	(0.0029)	(0.0026)	(0.0031)	(0.0023)
Sust Fund	0.009***	0.0178*	0.0212**	0.0054	0.0067	0.0192***
	(0.0013)	(0.0096)	(0.0088)	(0.0056)	(0.0094)	(0.0049)
Inst	0.0011**	0.0079***	0.007**	0.0041*	0.0066**	0.0062***
	(0.0005)	(0.003)	(0.0027)	(0.0024)	(0.0029)	(0.0018)
observations	98269	98269	98269	98269	98269	98269
R^2	0.0795	0.0801	0.0799	0.0799	0.0802	0.0802
R^2 between	0.2715	0.2768	0.2753	0.2758	0.2781	0.2783
Cat by YM FE	YES	YES	YES	YES	YES	YES
Controls	YES	YES	YES	YES	YES	YES

whole spectrum of sustainable development goals. The result is not subsumed by the inclusion of Morningstar globe ratings. In general, institutional investors allocate less capital to funds that do well in terms of SDG alignment. Investor's interest in sustainability increases only for funds with a clearly stated sustainability mandate, as long as such funds also have a higher Morningstar globe rating.

We run a series of robustness tests, considering standard ESG metrics from Refinitiv and MSCI, as well as carbon emission and carbon intensity metrics from Trucost. Table C.1 and Table C.4 reproduce our specifications in Equation (8) including standard ESG metrics as additional controls. Our results (lower inflows for funds with a sustainable mandate and negatively aligned to the SDGs) are consistent across all different standard ESG metrics.

3.3 Sustainability and Fund Performance

In the following, we investigate whether there exists a relation between the level of sustainability of a fund and its performance. This is important in order to understand whether the association between fund flows and sustainability is driven by performance considerations. We run a series of panel regressions and, in particular, regress fund abnormal returns (defined in Equations (3) and (4)) on each sustainability measure alongside a set of fund characteristics as controls. We include Morningstar category-by-year-by-month fixed effects to control for time variation by category. We run a panel regression for each sustainability measure $s^k_{i,t}$ to study the association between these different sustainability metrics and fund excess returns and abnormal returns:

$$\text{xret}_{i,t} = \gamma^k_{gc,t} + \alpha^k + \gamma^k \mathbb{S} + \iota^k \mathbb{I} + \beta^k s^k_{i,t} + \zeta^k s^k_{i,t} \mathbb{S} + \eta^k s^k_{i,t} \mathbb{I} + \delta^k x_{i,t-1} + \epsilon^k_{i,t} \,, \tag{9}$$

$$\text{mabn}_{i,t} = \gamma^k_{gc,t} + \alpha^k + \gamma^k \mathbb{S} + \iota^k \mathbb{I} + \beta^k s^k_{i,t} + \zeta^k s^k_{i,t} \mathbb{S} + \eta^k s^k_{i,t} \mathbb{I} + \delta^k x_{i,t-1} + \epsilon^k_{i,t} \,, \tag{10}$$

where $\text{xret}_{i,t}$ and $\text{mabn}_{i,t}$ are the excess return and abnormal return of fund i at time t, respectively; $s^k_{i,t}$ is the SDG alignment measure k; and $\mathbb{S}$ and $\mathbb{I}$ are dummies indicating whether the fund has a sustainability mandate, and whether the share class is for institutional investors, respectively. Since our sustainability measures are derived by holdings, we use them at the same time of returns to overcome the possible problem of *green dressing window* (Parise and Rubin, 2023; Huang et al., 2024). We include $\gamma^k_{gc,t}$ as Morningstar global category-by-year-by-month fixed effects to control for time variation by category alongside a set of lagged fund characteristics as controls $x_{i,t-1}$. Controls are the return in the prior month, the return over the prior 12 months, the return over the prior 24 months, the log size in the prior month, the expenses ratio, the Morningstar overall rating in the prior month, the flow in the prior month, and the log of fund age. Table 12 shows the results for excess return, Table 13 for abnormal return.

The first column of Table 12 and Table 13 show the panel regression estimates without the inclusion of a fund sustainability metric. In line with Kaniel et al. (2023), we find that momentum ($r_{t-12:t-1}$) and fund flows in the previous month are strongly significant and positively related to future abnormal returns. We further find that the expense ratio and the Morningstar overall rating are negatively related to future returns. Interestingly, funds with a sustainable mandate have lower returns than funds without such a mandate. Since investors direct

more capital towards funds with a sustainability mandate, our findings indicate that they are foregoing returns for such investments. When we augment the specification with the fund's sustainability score based on its holdings, we find that an increase in the fund sustainability score is associated with increased returns, whether or not the fund has an explicit sustainability mandate. The increase in fund flows towards funds with better SDG alignment and a sustainability mandate is consistent with this performance result and it is plausible that investors are drawn to such better aligned funds following their better performance. Investors, however, do not seem to exploit the better performance of funds with better alignment to SDGs but that lack an explicit sustainability mandate. The fund mandate, rather than the actual fund alignment to SDGs appears to be behind investors' allocations to funds.

The decomposition of fund sustainability scores in their positive and negative alignment components reveals further insights. Table 14 and 15 report the results. Higher positive SDG alignment is associated with higher excess or abnormal returns only for funds with an explicit sustainability mandate. Such funds, however, do not experience a subsequent increase in investor flows. Higher negative SDG alignment is associated with lower fund returns, regardless of the fund mandate. Subsequently, investors withdraw capital from funds with an explicit mandate that contribute negatively to the SDGs. Overall, while investors direct more flows to funds with stated sustainability policy or objectives, they divest from those funds that are negatively aligned to SDGs, rather than increasing capital allocations to better aligned funds. These divestment decisions are in line with fund performance. We can conclude that even though we document a relation between SDG alignment and fund returns, investors do not exploit it. Their sustainability-motivated capital flows are mostly driven by the sustainability strategy mandate announced by the fund.

Table 12
Sustainability and Fund Excess Returns

This table reports estimates of the regression of fund excess returns on the sustainability score of the fund and a set of controls. Fund abnormal returns are obtained from the Fama-French five factor model augmented with momentum (Fama and French, 2015; Carhart, 1997), as defined in Equation 3, and are regressed on the following proxies for funds sustainability: the absolute fund sustainability rating *tot SDGs* (defined in Equation 1), and the four component scores *Econ&Infra*, which aggregates alignment along SDGs 8, 9, 11 and 17, *Environment* aggregating SDGs 12, 13, 14 and 15, *Basic Needs* which combines SDGs 1, 2, 3, 6 and 7, and *Social Progress* which aggregates SDGs 4, 5, 10 and 16. All specifications include as additional controls the logarithm of fund size in the prior month, the Morningstar star rating in the prior month, the return in the prior month, the return over the prior 12 months, the return over the prior 24 months, the expense ratio, the logarithm of fund age, and the fund flows in the prior month. All columns include year $\times$ Morningstar global category $\times$ month fixed effects. The sample spans the period Oct 2018 - Dec 2021, and our analysis is at the fund level. $*$, $**$, and $***$ indicate significance at the 10%, 5%, and 1% levels, respectively. Standard errors are in parentheses.

		tot SDGs	Econ& Infra	Env.	Basic Needs	Social Progress
sus. score		0.0005***	-0.0001**	0.0003***	0.0006***	0.0001***
		(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
sus. score*Sust Fund		0.0002***	0.0004***	0.0001**	0.0002***	0.0005***
		(0.0001)	(0.0001)	(0.0000)	(0.0001)	(0.0001)
sus. score*Inst		0.0000	0.0000	0.0000	0.0000	-0.0001
		(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
constant	0.0101***	0.0104***	0.011***	0.0144***	0.0109***	0.0098***
	(0.0002)	(0.0002)	(0.0004)	(0.0003)	(0.0002)	(0.0003)
Sust Fund	-0.0004***	-0.0012***	-0.0057***	0.0000	-0.0012***	-0.0024***
	(0.0002)	(0.0002)	(0.0009)	(0.0003)	(0.0002)	(0.0004)
Inst	0.0005***	0.0004***	0.0011**	0.0005***	0.0004***	0.0006***
	(0.0001)	(0.0001)	(0.0004)	(0.0002)	(0.0001)	(0.0001)
log TA_{t-1}	0.0001***	0.0001***	0.0001***	0.0001***	0.0001***	0.0001***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
MS $stars_{t-1}$	-0.0003***	-0.0003***	-0.0002***	-0.0002***	-0.0002***	-0.0003***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
r_{t-1}	0.0277***	0.0269***	0.0278***	0.0268***	0.0274***	0.0276***
	(0.0032)	(0.0033)	(0.0032)	(0.0032)	(0.0033)	(0.0033)
$r_{t-12:t-1}$	0.1439***	0.1553***	0.147***	0.1695***	0.164***	0.1424***
	(0.0126)	(0.0125)	(0.0127)	(0.0126)	(0.0125)	(0.0126)
$r_{t-24:t-1}$	-0.0145	-0.0987***	-0.0338	-0.1868***	-0.1224***	-0.0123
	(0.0213)	(0.0218)	(0.0222)	(0.023)	(0.0222)	(0.0214)
exp ratio	-0.0001	-0.0002***	-0.0001	-0.0003***	-0.0002*	-0.0001
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
log age	0.0001**	0.0000	0.0001**	0.0000	0.0001	0.0001*
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
$flows_{t-1}$	0.0024***	0.0027***	0.0024***	0.0029***	0.0027***	0.0024***
	(0.0008)	(0.0008)	(0.0008)	(0.0008)	(0.0008)	(0.0008)
observations	163228	163228	163228	163228	163228	163228
R^2	0.004	0.0073	0.0043	0.0091	0.0068	0.0043
R^2 between	0.0519	0.0951	0.0542	0.1124	0.0975	0.0574
Cat by YM FE	YES	YES	YES	YES	YES	YES

Table 13
Sustainability and Fund Abnormal Returns

This table reports estimates of the regression of fund abnormal returns on the sustainability score of the fund and a set of controls. Fund abnormal returns are obtained from the Fama-French five factor model augmented with momentum (Fama and French, 2015; Carhart, 1997), as defined in Equation 3, and are regressed on the following proxies for funds sustainability: the absolute fund sustainability rating *tot SDGs* (defined in Equation 1), and the four component scores *Econ&Infra*, which aggregates alignment along SDGs 8, 9, 11 and 17, *Environment* aggregating SDGs 12, 13, 14 and 15, *Basic Needs* which combines SDGs 1, 2, 3, 6 and 7, and *Social Progress* which aggregates SDGs 4, 5, 10 and 16. All specifications include as additional controls the logarithm of fund size in the prior month, the Morningstar star rating in the prior month, the return in the prior month, the return over the prior 12 months, the return over the prior 24 months, the expense ratio, the logarithm of fund age, and the fund flows in the prior month. All columns include year $\times$ Morningstar global category $\times$ month fixed effects. The sample spans the period Jan 2015 - Dec 2021, and our analysis is at the share class level. $*$, $**$, and $***$ indicate significance at the 10%, 5%, and 1% levels, respectively. Standard errors are in parentheses.

		tot SDGs	Econ& Infra	Env.	Basic Needs	Social Progress
sus. score		0.0004***	0.0000	0.0002***	0.0004***	0.0002***
		(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
sus. score*Sust Fund		0.0003***	0.0003***	0.0001**	0.0003***	0.0004***
		(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
sus. score*Inst		0.0000	0.0000	0.0000	0.0000	0.0000
		(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
constant	-0.0024***	-0.0022***	-0.0027***	0.0006**	-0.0019***	-0.0028***
	(0.0002)	(0.0002)	(0.0004)	(0.0003)	(0.0002)	(0.0002)
Sust Fund	-0.0004**	-0.0011***	-0.0046***	0.0003	-0.0011***	-0.0018***
	(0.0002)	(0.0002)	(0.0008)	(0.0004)	(0.0002)	(0.0004)
Inst	0.0003***	0.0003***	0.0007*	0.0003*	0.0003***	0.0004***
	(0.0001)	(0.0001)	(0.0004)	(0.0001)	(0.0001)	(0.0001)
log TA_{t-1}	0.0001***	0.0001***	0.0001***	0.0001***	0.0001***	0.0001***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0)
MS $stars_{t-1}$	0.0000	0	0.0000	0	0.0000	0.0000
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0)
r_{t-1}	-0.0016	-0.0023	-0.0017	-0.0023	-0.0019	-0.0018
	(0.0038)	(0.0038)	(0.0038)	(0.0038)	(0.0038)	(0.0038)
$r_{t-12:t-1}$	0.2027***	0.2108***	0.2022***	0.2205***	0.2139***	0.2011***
	(0.0133)	(0.0132)	(0.0133)	(0.0133)	(0.0133)	(0.0133)
$r_{t-24:t-1}$	-0.1093***	-0.1696***	-0.1088***	-0.227***	-0.1699***	-0.105***
	(0.0198)	(0.0204)	(0.0205)	(0.0214)	(0.0213)	(0.0197)
exp ratio	-0.0001	-0.0001**	-0.0001	-0.0002***	-0.0001	-0.0001
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
log age	0.0001	0.0000	0.0001	0.0000	0	0.0001
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
$flows_{t-1}$	0.003***	0.0032***	0.003***	0.0033***	0.0032***	0.003***
	(0.0008)	(0.0008)	(0.0008)	(0.0008)	(0.0008)	(0.0008)
observations	158536	158536	158536	158536	158536	158536
R^2	0.0033	0.0051	0.0034	0.0058	0.0044	0.0036
R^2 between	0.0131	0.0675	0.0136	0.0891	0.0602	0.0305
Cat by YM FE	YES	YES	YES	YES	YES	YES

Table 14
Sustainability and Fund Excess Returns

This table reports estimates of the regression of fund abnormal returns on the sustainability score of the fund and a set of controls. Fund abnormal returns are obtained from the Fama-French five factor model augmented with momentum (Fama and French, 2015; Carhart, 1997), as defined in Equation 3, and are regressed on the following proxies for funds sustainability: the absolute fund sustainability rating *tot SDGs* and the four component scores *Econ&Infra*, *Environment*, *Basic Needs*, and *Social Progress*. All specifications include the controls of Table 13, as well as Morningstar global category $\times$ year-month fixed effects. The sample spans the period Jan 2015—Dec 2021, and our analysis is at the fund level. $*$, $**$, and $***$ indicate significance at the 10%, 5%, and 1% levels, respectively. Standard errors are in parentheses.

		tot SDGs	Econ& Infra	Env.	Basic Needs	Social Progress
sus. score pos		-0.0002***	-0.0001***	-0.0004***	-0.0006***	-0.0001
		(0.0001)	(0.0000)	(0.0001)	(0.0001)	(0.0000)
sus. score pos*Sust Fund		0.0006***	0.0003***	0.0003	0.0008***	0.0006***
		(0.0002)	(0.0001)	(0.0002)	(0.0002)	(0.0001)
sus. score pos*Inst		-0.0001	0.0000	-0.0001	-0.0001	-0.0001
		(0.0001)	(0.0000)	(0.0001)	(0.0001)	(0.0000)
sus. score neg		-0.0008***	-0.0019***	-0.0004***	-0.0008***	-0.0007***
		(0.0000)	(0.0001)	(0.0000)	(0.0000)	(0.0001)
sus. score neg*Sust Fund		-0.0001	-0.0004**	-0.0001***	-0.0002*	-0.0003
		(0.0001)	(0.0002)	(0.0000)	(0.0001)	(0.0002)
sus. score neg*Inst		0.0000	0.0000	0.0000	0.0000	0.0000
		(0.0000)	(0.0001)	(0.0000)	(0.0000)	(0.0001)
constant	0.0101***	0.0173***	0.0159***	0.017***	0.0177***	0.012***
	(0.0002)	(0.0005)	(0.0005)	(0.0005)	(0.0005)	(0.0004)
Sust Fund	-0.0004***	-0.0048***	-0.0053***	-0.0007	-0.0038***	-0.0032***
	(0.0002)	(0.0013)	(0.0012)	(0.0008)	(0.0011)	(0.0007)
Inst	0.0005***	0.0011**	0.001*	0.001**	0.0009**	0.0008**
	(0.0001)	(0.0005)	(0.0005)	(0.0004)	(0.0004)	(0.0003)
log TA_{t-1}	0.0001***	0.0001***	0.0001***	0.0001***	0.0001***	0.0001***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
MS $stars_{t-1}$	-0.0003***	-0.0001***	-0.0002***	-0.0001***	-0.0001***	-0.0003***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
r_{t-1}	0.0277***	0.0267***	0.0269***	0.0269***	0.0266***	0.0273***
	(0.0032)	(0.0032)	(0.0033)	(0.0032)	(0.0033)	(0.0033)
$r_{t-12:t-1}$	0.1439***	0.1796***	0.1697***	0.1785***	0.1734***	0.1538***
	(0.0126)	(0.0128)	(0.0127)	(0.0128)	(0.0127)	(0.0128)
$r_{t-24:t-1}$	-0.0145	-0.2437***	-0.2039***	-0.2459***	-0.2041***	-0.0505**
	(0.0213)	(0.024)	(0.0237)	(0.0241)	(0.0231)	(0.0218)
exp ratio	-0.0001	-0.0003***	-0.0002**	-0.0002***	-0.0003***	-0.0001
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
log age	0.0001**	0.0000	0.0000	0.0000	0.0000	0.0001*
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
$flows_{t-1}$	0.0024***	0.0029***	0.0029***	0.0029***	0.0028***	0.0025***
	(0.0008)	(0.0008)	(0.0008)	(0.0008)	(0.0008)	(0.0008)
observations	163228	163228	163228	163228	163228	163228
R^2	0.004	0.0105	0.0096	0.0104	0.0097	0.0052
R^2 between	0.0519	0.1165	0.1066	0.1129	0.1027	0.0657
Cat by YM FE	YES	YES	YES	YES	YES	YES

Table 15
Sustainability and Fund Abnormal Returns

This table reports estimates of the regression of fund abnormal returns on the sustainability score of the fund and a set of controls. Fund abnormal returns are obtained from the Fama-French five factor model augmented with momentum (Fama and French, 2015; Carhart, 1997), as defined in Equation 3, and are regressed on the following proxies for funds sustainability: the absolute fund sustainability rating *tot SDGs* and the four component scores *Econ&Infra*, *Environment*, *Basic Needs*, and *Social Progress*. All specifications include the controls of Table 13, as well as Morningstar global category × year-month fixed effects. The sample spans the period Jan 2015—Dec 2021, and our analysis is at the share class level. $*$, $**$, and $***$ indicate significance at the 10%, 5%, and 1% levels, respectively. Standard errors are in parentheses.

		tot SDGs	Econ& Infra	Env.	Basic Needs	Social Progress
sus. score pos		0.0000	0.0000	0.0001	-0.0007***	0.0001*
		(0.0001)	(0.0000)	(0.0001)	(0.0001)	(0)
sus. score pos*Sust Fund		0.0006***	0.0002***	0.0002	0.0011***	0.0004***
		(0.0002)	(0.0001)	(0.0003)	(0.0003)	(0.0001)
sus. score pos*Inst		0.0000	0.0000	0.0000	-0.0001	0
		(0.0001)	(0.0000)	(0.0001)	(0.0001)	(0)
sus. score neg		-0.0005***	-0.0013***	-0.0002***	-0.0006***	-0.0005***
		(0.0000)	(0.0001)	(0.0000)	(0.0000)	(0.0001)
sus. score neg*Sust Fund		-0.0001	-0.0006**	-0.0001***	-0.0002**	-0.0002
		(0.0001)	(0.0003)	(0.0000)	(0.0001)	(0.0002)
sus. score neg*Inst		0.0000	0.0001	0.0000	0.0000	0
		(0.0000)	(0.0001)	(0.0000)	(0.0000)	(0.0001)
constant	-0.0024***	0.0017***	0.0005	0.0013***	0.0039***	-0.0017***
	(0.0002)	(0.0005)	(0.0005)	(0.0004)	(0.0005)	(0.0003)
Sust Fund	-0.0004**	-0.0039***	-0.0038***	0.0001	-0.0048***	-0.0023***
	(0.0002)	(0.0013)	(0.0012)	(0.001)	(0.0013)	(0.0007)
Inst	0.0003***	0.0005	0.0005	0.0002	0.0006	0.0004
	(0.0001)	(0.0005)	(0.0005)	(0.0004)	(0.0004)	(0.0003)
log TA_{t-1}	0.0001***	0.0001***	0.0001***	0.0001***	0.0001***	0.0001***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0)
MS $stars_{t-1}$	0.0000	0.0001	0.0000	0.0000	0.0001**	0
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
r_{t-1}	-0.0016	-0.0023	-0.0022	-0.0022	-0.0025	-0.0019
	(0.0038)	(0.0038)	(0.0038)	(0.0038)	(0.0038)	(0.0038)
$r_{t-12:t-1}$	0.2027***	0.2244***	0.2172***	0.2225***	0.2225***	0.2066***
	(0.0133)	(0.0134)	(0.0134)	(0.0133)	(0.0133)	(0.0133)
$r_{t-24:t-1}$	-0.1093***	-0.248***	-0.2174***	-0.2396***	-0.2406***	-0.1231***
	(0.0198)	(0.0224)	(0.0226)	(0.0224)	(0.0215)	(0.0201)
exp ratio	-0.0001	-0.0002**	-0.0001	-0.0002***	-0.0002***	-0.0001
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
log age	0.0001	0.0000	0.0000	0.0000	0.0000	0.0001
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
$flows_{t-1}$	0.003***	0.0034***	0.0033***	0.0033***	0.0032***	0.0031***
	(0.0008)	(0.0008)	(0.0008)	(0.0008)	(0.0008)	(0.0008)
observations	158536	158536	158536	158536	158536	158536
R^2	0.0033	0.0061	0.0057	0.0059	0.0065	0.0038
R^2 between	0.0131	0.0948	0.0818	0.0869	0.1139	0.0437
Cat by YM FE	YES	YES	YES	YES	YES	YES

4 Conclusion

In this paper, we revisit the question whether investors care about sustainability. We define a new bottom-up product-based measure of fund sustainability that links this concept to the alignment of the fund with the SDGs. We break down the overall sustainability assessment (which gauges the average alignment with all 17 SDGs) into four distinct dimensions: economy & infrastructure, environment, basic needs, and social progress. Within each dimension, we evaluate both the positive and negative alignment of the fund with specific aspects of sustainability. It is worth noting that funds may simultaneously hold companies that contribute positively to SDGs and those that have a negative impact on them. By focusing solely on the "net" impact (i.e., positive impact minus negative impact), we are unable to distinguish between investor preferences influenced by only one aspect of sustainability (such as investors employing exclusionary screening).

We observe that, on average, funds that align with the SDGs experience increased inflows only when they have a sustainability mandate. Conversely, for funds without a sustainability mandate, the relationship is reversed: funds with greater alignment with the SDGs attract fewer inflows. Breaking down the scores into their positive and negative components, we find that it is primarily the negative component that drives these results. These findings underscore the tendency of sustainable investors to primarily employ an exclusionary approach when allocating their assets.

This suggests that, while investors exhibit a preference for sustainable funds, their actions are primarily focused on excluding funds that are negatively aligned with the SDGs, rather than actively increasing investments in positively aligned funds. These findings highlight the phenomenon of investors divesting from non-sustainable funds and reallocating to "neutral" funds, rather than actively contributing to the advancement of the SDGs by investing in positively aligned funds. And while we document a positive relationship between SDG alignment and fund returns, investors do not appear to recognize and exploit that relationship in their capital allocation decisions.

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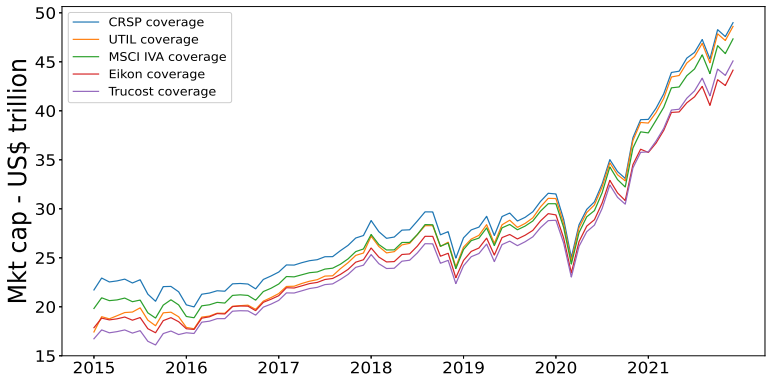
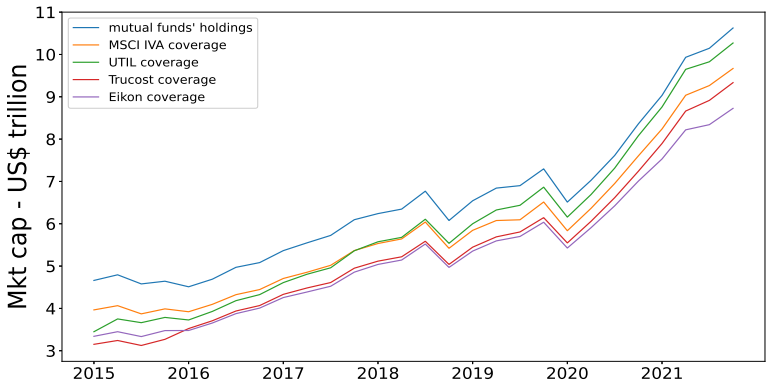
A Util SDG Score Coverage

Figure A.1: **Average Sustainability Scores Across Fund Categories at the Fund Level**

This figure presents the market cap coverage for different ESG metrics and Util scores. Panel (a) presents the total market capitalization of all common stocks in the CRSP US Stock Databases, along with the portion covered by both standard ESG data providers (MSCI, Refinitiv, Trucost) and Util. Panel (b) displays the market capitalization of actively managed US equity mutual funds' holdings, highlighting the coverage by the same ESG data providers and Util.



(a) *CRSP Monthly Stock - entire database*



(b) *CRSP Mutual fund holdings - US equity active managed*

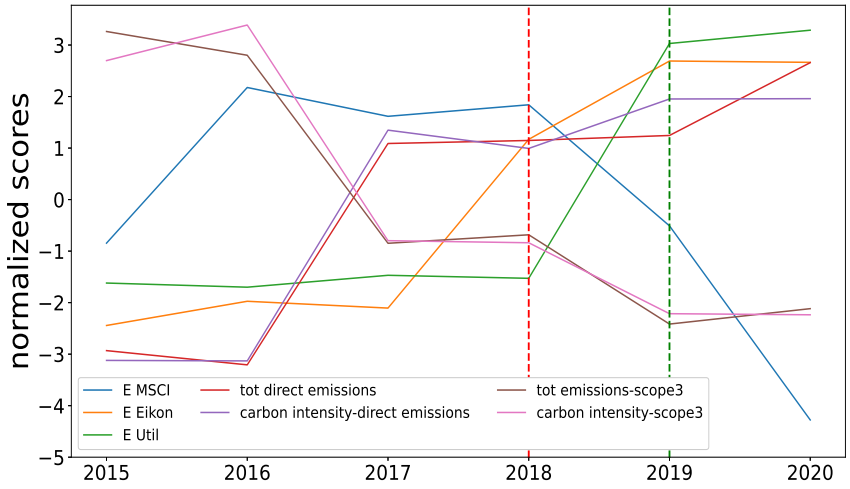
B Environmental SDGs Alignment: An Example

To better understand Util's scores and the information they convey, it is helpful to examine an example: Enviri Corporation. Enviri is a company that specializes in the processing, treatment, disposal, and recycling of complex recurring waste for industries such as steel, railways, and energy. Enviri's waste recycling business is quite recent; indeed, until 2018, Enviri Corporation primarily operated as an industrial services company with a significant focus on steel mill services, rail maintenance equipment, and infrastructure support. Its core business was to provide essential industrial products and services with limited emphasis on environmental solutions. After the acquisition of Clean Earth in 2019, Enviri underwent a strategic transformation, moving to become a leader in environmental services. The Clean Earth deal, followed by the 2020 acquisition of Stericycle's Environmental Solutions division, significantly expanded Enviri's footprint in the environmental sector, particularly in waste management and recycling of hazardous materials. The company divested its rail division to sharpen its focus on sustainability, and its core business now focuses on recycling, resource recovery, and environmental waste solutions. This marked a shift from traditional industrial services to a more specialized focus on providing sustainable solutions for global industries. Util's product-based scores reflect this transition of Enviri. In fact, the products provided by the company in 2018 are classified according to 5 categories *Heating, Ventilation, and Air Conditioning (HVAC)*; *Industrial Cooling and Heating Systems*; *Metal processing*, *Public and Transportation Infrastructure Components*; and *Rail Transportation Equipment*. Starting in 2019, new categories are added to the company's product portfolio: *Hazardous/Industrial Waste Disposal*; *Industrial and construction additives*; *Metal Recycling*; *Resource Recovery*, and *Solid Waste Recycling Equipment*. The fact that Enviri has also started operating in these new segments is reflected in its environmental score, which changed from negative to positive.

Figure B.2 shows the time series of different metrics of the environmental footprint of Enviri corporation. From 2018 to 2019, the firm's net alignment with environmental SDGs according to the Util metric jumped form -0.34 to +0.10, in line with Enviri's acquisition of Clean Earth, an industry leader in environmentally sustainable solutions for treating and recycling waste streams in the infrastructure, industrial, commercial, and institutional sectors. However, this event appears to be overlooked by the environmental metrics published by other ESG rating providers. According to MSCI's environmental score, as well as the company's direct total emissions and emissions intensity, Enviri appears to be even less environmentally friendly in 2019 compared to

Figure B.2: **Enviri (formerly Harsco Corporation)'s environmental footprint**

This figure presents the time series for different environmental scores of Enviri corporation (formerly Harsco Corporation). *E MSCI* is the environmental score provided by *MSCI IVA*, *E Refinitiv* is the environmental score provided by Refinitiv. *E Util* is the net impact of the company on the environmental SDGs. *Tot direct emissions*, *carbon intensity-direct emissions*, *tot emissions-scope3*, and *carbon intensity-scope3* are from Trucosts. Time series are normalized by subtracting the mean and divided by the standard deviation. In 2019 (dashed green line) the company acquired Clean Earth, an industry leader of environmentally sustainable solutions for specialty waste streams.



2018. According to Refinitiv's environmental score, the company became greener a year prior to the acquisition, potentially reflecting anticipated changes in company policies. In terms of *scope 3* emissions and intensity, the downward trend starts even earlier.

C Standard ESG Metrics

Table C.1
Standard ESG Metrics and Fund Flows

This table reports parameter estimates of the regression of fund flows on the sustainability score of the fund in the prior month measured as the asset-value-weighted average of the ESG metrics of funds' holdings, an interaction term including the sustainability scores in the prior month and a sustainable fund dummy variable, an interaction term including the sustainability scores in the prior month and an institutional investor dummy variable, and a set of controls, as given in Equation (8). The dependent variable is fund flows, which is regressed on different proxies for funds sustainability based on standard ESG metrics: Refinitiv ESG score, Refinitiv environmental score, Refinitiv social score, Refinitiv governance score, MSCI ESG score, MSCI environmental score, MSCI social score, MSCI governance, logarithm of direct emissions, and logarithm of carbon intensity. All columns include as additional controls the log of size in the prior month, the Morningstar star rating in the prior month, the return in the prior month, the return over the prior 12 months, the return over the prior 24 months, the expense ratio, the log of fund age, and the fund flow in the prior month. In addition, all columns include the year $\times$ Morningstar global category $\times$ month fixed effects. The sample spans Jan 2015—Dec 2021, and analysis is at the share class level. $*$, $**$, and $***$ indicate significance at the 10%, 5%, and 1% levels, respectively. Standard errors are in parentheses.

	Refinitiv				MSCI				Trucost			
	ESG	E	S	G	ESG	E	S	G	Emiss s1	Emiss s2	CI s1	CI s2
ESG	0.0000	0.0000	-0.0001	0.0000	-0.0007	0.0001	-0.0021*	-0.0004	0.0005***	-0.0026**	0.0007**	0.0054*
	(0.0001)	(0.0000)	(0.0001)	(0.0001)	(0.0009)	(0.0008)	(0.0012)	(0.0008)	(0.0002)	(0.001)	(0.0003)	(0.0028)
constant	-0.0133***	-0.0165***	-0.0109**	-0.0128***	-0.0123**	-0.016***	-0.007	-0.0133**	-0.0164***	-0.0135***	-0.0165***	-0.0168***
	(0.0049)	(0.0038)	(0.005)	(0.0049)	(0.0058)	(0.0051)	(0.0062)	(0.0053)	(0.0024)	(0.0028)	(0.0023)	(0.0024)
Sust Fund	0.0096***	0.0094***	0.0097***	0.0096***	0.0089***	0.0086***	0.0091***	0.0087***	0.0092***	0.0085***	0.009***	0.0088***
	(0.0014)	(0.0015)	(0.0014)	(0.0014)	(0.0014)	(0.0013)	(0.0013)	(0.0013)	(0.0014)	(0.0014)	(0.0014)	(0.0014)
Inst	0.0014**	0.0014**	0.0014**	0.0014**	0.0016***	0.0016***	0.0016***	0.0016***	0.0015***	0.0015***	0.0015***	0.0015***
	(0.0006)	(0.0006)	(0.0006)	(0.0006)	(0.0006)	(0.0006)	(0.0006)	(0.0006)	(0.0006)	(0.0006)	(0.0006)	(0.0006)
observations	101182	101182	101182	101182	112337	112337	112337	112337	109324	109324	109324	109324
R^2	0.073	0.073	0.0731	0.0731	0.0768	0.0768	0.0769	0.0768	0.0741	0.0741	0.0741	0.074
R^2 between	0.3414	0.3443	0.3383	0.3422	0.3565	0.3579	0.3565	0.3578	0.3592	0.3488	0.3563	0.3563
Cat by YM FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Controls	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

Table C.2

Standard ESG Metrics, Util Scores, and Fund Flows

This table reports parameter estimates of the regression of fund flows on the sustainability score of the fund in the prior month measured as the asset-value-weighted average of the ESG metrics of funds' holdings, Util overall sustainability score of the fund in the prior month ($sus.\ score_{t-1}$), an interaction term including the sustainability scores in the prior month and a sustainable fund dummy variable, an interaction term including the sustainability scores in the prior month and an institutional investor dummy variable, and a set of controls, as given in Equation (8). The dependent variable is fund flows, which is regressed on different proxies for funds sustainability based on standard ESG metrics: Refinitiv ESG score, Refinitiv environmental score, Refinitiv social score, Refinitiv governance score, MSCI ESG score, MSCI environmental score, MSCI social score, MSCI governance, logarithm of direct emissions, and logarithm of carbon intensity. All columns include as additional controls the log of size in the prior month, the Morningstar star rating in the prior month, the return in the prior month, the return over the prior 12 months, the return over the prior 24 months, the expense ratio, the log of fund age, and the fund flow in the prior month. In addition, all columns include the year $\times$ Morningstar global category $\times$ month fixed effects. The sample spans Jan 2015—Dec 2021, and analysis is at the share class level. $*$, $**$, and $***$ indicate significance at the 10%, 5%, and 1% levels, respectively. Standard errors are in parentheses.

	Refiniitv				MSCI				Trucost			
	ESG	E	S	G	ESG	E	S	G	Emiss s1	Emiss s2	CI s1	CI s2
ESG	-0.0001	0.0000	-0.0001	-0.0001	-0.0006	0.0006	-0.0019*	-0.0007	0.0002	-0.0035***	0.0001	0.0023
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0009)	(0.0007)	(0.0011)	(0.0009)	(0.0002)	(0.0012)	(0.0004)	(0.0027)
sus. score pos	0.033	0.0247	0.0345	0.0362	0.0307	0.0313	0.0269	0.0292	0.0333	0.0803*	0.0343	0.0355
	(0.0407)	(0.0408)	(0.0408)	(0.0405)	(0.0396)	(0.0395)	(0.0395)	(0.0395)	(0.0407)	(0.0425)	(0.0409)	(0.0406)
sus. score pos*Sust Fund	-0.1253	-0.1188	-0.128	-0.1247	-0.018	-0.0172	-0.0165	-0.0196	-0.0271	-0.0268	-0.0293	-0.0309
	(0.1266)	(0.1269)	(0.1259)	(0.1273)	(0.1108)	(0.1112)	(0.1114)	(0.1111)	(0.1182)	(0.1165)	(0.118)	(0.118)
sus. score pos*Inst	-0.082**	-0.0819**	-0.0823**	-0.082**	-0.0787**	-0.0789**	-0.0792**	-0.0788**	-0.0733*	-0.0752**	-0.074*	-0.0742*
	(0.0398)	(0.0398)	(0.0397)	(0.0398)	(0.0379)	(0.038)	(0.0379)	(0.0379)	(0.038)	(0.0379)	(0.038)	(0.038)
sus. score neg	0.093**	0.0919**	0.0905**	0.0946**	0.0794**	0.0864**	0.0767**	0.0821**	0.0724*	0.0852**	0.0778*	0.0772**
	(0.0374)	(0.0383)	(0.0369)	(0.0374)	(0.0357)	(0.0355)	(0.0358)	(0.037)	(0.0443)	(0.0376)	(0.0442)	(0.0379)
sus. score neg*Sust Fund	-0.1838**	-0.1768**	-0.1877**	-0.1839**	-0.165**	-0.1579**	-0.1682**	-0.1623**	-0.1764***	-0.183***	-0.1783***	-0.1774***
	(0.0759)	(0.0757)	(0.0757)	(0.0761)	(0.0692)	(0.0681)	(0.069)	(0.0682)	(0.0686)	(0.0684)	(0.0684)	(0.0685)
sus. score neg*Inst	-0.013	-0.0137	-0.0128	-0.0128	-0.0089	-0.0095	-0.0085	-0.0089	-0.009	-0.0082	-0.0094	-0.0096
	(0.0265)	(0.0265)	(0.0265)	(0.0265)	(0.0251)	(0.0252)	(0.0252)	(0.0251)	(0.026)	(0.0258)	(0.0259)	(0.0259)
constant	-0.0206***	-0.023***	-0.019***	-0.0198***	-0.02***	-0.0264***	-0.0144**	-0.0195***	-0.0227***	-0.0239***	-0.0228***	-0.0233***
	(0.0055)	(0.0047)	(0.0057)	(0.0057)	(0.0059)	(0.0054)	(0.0065)	(0.0058)	(0.0043)	(0.0042)	(0.0043)	(0.0042)
Sust Fund	0.0262**	0.0253**	0.0266***	0.0262**	0.0173*	0.0165*	0.0174*	0.0171*	0.0184*	0.0183*	0.0185*	0.0186*
	(0.0104)	(0.0104)	(0.0103)	(0.0105)	(0.0092)	(0.0092)	(0.0092)	(0.0092)	(0.0096)	(0.0095)	(0.0096)	(0.0096)
Inst	0.0075**	0.0075**	0.0075**	0.0075**	0.0073**	0.0073**	0.0073**	0.0073**	0.0068**	0.0069**	0.0069**	0.0069**
	(0.0031)	(0.0031)	(0.0031)	(0.0031)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
observations	101182	101182	101182	101182	112337	112337	112337	112337	109324	109324	109324	109324
R^2	0.0736	0.0736	0.0736	0.0736	0.0773	0.0773	0.0774	0.0773	0.0744	0.0746	0.0744	0.0744
R^2 between	0.3423	0.3448	0.3401	0.3435	0.3589	0.3617	0.3586	0.3602	0.3593	0.35	0.358	0.3581
Cat by YM FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Controls	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

Table C.3

Standard ESG metrics - high and low

This table reports parameter estimates of the regression of fund flows on the sustainability score of the fund in the prior month measured as the asset-value-weighted average of the ESG metrics of funds' holdings disaggregate in the funds above (ESG high) and below the median (ESG low), an interaction term including the sustainability scores in the prior month and a sustainable fund dummy variable, an interaction term including the sustainability scores in the prior month and an institutional investor dummy variable, and a set of controls, as given in Equation (8). The dependent variable is fund flows, which is regressed on different proxies for funds sustainability based on standard ESG metrics: Refinitiv ESG score, Refinitiv environmental score, Refinitiv social score, Refinitiv governance score, MSCI ESG score, MSCI environmental score, MSCI social score, MSCI governance, logarithm of direct emissions, and logarithm of carbon intensity. All columns include as additional controls the log of size in the prior month, the Morningstar star rating in the prior month, the return in the prior month, the return over the prior 12 months, the return over the prior 24 months, the expense ratio, the log of fund age, and the fund flow in the prior month. In addition, all columns include the year $\times$ Morningstar global category $\times$ month fixed effects. The sample spans Jan 2015—Dec 2021, and analysis is at the share class level. $*$, $**$, and $***$ indicate significance at the 10%, 5%, and 1% levels, respectively. Standard errors are in parentheses.

	Refiniitv				MSCI				Trucost			
	ESG	E	S	G	ESG	E	S	G	Emiss s1	Emiss s2	CI s1	CI s2
ESG high	0.0000	0.0001	0.0000	-0.0001	0.0004	0.0027***	0.0000	-0.0005	0.0005***	-0.0045***	0.0003	0.0078**
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.001)	(0.0009)	(0.0017)	(0.0013)	(0.0002)	(0.0014)	(0.0004)	(0.0036)
ESG low	0.0001	0.0000	0.0002*	0.0000	0.0021	0.0023*	0.0037**	0.0003	-0.0005	-0.0035	-0.0024**	0.0014
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0014)	(0.0013)	(0.0018)	(0.0012)	(0.0012)	(0.0033)	(0.001)	(0.0075)
constant	-0.0159***	-0.0155***	-0.0167***	-0.0153***	-0.0162***	-0.0174***	-0.0162***	-0.0154***	-0.0159***	-0.0136***	-0.0155***	-0.0157***
	(0.0026)	(0.0027)	(0.0025)	(0.0025)	(0.0022)	(0.0021)	(0.0022)	(0.0024)	(0.0025)	(0.0028)	(0.0023)	(0.0024)
Sust Fund	0.0096***	0.0094***	0.0097***	0.0095***	0.0087***	0.0083***	0.0088***	0.0087***	0.0092***	0.0084***	0.0092***	0.0088***
	(0.0014)	(0.0015)	(0.0014)	(0.0014)	(0.0014)	(0.0013)	(0.0013)	(0.0013)	(0.0014)	(0.0014)	(0.0014)	(0.0014)
Inst	0.0014**	0.0014**	0.0014**	0.0014**	0.0016***	0.0016***	0.0016***	0.0016***	0.0015***	0.0015***	0.0015**	0.0015***
	(0.0006)	(0.0006)	(0.0006)	(0.0006)	(0.0006)	(0.0006)	(0.0006)	(0.0006)	(0.0006)	(0.0006)	(0.0006)	(0.0006)
observations	101182	101182	101182	101182	112337	112337	112337	112337	109324	109324	109324	109324
R^2	0.0731	0.073	0.0732	0.0731	0.0769	0.0771	0.077	0.0768	0.0741	0.0742	0.0741	0.074
R^2 between	0.3406	0.3446	0.3342	0.3423	0.3559	0.3561	0.3563	0.3579	0.3592	0.3571	0.3572	0.3563
Cat by YM FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Controls	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

Table C.4

Standard ESG metrics, Util scores, and flows - positive and negative alignment

This table reports parameter estimates of the regression of fund flows on the sustainability score of the fund in the prior month measured as the asset-value-weighted average of the ESG metrics of funds' holdings disaggregate in the funds above (ESG high) and below the median (ESG low), Util overall sustainability score of the fund in the prior month disaggregate in the positive alignment ($sus.\ score_{t-1}$ pos) and the negative alignment ($sus.\ score_{t-1}$ neg), an interaction term including the sustainability scores in the prior month and a sustainable fund dummy variable, an interaction term including the sustainability scores in the prior month and an institutional investor dummy variable, and a set of controls, as given in Equation (8). The dependent variable is fund flows, which is regressed on different proxies for funds sustainability based on standard ESG metrics: Refinitiv ESG score, Refinitiv environmental score, Refinitiv social score, Refinitiv governance score, MSCI ESG score, MSCI environmental score, MSCI social score, MSCI governance, logarithm of direct emissions, and logarithm of carbon intensity. All columns include as additional controls the log of size in the prior month, the Morningstar star rating in the prior month, the return in the prior month, the return over the prior 12 months, the return over the prior 24 months, the expense ratio, the log of fund age, and the fund flow in the prior month. In addition, all columns include the year × Morningstar global category × month fixed effects. The sample spans Jan 2015—Dec 2021, and analysis is at the share class level. $*$, $**$, and $***$ indicate significance at the 10%, 5%, and 1% levels, respectively. Standard errors are in parentheses.

	Refiniitv				MSCI				Trucost			
	ESG	E	S	G	ESG	E	S	G	Emiss s1	Emiss s2	CI s1	CI s2
ESG high	0.0001	0.0001	0.0001	0.0000	0.0006	0.0031***	0.0002	-0.0007	0.0003	-0.0044***	-0.0001	0.0055*
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.001)	(0.001)	(0.0018)	(0.0013)	(0.0002)	(0.0014)	(0.0004)	(0.0034)
ESG low	0.0002*	0.0001	0.0002**	0.0001	0.0021	0.0018	0.0036**	0.0006	0.0007	0.0002	-0.0015	0.0077
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0014)	(0.0012)	(0.0017)	(0.0012)	(0.0012)	(0.0031)	(0.0012)	(0.0079)
sus. score pos	0.0355	0.031	0.0328	0.0366	0.0266	0.0132	0.0236	0.0292	0.0397	0.0746*	0.0304	0.038
	(0.0405)	(0.041)	(0.0406)	(0.0403)	(0.0398)	(0.0394)	(0.04)	(0.0397)	(0.0396)	(0.0426)	(0.0402)	(0.0406)
sus. score pos*Sust Fund	-0.1459	-0.1393	-0.1518	-0.1294	-0.0343	-0.0295	-0.0194	-0.0197	-0.026	-0.025	-0.0268	-0.0326
	(0.1256)	(0.1268)	(0.1237)	(0.1266)	(0.1097)	(0.1097)	(0.1107)	(0.1114)	(0.1181)	(0.1165)	(0.1178)	(0.1179)
sus. score pos*Inst	-0.0813**	-0.0815**	-0.0818**	-0.0815**	-0.0789**	-0.0791**	-0.0791**	-0.0788**	-0.0729*	-0.0758**	-0.0746**	-0.0743*
	(0.0397)	(0.0398)	(0.0396)	(0.0397)	(0.0379)	(0.0379)	(0.0379)	(0.0379)	(0.0381)	(0.0378)	(0.0381)	(0.038)
sus. score neg	0.1008***	0.1003***	0.0979***	0.0967**	0.0812**	0.0842**	0.0777**	0.0821**	0.0769*	0.0791**	0.0727	0.08**
	(0.0376)	(0.0375)	(0.0373)	(0.0382)	(0.0362)	(0.0352)	(0.036)	(0.037)	(0.045)	(0.0365)	(0.0456)	(0.0384)
sus. score neg*Sust Fund	-0.1835**	-0.1792**	-0.1851**	-0.1838**	-0.1574**	-0.1417**	-0.1626**	-0.1623**	-0.1784***	-0.1738**	-0.1778***	-0.1785***
	(0.076)	(0.0758)	(0.0758)	(0.0762)	(0.0692)	(0.068)	(0.069)	(0.0682)	(0.0681)	(0.0693)	(0.0683)	(0.0686)
sus. score neg*Inst	-0.0128	-0.0137	-0.0127	-0.0127	-0.0084	-0.009	-0.0084	-0.0089	-0.0087	-0.0084	-0.0101	-0.0092
	(0.0265)	(0.0265)	(0.0264)	(0.0265)	(0.0251)	(0.0251)	(0.0251)	(0.0251)	(0.026)	(0.0258)	(0.0258)	(0.0259)
constant	-0.0254***	-0.0248***	-0.0257***	-0.0243***	-0.0234***	-0.0236***	-0.0229***	-0.0228***	-0.0234***	-0.0248***	-0.0219***	-0.0234***
	(0.0042)	(0.0043)	(0.0042)	(0.004)	(0.0041)	(0.0041)	(0.0041)	(0.004)	(0.0044)	(0.0045)	(0.0045)	(0.0043)
Sust Fund	0.0277***	0.0269***	0.0282***	0.0265**	0.0178*	0.0164*	0.0171*	0.0171*	0.0184*	0.0177*	0.0184*	0.0188**
	(0.0103)	(0.0104)	(0.0102)	(0.0105)	(0.0091)	(0.0091)	(0.0092)	(0.0092)	(0.0096)	(0.0095)	(0.0095)	(0.0096)
Inst	0.0075**	0.0075**	0.0075**	0.0075**	0.0073**	0.0073**	0.0073**	0.0073**	0.0068**	0.0069**	0.0069**	0.0069**
	(0.0031)	(0.0031)	(0.0031)	(0.0031)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
observations	101182	101182	101182	101182	112337	112337	112337	112337	109324	109324	109324	109324
R^2	0.0737	0.0736	0.0738	0.0736	0.0773	0.0776	0.0774	0.0773	0.0744	0.0747	0.0745	0.0745
R^2 between	0.3394	0.344	0.3335	0.3433	0.3581	0.3602	0.3583	0.3603	0.359	0.3556	0.3585	0.3583
Cat by YM FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Controls	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES