ESG Favoritism in Mutual Fund Families*

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We investigate whether mutual fund families favor their ESG funds at the expense of their non-ESG siblings. We find that the net-of-style return spread of ESG compared to non-ESG funds within the fund family is significantly greater than the gap with non-ESG matches outside the family. The difference is around 2% per year, on average, indicating sizable cross-fund subsidization that is mainly used to avoid underperformance of ESG funds. We link this difference in performance to various fund and family characteristics and relate the observed effects to measures of environmental awareness and fund flows. Additionally, we investigate potential mechanisms of ESG favoritism.

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1 Introduction

The last two decades have been heavily shaped by the trend towards integrating environmental, social, and governance (ESG) considerations into the investment process at the level of households, firms, financial intermediaries, and governments. Catering to the demand, asset management companies have been diligently launching financial vehicles with such strategies in view. Correspondingly, the ESG segment of the open-end fund industry has been ever-expanding with a wide range of offered strategies and philosophies, including specific asset screenings as well as impact goals, nearly doubling both the number of funds and assets under management (AUM) between 2019 and 2022 worldwide (see, e.g., Investment Company Institute, 2023). Moreover, the enhanced mutual fund market concentration, with the dominance of a small number of large players, further intensifies the role of fund firms (fund families).[1] These developments inevitably pose the question of how this organizational setting affects the dynamics and incentives of the open-end fund industry in light of the boom in ESG investing.

Therefore, we postulate and show that ESG mutual funds benefit from favoritism exhibited by their families. Also referred to as cross-subsidization, it implies that fund firms tend to coordinate actions across member funds and encourage fund managers to prioritize family interests, even at the expense of their investors in other funds within the family. As shown in Gaspar et al. (2006), fund families subsidize funds with superior profit-generating potential over others.[2] The driving force behind engaging in favoritism is manifold and yet concentrated in optimizing mutual fund flows and returns so as to maximize family profits. However, given the growing popularity of ESG investing, mutual funds with such a focus offer additional value-generating potential. The benefits of tilting towards ESG investing could be reputational advantages, being utilized as a marketing toolto attract greater investment flows. By offering a differentiated product menu highlighting a new product with different characteristics, fund families aim to reach an additional

[1] While in 2005 only 35% of the total mutual fund and exchange-traded fund (ETF) assets were under the management of the five largest complexes in the U.S., this number rose to 55% in 2022. See Investment Company Institute (2023).

[2] Gaspar et al. (2006) term the funds as *high-value* and *low-value*, corresponding to their profit-generating potential based on fees, return, and age.

market segment catering to a special demand (see, e.g., Massa, 2003), or as argued by Pástor et al. (2022), a source of utility to investors.

We investigate empirically the existence of family-level cross-subsidizing strategies favoring ESG mutual funds at the potential expense of their non-ESG siblings. We do this by comparing the performance of ESG funds with regular (non-ESG) funds within and outside the family. Similar to Gaspar et al. (2006), we interpret a higher return differential within the family, compared to outside the family, as an indication of subsidization. We explain these differences in performance based on various characteristics of the funds and the fund families involved. Then, we explore any timing aspects in relation to environmental awareness and fund flows. Reassessing our findings from the perspective of non-ESG funds, we analyze their performance around the inception of a new ESG sibling. Lastly, we investigate the impact of the potential mechanisms of implementing ESG favoritism, particularly opposite trades and initial public offering (IPO) allocations, and their role in the cross-subsidization process.

We report substantial evidence of ESG mutual fund favoritism using a survivorship-bias-free sample obtained from Morningstar Direct, covering domestic US equity open-end funds from 2000 to 2022. Overall, we identify 72 mutual funds as being ESG-focused, belonging to 51 fund families. These funds are compared to 3,732 regular (non-ESG) funds associated with 761 fund firms. The average AUM share of ESG funds more than tripled during our sample period, reaching nearly 7% in 2022, and within fund families owning ESG funds, this share is around 22%, on average. Our main results are obtained using monthly net-of-style returns and serve to capture the performance transfer from non-ESG to ESG funds. We pair each ESG fund with its regular counterparts within the same family. Then, we match the non-ESG funds to their closest equivalent outside the family. This reveals how the performance gap between ESG and regular funds within the family relates to that of outside funds.

Our univariate analysis shows that the intra-family net-of-style return differences between ESG and non-ESG funds significantly exceed their outside-matched pairs, indicating sizable cross-fund subsidization. In particular, we report 16.3 basis points

(bp) abnormal monthly net-of-style ESG fund returns. This translates to an almost 2% yearly advantage provided to ESG mutual funds by potentially attenuating the performance of their other fund family members. We confirm this result by controlling for various fund and family characteristics in a panel-regression setup. These results are comparable in magnitude to the findings of Gaspar et al. (2006) achieved by cross-subsidizing high-value with low-value funds. However, Gaspar et al. (2006) document that the subsidization is used to achieve a general outperformance of high-value funds. In contrast, we find a nearly identical net-of-style return of ESG funds compared to non-ESG funds within the family and underperformance outside the family. We conjecture this is due to the unique flow-return relationship of ESG funds. Since ESG investors consider factors other than traditional risk-return aspects of performance, fund families may view avoiding underperformance within the family to be more important than providing outperformance when optimizing fund flows.

In our second analysis, we explore which ESG funds tend to be favored by their families and which regular funds are predisposed to be exploited in the cross-subsidization process. According to our results, regardless of their fees and age, all ESG funds receive a boost in performance. However, ESG funds that exhibit lower-than-average year-to-date (YTD) returns within their investment style are more strongly subsidized by their families than those that prosper on their own, receiving a monthly 4.9 bp higher return boost. This strengthens our finding that fund families aim to avoid underperformance in their ESG funds, rather than try to outperform. We presume the performance is transferred from regular funds with attributes implying a lower ability to generate fee income, attract and retain investor inflows, or be more resilient to return withdrawals. Correspondingly, we unveil the possibility that older, larger funds with smaller fees, weaker YTD returns, higher tracking errors, or lower ESG scores are the main performance providers of the cross-subsidizing strategy. Our results suggest age to be the most decisive factor to be used for the cross-subsidization with a difference of 18.7 bp of additional performance provided by old over young funds. Next, we investigate which families are more prone to engage in ESG-favoring strategies. We report that older, smaller families that own fewer funds and have a lower-than-average ESG AUM share are

the most likely to push the performance of their ESG members at the expense of other funds. Specifically, with a 26.8 bp monthly return advantage provided to their ESG funds, we find the strongest evidence of favoritism for families with lower a ESG AUM share. This is indicative of their aim of increasing their ESG market share.

In the third analysis, our approach to studying the timing of ESG favoritism is predicated on its response to media-driven awareness of climate concerns and flow performance. As a first test, we analyze the impact of the Paris Agreement, a result of the 2015 United Nations Climate Change Conference (COP21), given its effect on environmental preferences. Confirming our expectations, we find increased ESG fund subsidization following the COP21. To measure environmental awareness with greater granularity, we integrate the Media Climate Change Concern (MCCC) Index of Ardia et al. (2023) to our return difference-based regression framework. As gauged by the twelve-month moving average of the MCCC, we observe an over 10.1 bp monthly additional boost of ESG fund performance associated with a one standard deviation increase of the former measure. Thus, fund families generally push their ESG funds more in times of greater environmental awareness. Nevertheless, as attention towards climate change is quite volatile around events such as the COP21, we explore the impact of awareness spikes on subsidization in more detail. In particular, we document that during months of heightened climate change alertness, mutual fund families do not exert additional effort into subsidizing their ESG-focused members. However, fading attention following periods of high concerns induces thriving engagement in ESG favoritism. Next, focusing on fund flows directly we analyze its relation to cross-subsidization and document an inverse relationship with a 15 bp decrease in return boosting for a one standard deviation change in flows. These results indicate that fund families are aware of the investors' trade-off between the importance of ESG investing and risk-return considerations. Thus, in times of heightened awareness and larger inflows, fund families reduce their subsidization from regular funds, whereas when awareness and inflows fade, greater subsidization is undertaken. In a complementary analysis, we compare under- vs over-performing ESG fund flows compared to the overall flows to the family. In the case of underperforming ESG fund flows, they receive more than twice the subsi-

dization. These findings align with our conjecture of fund families pushing ESG fund performance only to the extent of optimizing flows.

Our fourth analysis provides additional evidence on cross-subsidization from the viewpoint of the non-ESG funds. We focus on the introduction of ESG funds to fund families. In particular, we compare the performance of the regular funds in a family that just launched an ESG fund with the performance of matched regular funds outside this family in a 10-year window around the inception. In the five years before the introduction of an ESG fund, the performance of regular funds is comparable within and outside the family. However, after inception, regular funds suffer around 9 bp monthly relative decline, on average in the following five years. This underperformance can result from the return shifts towards ESG funds, a deviation of attention, or general effects on family members' portfolio allocation around the inception. Overall, introducing an ESG fund has a noteworthy impact on the non-ESG funds in the family.

Our last analysis focuses on examining potential mechanisms of ESG favoritism in mutual fund families. In particular, we investigate opposite trades and preferential initial public offering (IPO) allocations with fund families. Opposite trades could be carried out to support favoritism by either using regular funds as a buffer against the price pressure created by the ESG sibling or by directing assets with higher expected future performance to ESG funds from the non-ESG siblings, while trading equities with a less bright outlook in the other direction.[3] Nevertheless, any benefit ESG mutual funds may receive from opposite trades would be borne by the investors in the funds on the other side of the transaction. Using a measure of symmetric transactions based on changes in quarterly portfolio holdings, we report a boost in return directed to ESG mutual funds within families via this method of favoritism. The economic significance of this strategy, even at a quarterly frequency, is non-negligible: an increase in opposite trades by one standard deviation enhances annual ESG fund performance as far as 0.24%.

[3] Eisele et al. (2020) analyze the mechanics of cross trading in regular funds with a detailed transaction data set. They document that prices of cross trades are set strategically, significantly deviate from prices in order books, and are "back dated", i.e., exactly match the highest or lowest price of a day with higher probability.

Assuming that fund families can obtain some information about how promising a new issue is likely to be, preferential allocation of IPOs to ESG funds is a plausible channel of cross-subsidization. Utilizing a complete dataset of IPOs in the 2005-2022 period together with holdings data, we find that ESG funds, on average, receive nearly triple the allocation weight in IPOs in the family, and the return contribution of the assigned IPOs is also significantly higher than of the regular mutual funds. Strikingly, while ESG funds are allocated 12 IPOs on average over the whole sample, their regular siblings are only given slightly above 2.5. Given that IPOs tend to be considerably underpriced (see, e.g., Ritter and Welch, 2002), and also otherwise likely have positive initial returns (see, e.g., Derrien, 2005), directing proportionally more IPOs to ESG funds - even without having any specific information about their future prosperity - is a presumptive profitable strategy. Therefore, we infer that preferential IPO allocation to ESG funds is an additional channel of favoritism fund families use.

Our contribution to the literature and the relevance of our results are manifold. First, we enrich the fund stewardship literature. In particular, we conduce to exploring the scarcely studied organizational setup of mutual fund families and how it provides a foundation for cross-subsidizing strategies of ESG funds. Second, we provide a detailed analysis concerning the relation between fund and family characteristics and the strength of the potential subsidization, documenting that fund families prefer to avoid underperformance of ESG funds rather than chasing their outperformance. Third, we document that the fund industry is aware of the trade-off between ESG demand and investors' risk-return considerations. Thus, strategies of ESG favoritism are matched with investors' attention and resulting fund flows. Fourth, we provide evidence that similar mechanisms for subsidization are used, as documented in previous literature comparing high- and low-value funds. Consequently, this paper has crucial policy implications of mutual funds' grey area actions, especially strategies and channels of favoritism, which may adversely impact some investors, while benefiting others in the fund family. That is, we unveil indications of prioritizing fund family prosperity at the expense of certain non-ESG fund investors while benefiting holders of ESG fund shares. Finally, we enrich the ESG mutual fund literature by stressing the need for caution in the performance

evaluation of these financial vehicles: a substantial proportion of their returns could be synthetically generated and be sensitive to family allocation decisions. Nevertheless, we hasten to emphasize that our findings are indirect, aggregate, and cannot be construed as evidence of misconduct in the mutual fund industry in terms of flouting of laws and regulations.[4]

2 Related Literature

The mutual fund literature has researched several aspects of the industry, with performance as a main focal point. Performance predictability has been studied by Sharpe (1966), Jensen (1968), Lehmann and Modest (1987), and Blake et al. (1993) among others. In particular, performance persistence has been extensively researched by the hot hands literature, including Grinblatt and Titman (1992), Hendricks et al. (1993), Brown and Goetzmann (1995), Elton et al. (1996), and Carhart (1997). The existence of mutual fund manager skill has also been reviewed by many, such as Kacperczyk et al. (2014), Berk and Van Binsbergen (2015), and Jiang and Verardo (2018), as well as the impact of their personal characteristics on fund performance by Golec (1996), Chevalier and Ellison (1999), Gottesman and Morey (2006), and Durán-Santomil et al. (2023) for instance.

Focusing on the relation between mutual fund performance and the development of AUM, Spitz (1970) and Smith (1978), among others, document first evidence of a positive relation between past performance and fund inflows. The importance of this mechanism is further intensified by the revelation of a convex relation between inflows and past outflows, implying that abnormal positive returns are rewarded with disproportionately large inflows, whereas negative returns are not penalized to the same extent. This effect has been shown in several studies, including Chevalier and Ellison (1997), Goetzmann and Peles (1997), Sirri and Tufano (1998), Fant and O'Neal (2000) and Huang et al. (2007). Regardless of their main focus, the above-discussed streams of the literature have predominantly examined individual funds without accounting for their family affiliation.

[4] Indeed, fund firms refer to the flexibility in trading across funds within the same family stated in Rule 17a-7 of the Investment Company Act.

The enhanced concentration of the mutual fund market in the past two decades highlights the importance of fund families and poses the question how this organizational setting affects its member funds, investors, and the mutual fund industry overall. The literature focusing on the family perspective hints at the misalignment of incentives between fund- and family-level management mainly stemming from the flow-performance relation. Nanda et al. (2004) documents a strong positive spillover generated by star mutual funds, providing higher inflows also to other funds in the family. They claim that this could motivate fund families to pursue star-generating strategies. According to Khorana and Servaes (2012), fund firms can leverage the reputation of excellent performance to attract flows by offering a wider range of products and starting more funds. In a similar vein, Massa (2003) shows that fund families follow strategies relying on the heterogeneity of investors' investment horizon by offering no-cost switching possibilities across the different funds of the family. Furthermore, he argues that fund proliferation is a purposeful tool for families to limit competition and enhance market coverage. Even though all these papers highlight the importance of family strategies, no direct evidence is provided that as a consequence some investors become disadvantaged.

In a pioneering framework, Gaspar et al. (2006) shows that the misalignment of incentives indeed leads to strategies favoring certain funds at the expense of other family members to increase overall profits. They report this is achieved by allocating performance across family funds, coming at the expense of exploited funds' investors. In particular, they argue that this cross-fund subsidization favors the funds with higher potential to contribute to family profits. According to Gaspar et al. (2006) these *high-value* funds have higher fees, higher YTD returns, and are younger. Using a data set consisting of U.S. equity open-end funds covering January 1991 - June 2001, they find a substantial 0.7%-3.3% annual extra net-of-style return transfer from low- to high-value funds, which is more prevalent in families that are large, manage many funds, and have heterogeneously-sized members. Gaspar et al. (2006) also presents evidence that preferential IPO allocations and opposite trades are utilized by fund firms as tools of cross-fund subsidization.

Subsequently, academic papers on agency conflicts in delegated portfolio management have arisen. Cici et al. (2010) finds that in firms managing mutual and hedge

funds side-by-side the former underperform the latter, partially due to receiving fewer underpriced IPOs. Similar effects are observed by Del Guercio et al. (2018) on a manager-level, reporting that mutual funds whose managers are also in charge of hedge funds significantly underperform their peers. Abdesaken (2019) concludes that multi-fund managers cross-subsidize top-performing funds at the expense of low-performing funds and denotes opposite trading as a potential cross-fund subsidization mechanism. Among others, Chuprinin et al. (2015), Casavecchia and Tiwari (2016), and Eisele et al. (2020) demonstrate that cross-trading is used to reallocate performance across sibling funds. In particular, Eisele et al. (2020) employ a transaction-level data set to document that prices of cross trades are set strategically by fund families. They attribute their transaction-based evidence on cross trades to the setting of execution prices across funds within a fund family at levels that deviate from those in order books and by "backdating." Moreover, Evans et al. (2020) show that families promoting managers' cooperation are more prone to cross-trading and -holding.

Another stream of the literature we relate to studies the unique attributes of ESG and socially responsible mutual funds, as well as their investors. Bollen (2007) reports lower monthly volatility of cash flows in socially responsible mutual funds than their conventional counterparts, which is consistent with stronger investor loyalty of the former. Furthermore, he finds evidence that cash inflows to socially responsible funds are more sensitive to lagged positive returns, while cash outflows from them are less sensitive to negative past performance than in the case of conventional funds. The results of Benson and Humphrey (2008) indicate that socially responsible fund flows are less sensitive to returns. However, they confirm the asymmetry in the reaction to positive and negative performance. Additionally, Riedl and Smeets (2017) document that socially responsible open-end fund investors are willing to pay significantly higher management fees. In summary, these papers indicate that ESG funds are promising candidates to be subsidized by their families.

The plausible application of such favoring strategies regarding socially responsible investing (SRI) or ESG mutual funds has not been widely researched. Adrianto et al. (2018) explore the presence of strategic cross-fund-subsidization within U.S. fund families solely analyzing socially responsible investment (SRI) vehicles. Based

on this restricted comparison among SRI funds, they report evidence of such a strategy between the best and worst-performing funds. However, they do not find any indication of performance transfer to high from low-fee funds or to young from mature financial vehicles. Their paper provides the first, but limited, evidence as the investigated period ends in 2012, before the ensuing boom in the popularity of ESG investing. Furthermore, restricting the analysis to cross-subsidization among SRI funds could mask the real extent of the phenomenon. Li et al. (2023) investigate ESG and non-ESG mutual funds that have an overlap in their management teams. They report that the non-ESG funds include more high-ESG stocks following the inception of a related ESG fund. Despite facing restrictions in asset selection, according to Li et al. (2023) ESG funds achieve 1% higher annual returns compared to their co-managed non-ESG siblings, but they do not outperform standalone non-ESG funds in the family. Although this research focuses on mutual funds with a common set of managers, it indicates that regular funds could be an essential source for cross-subsidization, given the reported asset allocation.

Setting our paper in perspective, we contribute to the fund stewardship literature, particularly its relatively new stream studying mutual funds at the family level. Thus, we relate to the academic literature unveiling plausible fund family strategies and identifying its potential methods. Our main contribution is providing a direct test of ESG favoritism based on a comprehensive universe of mutual funds. We document indications, attributes, and channels of such strategies in mutual fund families. Moreover, we link cross-subsidization efforts by families to public environmental awareness and fund flows, additionally speaking to the literature studying flow-performance relations.

3 Data

Our main data source is Morningstar Direct, from which we obtain a sample of open-end equity funds domiciled in the United States with a USD base currency. As the rise of ESG investing is a relatively new phenomenon, we focus on the period

between the beginning of 2000 and the end of 2022.[5] For the sake of uniformity and avoiding exclusion of funds, we select the oldest share class to be in focus of our study, as is standard in the literature. To avoid distortion of performance, we exclude index funds from our analysis since their portfolio weights are fixed exogenously and are not subject to the discretion of the fund manager. Numerous researchers have shown that funds with lower returns are more likely to be liquidated, and using datasets that exclude these investment vehicles may result in inflated performance measures, due to the survivorship bias.[6] To address this issue, we ensure that our data set is free of such bias, i.e., it includes all funds that ever existed during our studied time period.

We gather data on several descriptive variables for our sample of mutual funds, such as the historical Morningstar Category, brand name, and inception date. Morningstar Category classifies funds into nine different groups based on their investment styles determined by their portfolio holdings.[7] Therefore, we use these categories as our style measure. According to Morningstar, Inc. (2024), the brand name denotes a grouping of asset management companies that exert joint efforts in the management, marketing, and distribution of the included funds. Hence, we use the brand name to define a fund family. We identify ESG funds via a two-step approach. First, we search for an extended list of keywords in a mutual fund's name (see, e.g., Baker et al., 2022a; Handler et al., 2022).[8] Second, we consider a fund to be in the ESG category if a specific ESG or sustainability-themed investment objective is clearly stated in its prospectus or other regulatory filings, as captured by the sustainable investment variable of Morningstar.[9] This provides us with a raw sample of 274 ESG funds out of a total of 8,612 mutual funds that span 1,125 unique fund families.

Likewise, Morningstar Direct is the source of our time series variables. Our dataset

[5] We use five years of data for the matching procedure. Thus, the main results are based on data from 2005 to 2022.

[6] See for instance, Brown et al. (1992), Brown and Goetzmann (1995), and Carhart (1997).

[7] The Morningstar Categories are Large Value, Large Blend, Large Growth, Mid-Cap Value, Mid-Cap Blend, Mid-Cap Growth, Small Value, Small Blend, and Small Growth.

[8] The list of strings we used to select ESG funds: Catholic, Church, Clean, Climate, ESG, Faith, Green, Impact, KLD, Social, SRI, CSR, Environ, Sustain, Responsib

[9] The second approach extends the list of ESG funds by about 30%.

includes monthly observations of measures of funds' return, size, and fees. For returns, we use the predefined Morningstar return.[10] To assess the share class size, we use net assets. We proxy fees borne by the shareholders by the annual report net expense ratio.[11] In addition, we complement the sample with multiple constructed variables. For each fund, we add the net-of-style return, which is the monthly return minus the value-weighted average in the style category, and use its rolling 12-month volatility as the tracking error. We also determine YTD return as the mutual fund's return since the beginning of the given year.[12] We calculate monthly net flows as the growth rate in the share class size adjusted for the return of the fund.[13] To avoid outliers driving our results, we winsorize the net flows at the 2.5% level at both tails. We calculate the age of funds as the time since their inception in months. For fund families, we define their age as the age of the oldest constituent fund. To measure fund family size, we sum up the assets of the funds in the family in our sample. Moreover, to ensure robustness, following Gaspar et al. (2006), we discard the first six months of a fund's existence. Similarly, we require a minimum of six observations per year for each fund. This, by itself, already more than halves the number of funds in our sample. Lastly, we exclude ESG funds of families with more ESG funds than non-ESG members.

Our final sample consists of 72 ESG funds spread across 51 fund families.[14] We compare that to 3,732 non-ESG funds, of which 817 are in the same family as an ESG fund. At the end of 2022, this represents a total AUM of almost USD 2.7

[10] Morningstar calculates the total return of mutual funds as the change in monthly net asset value, reinvesting all income and capital-gain distributions during that month and divided by the starting net asset values; however, unless otherwise noted, no adjustments are made for sales charges.

[11] Morningstar defines the annual report expense ratio as the percentage of fund assets used to pay for operating expenses and management fees, including 12b-1 and administrative fees. Furthermore, all other asset-based costs of the fund, except brokerage costs, are also included. Sales charges are excluded from the expense ratio.

[12] This choice is motivated by Chevalier and Ellison (1997), Gaspar et al. (2006), and also by Morningstar's format, along with those of other data outlets, to create rankings, making it the basis of the most widespread indicator used by investors of fund performance.

[13] Our approach is similar to Sirri and Tufano (1998), for instance.

[14] The previous literature identifies a similar number of ESG funds. For instance, Adrianto et al. (2018) find 66 unique socially responsible funds using a specific Morningstar identifier. Li et al. (2023) use textual analysis on fund prospectus and end up with a raw sample of 138 ESG funds at the end of their sample period in 2020.

trillion. As we see in Figure 1, among all observed 761 fund families, the average AUM share of ESG funds more than tripled during our sample period, climbing to almost 7% in 2022. Zooming in on our set of ESG fund families, this share is about 22%, on average. We summarize the characteristics of the ESG funds and their matched non-ESG siblings in Table 1. The mean monthly raw return of 0.777%, as well as net-of-style return of -0.014% of ESG funds are slightly less than that of the non-ESG members in their families. With an average amount of USD 546 million under management, the average ESG fund is just below half the size of its average non-ESG counterpart. The average ESG fund in our sample collects marginally more fees than the average non-ESG funds, with an expense ratio of 0.959% compared to 0.939%. Additionally, we see that the ESG funds tend to be younger, with a mean age of 14.77 years.

We collect additional data from three different sources for extended tests on timing and potential mechanisms of ESG favoritism. We retrieve the Media Climate Change Concern Index (MCCI) of Ardia et al. (2023) as a proxy for environmental awareness. This index is constructed using textual analysis based on news about climate change published by major US newspapers and newswires. From the CRSP Mutual Fund Holdings database, we obtain portfolio holdings data for the funds in our sample. This dataset provides us with the quarterly holdings of funds in our sample starting in the third quarter of 2006.[15] Finally, we fetch the list of U.S. IPOs between 2000 and 2022 from Bloomberg. Following Gaspar et al. (2006), if we observe the issued stock in the quarter-end holdings of a fund in the quarter of the IPO, we count it as a participant in the IPO. This provides us with 2,110 IPOs in which the funds in our sample participate.

4 Quantifying ESG Favoritism

In this section, we outline our general empirical methodology for analyzing ESG favoritism. We introduce the fund-matching procedure and present the regression framework to quantify cross-subsidization effects. Furthermore, we describe our

[15] Even though the raw holdings data also covers earlier periods, it misses characteristics relevant to our analysis.

approach to measuring the impact of favoritism on regular funds upon an ESG sibling's inception.

4.1 General Approach

Our empirical methodology is influenced by Gaspar et al. (2006). However, given the popularity of ESG investing, we postulate that ESG funds are of superior value to their family. Thus, we start with a broader approach for testing the general existence of a performance push towards ESG funds from their regular counterparts. Subsequently, we use extensions of our main framework to obtain a more granular picture of the nature of this phenomenon.

We uncover cross-subsidization by investigating return differentials between ESG and non-ESG mutual funds. To identify whether the source of the return difference across funds is indeed family affiliation, we need to compare the performance gap within and outside the family. Thus, we pair the ESG funds with all non-ESG funds in the same family. Next, we match each non-ESG fund with the closest fund outside of the fund family for each month. We define the closest fund to operate in the same style category and have the smallest Mahalanobis distance based on YTD performance, age, and fees.[16,17] Then, we also pair the ESG funds with all matched non-ESG funds outside the family. As the primary variable of interest, we compute the difference in net-of-style returns between the ESG and non-ESG funds. Consequently, for each return differential inside the family, we have a corresponding one outside. As a matched, outside-family non-ESG fund is very similar to the one within the family, without a family-level strategy, no difference should be observable in the net-of-style return gaps. By contrast, if the performance of the ESG fund relative to the non-ESG funds is better within the family compared to outside, it indicates that the ESG fund is advanced at the expense of its regular siblings. Thus,

[16] We use the respective month of the year in the preceding five years to estimate the covariance used for the Mahalanobis distance.

[17] To check the robustness of our results regarding the matching procedure, in Section 5.6 we redo our main analysis (1) based on a simple Euclidean distance matching procedure, (2) pairing each ESG fund with a single randomly chosen non-ESG fund (instead of all non-ESG funds) and its matched counterpart outside the family.

we interpret this performance difference as a sign of ESG favoritism.

To test this cross-subsidization within fund families, our main regression framework is as follows

$$\begin{aligned}\text{Net\_return}_{i,t}^{ESG} - \text{Net\_return}_{j,t}^{non\text{-}ESG} = \\ \alpha + \beta\text{Same\_family}_{i,j} + \zeta\text{Same\_style}_{i,j} + \text{Controls} + \epsilon_{i,j,t},\end{aligned} \tag{1}$$

where $\text{Net\_return}_{i,t}^{ESG}$ is the net-of-style return of the ESG fund i in a given month t, and $\text{Net\_return}_{j,t}^{non\text{-}ESG}$ is the net-of-style return of the paired non-ESG fund j, either in the same family or their respective matches. Same_family is a dummy variable which is 1, if the ESG fund and the non-ESG fund are in the same family, 0 otherwise. Likewise, Same_style is a dummy variable which is 1, if the ESG fund and the non-ESG fund follow the same investment style, 0 otherwise. As control variables, we include the size and age of both the ESG and the non-ESG fund, as well as the size and age of the funds' families. We also add fixed effects for the fund family, year, and investment style. The main parameter of interest is β, as this coefficient captures a systematic return difference related to family affiliation.

To gain a deeper understanding of the fund families' incentives, we examine the association of fund characteristics with cross-subsidization. That is, we split the sample based on characteristics of the ESG funds, the targets of cross-subsidization, and estimate Equation (1) separately for each subsample. In particular, we analyze whether ESG funds with above-average fees, YTD return, and below-average age receive stronger support, as motivated by the definition of high-value funds of Gaspar et al. (2006). Similarly, we split our data based on the characteristics of the within-family non-ESG funds, as they are the potential source of cross-subsidization. For instance, we question whether larger or older funds are exploited more. Zooming out, we also investigate whether certain fund families have a stronger tendency to conduct ESG-favoring strategies.

Furthermore, by extending Equation (1) with interaction terms, we aim to uncover timing aspects of ESG favoritism in relation to environmental awareness and fund flows, as well as the efficacy of opposite trades as potential tools of this strategy.

The extended specification is as follows

$$\begin{aligned}\text{Net\_return}_{i,t}^{ESG} - \text{Net\_return}_{j,t}^{non\text{-}ESG} = \\ \alpha + \beta\text{Same\_family}_{i,j} + \gamma\text{Same\_family}_{i,j} \times X_{i,j,t} \\ + \zeta\text{Same\_style}_{i,j} + \text{Controls} + \epsilon_{i,j,t},\end{aligned} \tag{2}$$

where $X_{i,j,t}$ represents one of the above-mentioned time-series variables.[18] The coefficient γ captures whether this variable influences the in-family subsidization. In principle, we use the same control variables as in Equation (1). However, if the effect is not subsumed in any fixed effects, we include the respective interacted variable as an additional control.

4.2 Measuring the Impact on Non-ESG Funds

We next test ESG favoritism in mutual fund families from the perspective of non-ESG funds. We reason that if there are signs of ESG fund subsidization, the performance of the sibling funds bearing the cost of this family-level strategy has to be affected to some extent. That is, we can extract these effects from the time-series of non-ESG funds directly.

We test for a change in the return differential between a non-ESG fund, which is in the same family as an ESG fund, compared to its matched counterpart outside of the family following the introduction of an ESG fund to the firm. That is, we estimate the following regression in a 10-year window around the inception of an ESG fund in the family

$$\text{Net\_return}_{i,k,t}^{non\text{-}ESG} - \text{Net\_return}_{j,l,t}^{non\text{-}ESG} = \alpha + \delta \mathbb{1}_{\{\tau_k > 0\}} + \text{Controls} + \epsilon_{i,j,t}, \tag{3}$$

where $\text{Net\_return}_{i,k,t}^{non\text{-}ESG}$ is the return of the non-ESG fund i, in family k in a given month t, and $\text{Net\_return}_{j,l,t}^{non\text{-}ESG}$ is the return of the matched non-ESG fund j in family l (i.e. $l \neq k$). The variable τ_k measures the years since the inception of the

[18] Note that by the definition of our setup, $X_{i,j,t}$ does not have to depend on fund i or both funds i and j. For instance, in the context of climate change awareness, the used variable is constant in the cross-section of funds.

ESG fund in family k. We restrict the sample to $\tau_k \in [-5, 5]$. Hence, $\mathbb{1}_{\{\tau_k > 0\}}$ can be seen as a dummy variable which is 1, if an ESG fund in family k exists in period t, and 0 otherwise. We add the same control variables to this regression as in the previous specifications.

5 Results

In this section, we discuss our empirical results on ESG favoritism in mutual fund families. We first present univariate evidence on cross-fund subsidization and confirm our initial findings in a regression framework in Section 5.1. Then we uncover the relation between ESG-favoring strategies and characteristics of funds and families in Section 5.2. In an extended test in Section 5.3, we investigate the strategic timing of ESG subsidization. In Section 5.4, we change our perspective and provide results on the impact of introducing an ESG fund on its non-ESG siblings in the same fund family. Next, we present results for potential channels of cross-subsidization in Section 5.5. Finally, we test our results and methodological approach for robustness in Section 5.6.

5.1 Analysis of ESG Favoritism

To investigate the presence of ESG favoritism, we first compare the net-of-style return difference between ESG funds and their in-family non-ESG counterparts (actual pairs) versus their outside-family non-ESG counterparts (matched pairs) on a univariate basis. As reported in Table 2, for the actual pairs, we find a monthly performance difference of -0.6 bp, which is not significantly different from zero. In case of the matched pairs, however, we observe a lower return of ESG funds by 16.9 bp. Therefore, the comparison of these two differentials suggests a 16.3 bp monthly performance shift to ESG mutual funds from their regular siblings. This translates to a nearly 2% annual net-of-style return boost by an ESG-subsidizing strategy over the whole sample period.

Our cross-subsidization effects are comparable in magnitude to the findings in Gas-

par et al. (2006). However, their paper reports a general outperformance of high-value funds achieved by subsidization. Notably, our results differ in respect that the performance of ESG open-end funds is only advanced to be equal to their non-ESG siblings. It may be tempting to surmise that the main reason for favoritism would be to achieve outstanding performance in order to attract new inflows and reap additional fees. However, we have to consider that ESG investors do not only integrate the traditional risk-return trade-off in their investment decisions but also non-pecuniary aspects of their preferences (see, e.g., Pástor et al., 2021). Thus, fund families may target avoiding underperformance of their ESG members instead of achieving outperformance when optimizing fund flows and fee income.

To reinforce our univariate results, we estimate Equation (1) proposed in the previous section. As summarized in Table 3, we report a 14.4 bp monthly performance push to ESG mutual funds at the expense of their non-ESG siblings when considering all controls. Thus, the magnitude of the effect is not dampened by the size and age of the involved funds and families. Moreover, we do not find any direct influence on whether the funds follow the same investment style.

In addition, as ESG investing is fairly new and has been gaining additional popularity consequent to the COP21 and the subsequent Paris Agreement, we split our sample over this time-period accordingly to examine if changes in ESG preferences over time affect the cross-subsidization of ESG funds. Adding to our univariate analysis, the results of a sample split between pre- and post-COP21 reveals that even though ESG-favoring strategies already existed pre-COP21, ESG mutual funds only received a 13.6 bp monthly boost in performance. However, this expanded to 19.3 bp, nearly a one-and-a-half times larger return transfer, following the Paris Agreement. This foreshadows the importance of environmental awareness on the extent of ESG favoritism, which we analyze in detail in Section 5.3.

5.2 Influence of Fund and Family Characteristics on Favoritism

In quest of insights regarding which ESG funds tend to be favored over their regular siblings, we split both these groups by several characteristics that could affect the

cross-subsidization decision. We then re-estimate Equation (1) in the subsamples and use t-tests on their same-family coefficients to observe if they are subsidized to a different extent. We select the attributes to split the data based on the assumption that if there is any distinction identifying which ESG funds are more favored by their families, it should arise from their value-generating power. However, we presume that disparities regarding which non-ESG funds are used to drive subsidizing strategies depend not only on their value-creating potential but also on their resilience to a performance withdrawal. In a similar fashion, we investigate whether certain fund families are more prone to conduct ESG-favoring strategies due to their defining characteristics.

5.2.1 Which ESG Funds Are Favored?

To investigate which ESG funds tend to be favored, we split our sample based on the ESG funds' fees, age, and YTD return. We select these attributes as they could indicate the extent to which a fund is able to contribute to fund family profits (see Gaspar et al. (2006) for a discussion). Table 4 reports the results of this analysis. We find that irrespective of their fees and age, all ESG funds receive a similar boost in performance, i.e., the difference in the same-family coefficients are insignificant. Given that ESG funds generally collect higher fees than their conventional counterparts (see Baker et al., 2022b) and a significant share of them was issued after COP21, a differentiation along these characteristics might not be the focus of fund families.

However, we find the YTD return to be a statistically significant determinant of additional ESG fund subsidization. Whereas ESG funds with above-average YTD returns receive a 12.2 bp supplementary performance boost monthly, their lagging peers' returns are pushed by 17.1 bp by their families. In other words, fund firms likely prefer to avoid a particular ESG fund of theirs falling behind the rest of their peers with a similar focus. Moreover, this observation supports our finding that fund firms only push their ESG members to the extent of matching the return of their own regular funds and not outperforming them. This result also indicates that families generally perceive ESG funds as high-value. Otherwise, if families would

separate ESG funds into high- and low-value, there should be a higher performance boost for ESG funds with above-average YTD returns. Thus, it is crucial to consider subsidization across ESG and non-ESG segments.

In summary, regardless of the fund characteristics' value-generating potential, all ESG mutual funds are subject to favoritism within their family. However, the ones with a lower YTD return tend to be more strongly subsidized than their better-performing counterparts.

5.2.2 Which Regular Funds Are Exploited for ESG-Favoring Strategies?

It is crucial to investigate the source of the performance from which the ESG favoritism strategy could be undertaken. We study the extent of ESG favoritism in the top and bottom quartiles of non-ESG funds. As before, we select fund characteristics to distinguish their value-generating potential, such as fees, age, and YTD return compared to style and family.[19] In particular, we assume that funds with lower fees, lower YTD return, and greater age have inferior power to contribute to family profits. Furthermore, we also break down the non-ESG funds according to size- and holdings-related attributes, such as their net assets, tracking error, and ESG score. The results, including the same family coefficients and p-values from a t-test comparing them, are summarized in Table 5.

Starting with the characteristics measuring value-generating potential, we report important, statistically significant results. We observe the largest difference among the top and bottom quartiles in the age-based split. Whereas the oldest quartile of funds is used to achieve 24.8 bp additional ESG performance each month, the youngest quartile contributes only 6.1 bp. That is, in line with our expectations, older funds bear more of the downside of the ESG-supporting return transfer than their younger siblings. In addition, the large difference in the same-family coefficient of oldest and youngest quartiles of funds suggests that age could be of primary importance when selecting funds to subsidize their ESG counterparts. This could

[19] We include splits for YTD return compared to family and investment style to distinguish better which fund firms could be used to compare the performance of their members against and which funds' performance they can actually affect.

also be the consequence of the likelihood that the older mutual funds are among the largest ones in their family, with more sticky, long-term investors who do not rush to withdraw their investment in response to a modest setback in performance. Moreover, as presumed in our earlier discussion, lower-performing funds with less power to contribute to family profits are more exploited via ESG-favoring strategies, as indicated by the difference of up to 7 bp among the YTD return based quartiles. For the fee split we find only a marginally significant difference.

Table 5 foreshadows that funds with certain characteristics are more extensively used to support potential ESG subsidizing strategies, with age being the dominant factor. Therefore, we investigate differences in double-sorted subsamples based on our three value-generating attributes. In Table 6, we provide these results, showing that fees and YTD returns have significant effects conditional on age. In particular, we find the greatest ESG favoritism is accomplished at the expense of funds that are both old and have low YTD returns, reaching a 42.9 bp net-of-style return transfer to ESG funds monthly. By contrast, young funds with outstanding YTD returns and young funds with high fees are spared from ESG-subsidizing strategies.

Analyzing the second set of characteristics, we find that, in line with the results for age, large funds are more intensively used to boost their ESG siblings' return than small ones. Funds in the top quartile with respect to net assets provide a significantly higher support of 22.9 bp. Next, we study whether tracking error affects involvement in subsidizing ESG funds. We presume that funds with a tracking error in the top quartile are likely good candidates to be taken advantage of in a subsidizing strategy. A large tracking error indicates a more actively managed fund with a higher willingness to take risks, hindering an efficient performance comparison across investment vehicles with the same benchmark. Thus, those funds provide more room for return transfers to an ESG sibling. Finally, we determine the ESG score of the regular funds by computing the value-weighted average of the MSCI ESG Scores of their holdings. Based on this attribute, we document that regular funds with ESG scores in the bottom 25% of the family are utilized to push ESG funds significantly more than those with ESG scores in the top quartile. As a matter of fact, we find that funds in the lowest ESG score quartile are used to reach the highest transfer to ESG funds across all analyzed characteristics. They

are taken advantage of to achieve an average of 26.7 bp monthly transfer to their ESG siblings, translating to more than 3% annually. We interpret this finding as a result of the potentially lower correlation between ESG funds and regular funds with low ESG scores, allowing transfers when returns divert.

We conclude that even though we find indications of ESG-favoring strategies at the expense of each subgroup of regular funds, it is most likely for fund families to exploit older and larger funds with inferior performance, higher tracking error, and a lower ESG score.

5.2.3 Which Families Engage in ESG Favoritism?

To investigate which fund families are more prone to pursuing ESG favoritism, we split our sample by several fund firm characteristics and estimate Equation (1) in each group. The same-family coefficients from each regression are summarized in Table 7. Moreover, to capture any difference in ESG subsidization within each family-attribute category, we report p-values from t-tests with the null hypothesis that the coefficients from each group are the same.

Regardless of categorization, we document evidence of ESG favoritism in families of all attributes. Our results suggest that older, smaller fund families, with fewer members are more likely to engage in ESG-subsidizing strategies. In particular, older fund families, with likely more industry experience, appear to engage in nearly twice as large return transfer to their ESG members than younger firms, with 19.7 bp and 11.4 bp, respectively, for the two groups. Similarly, we find that smaller families push their ESG funds around 10 bp more than their larger competitors. Families managing a below-average number of funds also appear to transfer significantly more performance (21.5 bp) to their ESG members than their peers with relatively more funds (14.3 bp) in their ambit. As also revealed in Table 7, the size heterogeneity of funds within family does not constitute a statistically significant distinction in the extent of ESG favoritism.

Concentrating on ESG-related family characteristics, fund firms with a below-average ESG fund AUM share are the most aggressive users of potential ESG sub-

sidizing strategies with a monthly return advantage of 26.8 bp. This leads us to presume that having an ESG fund in a family is valuable, and the smaller the proportion of the firm's portfolio is ESG-focused, the greater the emphasis it places on advancing its ESG market share. However, the number of ESG funds in the family per se is not a distinctive feature of tendency to ESG favoritism. As most families do not provide a broad spectrum of funds following various ESG strategies, there is little variation in this regard. Overall, we present in Table 7 results showing that older, smaller fund families, with fewer members and with a below-average share of ESG funds in AUM have a greater propensity towards ESG favoritism. Although, none of our studied categories appear to refrain from pursuing such a strategy of cross-subsidization.

5.3 Strategic Timing of ESG Favoritism

We approach the timing aspects of ESG favoritism in relation to changes in environmental awareness and fund flows. To assess the former, we individually estimate Equation (2) using different measures of climate change recognition interacted with the same-family dummy and summarize the results in Table 8. Consistent with the assumption of a structural break in climate change awareness around the COP21 summit in Paris, we use a dummy variable in Model (1), indicating the period after this event. In line with our univariate results, we report an 8.2 bp monthly increase in performance transfer to ESG members by their fund families in the period following the Paris Agreement. The result of this simple model already suggests that elevated attention to environmental issues expands the magnitude of ESG-favoring strategies. In our main analysis, represented by Model (2), we use the one-year moving average of the standardized MCCC. We find that an increase in environmental concerns of one standard deviation induces an additional 10.1 bp of monthly ESG fund subsidization. In essence, fund families engage more in ESG favoritism in times of greater environmental awareness. However, as climate change attention in the public awareness is quite volatile and tends to peak around specific events, such as the COP21, we investigate the effects of extreme up- and down-side deviations of the MCCC. To do so, we compute the relative difference between the MCCC and

its one-year moving average. Subsequently, in Model (3), we include two dummy variables based on this difference interacted with the same-family dummy. The first dummy variable takes the value of 1 if the difference is above the 75th percentile, representing a spike in attention. Conversely, the second dummy variable takes the value of 1 if the relative difference is below the 25th percentile, representing fading attention. We document that in months of outstandingly high climate change concerns compared to the previous 12 months, fund families do not invest additional effort into pushing the performance of their ESG members. However, in months of declining environmental awareness, they direct an additional 13.3 bp net-of-style return to their ESG funds. In other words, ESG favoritism tends to grow substantially along with increasing climate change awareness, yet it is mainly driven by times of diminishing environmental attention following periods of outstanding concerns. These results explain mutual fund families' potential aspiration of directing inflows to their ESG members when climate concerns experience a lull.

In Table 9, we present results for the effects of fund flows on the magnitude of ESG favoritism in families. The findings are obtained by estimating Equation (2), including the corresponding variable measuring the ESG funds' net flows. Model (1) captures a general relation between flows and ESG-subsidizing strategies. Pursuant to this, we find that during times of high ESG fund inflows, families reduce the cross-subsidization. To obtain a more detailed overview of such fund family behavior, in Model (2), we contrast times of ESG flow out- and underperformance with average family flows by integrating the respective dummy variables. Remarkably, during periods of underperforming ESG flows, ESG funds receive nearly two and a half times more return advancement compared to times of abundant flows, i.e., 20.8 bp vs 8.3 bp. The evidence on the timing of ESG favoritism supports our previous results and fosters the idea that fund firms push ESG fund performance only to the extent of optimizing their flows. This also suggests that mutual fund families are aware that certain investors are willing to trade off some return in favor of ESG considerations.

Analyzing the flow-performance relationship of ESG and non-ESG funds further, we address investors' reaction to observed relative returns across funds. First, we divide our dataset into quartiles based on net returns and calculate the correspond-

ing average abnormal net flows for the following month. Figure 2 represents these results for ESG and regular funds separately. We observe that ESG funds are indeed rewarded with higher net flows in the three lowest return quartiles than their regular peers. In the lowest quartile, with an average return of -1.8%, we find outflows for both groups. Notably, in the second quartile, with slightly negative returns of -0.4%, ESG funds already experience inflows, whereas the non-ESG funds remain confronted with outflows. This indicates that avoiding severe underperformance is enough to protect ESG funds from outflows. Moreover, in the highest performance quartile non-ESG funds receive superior inflows, making it rational to achieve outperformance for regular funds. Thus, the distinct flow-performance relation of ESG funds compared to their regular peers adds credence to the reason why families do not aim to push ESG funds to outperform their siblings, but rather only match them, as we find in our univariate results.

5.4 The Impact of ESG Fund Inception on Non-ESG Siblings

As non-ESG funds are the donors of performance transferred to their ESG siblings in a subsidizing strategy, we posit they could be disadvantaged in the process. In this analysis, we distill this effect independently of the ESG fund performance by only analyzing non-ESG funds around the inception of an ESG family member. Figure 3 provides an overview of the frequency and number of ESG fund inceptions in our sample, showing a consistent stream of new ESG funds over the full period with a clear increase in numbers after 2015.

To visually depict the negative effect of an ESG mutual fund inception on regular family members, we plot the cumulative return differential between a non-ESG fund from a family that introduces an ESG member and a matched non-ESG fund outside of the family, as shown in Figure 4. The cumulative return differential between the non-ESG funds from within and outside of the family is calculated over a ten-year window. During the five years before the introduction of an ESG fund, we observe that the performance of ESG funds is comparable to their peers' in different families. However, following the inception of an ESG fund, this return differential takes a sharp downward turn, implying that non-ESG funds' performance is dimin-

ishing compared to their outside family counterparts. This decline appears to be continuous in the five years after the inception, reaching nearly -25% cumulative return gap by the end of the event window. This result indicates that there is a persistent effect on non-ESG funds documenting a general support of ESG funds which is not restricted to the initial period after their introduction.

To test the statistical significance of the visual results, we estimate Equation (3) in a 10-year window around the inception of an ESG fund in the family. We present the output of this regression in Table 10. Coinciding with our expectations and supporting our previous results, we observe a 9.4 bp monthly decrease in the difference of the net-of-style returns of within-family and outside-family non-ESG funds during the five years following the inception of an ESG mutual fund. The observed underperformance of regular funds could result from the return transfer to the newly established ESG fund, a deviation of attention, or other effects on the family members' portfolio allocation around the inception. Nonetheless, the inception of an ESG fund substantially influences the performance of non-ESG funds in the family.

5.5 Potential Mechanisms of ESG Favoritism

Our preceding findings substantiate our hypothesis that fund families subsidize ESG funds at the expense of their non-ESG members. To corroborate our results, we analyze two mechanisms of ESG favoritism as plausible channels: opposite trades and preferential IPO allocations. Using the holdings data, we calculate two opposite trades measures between ESG and non-ESG funds. We base it on antagonistic changes in their portfolio holdings of the funds each quarter. For each stock with opposite changes in the number of shares held between two funds, we take the minimum of the absolute market value change in the holdings due to trades across the two funds. Then, we calculate the average of those market value changes for our first opposite trades measure (opposite trades). For the second opposite trade measure (opposite trades min), a more conservative proxy inspired by Gaspar et al. (2006), we take the minimum of those market value changes across all stocks with opposite changes between the two funds. We normalize both measures by the net assets of the ESG funds.

To investigate the effect of opposite trades on ESG subsidization, we estimate Equation (2) with both of our opposite trade measures individually and interacted with the same-family coefficient, and present the results in Table 11. Model (1) incorporates our opposite trades variable, whereas the more conservative version is integrated into Model (2). Both measures of antagonistic trades between an ESG and a regular fund lead to similar results. Opposite trades decrease the performance gap between ESG and non-ESG funds by more than 7 bp on average since our measure, by definition, captures similarity in fund holdings irrespective of family affiliation. However, within a fund family, the interaction coefficient on the opposite trades measure is 9.2 bp. That is, the overall effect of opposite trades on return differentials is positive within family, as expected. In terms of economic significance, a one-standard deviation increase in opposite trades would enhance annual ESG fund performance by 0.24%, measuring the feasible performance transfer across family funds. Although opposite trade proxies constructed with quarterly data indeed allow for some imprecision, the statistically significant results obtained with both of our measures suggest that opposite trades are potential tools of mutual fund families' ESG favoritism.[20] Moreover, any benefit directed towards ESG funds via opposite trades is borne by the shareholders of the mutual funds that are on the other side of the transaction.[21]

To uncover any preferential patterns toward ESG funds in fund families' IPO allocations, we contrast several measures of it for ESG and non-ESG funds and compare them with t-tests and median tests. The results on strategic IPO allocations are summarized in Table 12. We find that ESG funds are awarded with nearly triple the mean allocation weight compared to regular funds, reaching 36.7% on average. The median allocation weight also shows that with 13.8%, ESG funds exceed their non-ESG counterparts by as much as one and a half times. That is, ESG funds

[20] Eisele et al. (2020) analyze the mechanics of cross trading with a detailed transaction data set. They document that prices are set strategically and significantly deviate from synchronized mid prices in order books. In particular, they claim that cross trades are "back dated" by showing that these transactions are more likely to be executed exactly at the highest or lowest price of a day compared to open market trades. These effects are especially pronounced in funds with bad governance.

[21] Rule 17a-7 of the Investment Company Act allows securities transaction to be effected between a fund and certain affiliates, also referred to as "cross trades", provided the transaction meet certain protective conditions.

receive a greater proportion of the IPOs allocated. Moreover, both the mean and median underpricing dollar to total net assets (TNA) of ESG funds significantly exceed that of non-ESG members. Interestingly, we find that ESG mutual funds receive IPO stocks with a 25.7% average first-day return, which is lower than the 30.9% observed for their non-ESG siblings, indicating a restriction in the selection of IPO stocks. That is, even though non-ESG funds receive IPOs with higher first-day returns, IPOs contribute substantially more to the performance of ESG funds. Inasmuch as IPOs tend to be remarkably underpriced (see, e.g., Ritter and Welch, 2002) and anyway likely have positive abnormal returns on average (see, e.g., Derrien, 2005), directing more IPOs to certain funds is a presumably profitable strategy. As seen in Table 12, besides the higher allocation weights per IPO, ESG funds receive nearly 12 IPOs on average during our sample period, whereas this number is just above 2.5 for regular funds. The substantially higher number of IPOs given to ESG funds would already indicate favoritism of ESG funds, and the rest of the measures further support that preferential IPO allocations could be a tool for subsidizing ESG fund family members.

5.6 Robustness Analyses

In this section, we assess the robustness of our results, especially with regard to different factors, the specifics of our methodological setup, and the specific fund-matching procedures we employ. Thus, we redo our main analysis with (1) different sub-samples based on particular family and fund characteristics and (2) a different methodological approach for the selection of in-family pairs and the distance function for the matching. The tables presenting the results of these checks are reported in the Internet Appendix to conserve space in the main paper.

Treatment of ESG Fund Families and Fund Name Changes: As a first robustness test, we analyze whether our results depend on the selection of fund families used for matching. When we pair a non-ESG fund with its closest outside counterpart, the family of the latter might have ESG members, as well. Thus, the performance of such an outside fund could be distorted by cross-subsidization effects within the latter's family. To dispel doubt on this matter, Table IA-1 provides robustness tests

based on Equation (1). The first column includes the base for comparison - our ESG favoritism output attained using the original sample defined in Section (3). In the second analysis, we provide the results on ESG favoritism and simply eliminate all observations where the outside fund family also has an ESG fund. The third analysis instead excludes outside ESG fund families from the matching, thus all ESG funds are matched to outside counterparts which do not have an ESG sibling in their family. Both tests provide virtually unchanged results of the cross-subsidization effect. Thus, our results are robust and are not affected by ESG funds of families providing the outside funds.

Furthermore, we analyze *name changes of ESG funds*. This term indicates that an existing non-ESG fund was transformed into an ESG fund during our sample period, whereas funds without name alterations most likely have been set up as an ESG fund originally. We observe such name modifications for around 50% of ESG funds in our sample. In many cases, these investment vehicles already had tendencies towards ESG investing before their name change, which allows a precise ESG fund classification and these modifications are focused on the time period after the Paris Agreement. In our robustness test, we analyze whether ESG funds with name alterations lead to different results than ESG fund without such changes. Table IA-2 provides these outputs. Building again on the analysis based on Equation (1), we provide results separately for ESG funds with and without name changes. Again, we find identical results to the original specification, i.e., the ESG-favoring effects in both sub-samples are around 2% per annum.

Matching Procedure and Distance Function: Even though our findings are economically significant, our reported statistical significance could be amplified due to the particular method of pairing each ESG fund with all non-ESG siblings. To dissipate any doubts about this choice affecting our results, we re-estimate Equation (1) with a slimmed-down panel setup. We pair each ESG fund with only a single, randomly chosen non-ESG fund in the same family and the respective matched non-ESG fund outside the family. As shown in Model (2) of Table IA-3, the estimated effect increases slightly, but the statistical interpretation remains unchanged. Note that this can be compared to Model (1), showing our original specification.

Next, we address plausible concerns regarding our findings potentially being biased by the selected metric for the fund matching. Instead of the Mahalanobis distance, we now use the Euclidean distance, the simplest form of distance function. Model (3) of Table IA-3 shows that our results are robust to this adjustment. Moreover, we combine both previous changes in the setup. Each ESG fund becomes paired up with one non-ESG sibling and the matched fund outside the family, and we use the Euclidean distance for the matching. As seen in Model (4), this robustness check provides similar results.

6 Conclusion

We empirically analyze whether mutual fund families favor their ESG funds potentially at the expense of their non-ESG siblings. In general, the driving force behind engaging in favoritism is based on optimizing mutual fund flows and returns to maximize overall fund family profits. However, given the expanding popularity of ESG investing among investors, mutual funds with such a focus offer additional value-generating potential, including reputational advantages, cross-marketing opportunities, and broadening the investor base by catering to a special demand or source of utility for investors. Thus, analyzing ESG favoritism allows us to shed further light on strategic behavior within the mutual fund industry.

We use a survivorship bias-free sample obtained from Morningstar Direct, covering domestic US equity open-end funds from 2005 to 2022. The average AUM share of ESG funds more than tripled during our sample period, rising close to 7% in 2022, indicating the importance and the potential growth opportunities for fund families. Our approach is built on comparing the performance of ESG with regular funds within and outside the family. Similar to the prior literature, we interpret a higher return differential between ESG and regular funds within the family, compared to outside, as an indication of cross-fund subsidization. We find a significant net-of-style return spread of around 2% per year, indicating sizable ESG favoritism within fund families.

We provide a detailed analysis about the relation between fund and family char-

acteristics as well as the strength of the potential subsidization, documenting that fund families prefer to avoid underperformance of ESG funds rather than chasing outperformance. In particular, ESG funds with low YTD returns receive a stronger boost. We report that older, smaller families that manage fewer funds and have a lower-than-average ESG fund AUM share are the most likely to push the performance of their ESG members at the expense of other funds. This is in line with the aim of increasing their ESG market share. In addition, we find that the timing of ESG favoritism is related to media-driven awareness of climate concerns and flow performance. These results indicate that fund families are aware of the investors' trade-off between the importance of ESG and risk-return consideration. Thus, in times of high awareness and high inflows, fund families reduce the subsidization from regular funds, whereas when awareness and inflows fade, more subsidization is undertaken. Finally, we study the potential mechanisms of favoritism and conclude that cross-fund trading and preferential IPO allocation are important tools, as already documented by the previous literature, albeit in a different context.

This paper has major policy implications of mutual funds' grey area actions, predominantly strategies and channels of favoritism. We unveil indications of prioritizing family prosperity at the expense of certain investors while benefiting holders of ESG fund shares, stressing the need for caution in conducting performance evaluation of these financial vehicles. Nevertheless, we have to emphasize that our findings are indirect, aggregate, and cannot be interpreted as evidence of breaching fiduciary duty in the mutual fund industry.

Tables and Figures

Table 1: Fund Characteristics.
This table shows the averages for the ESG funds and all other non-ESG funds in the same family as an ESG fund. YTD Return is in monthly equivalent terms, i.e., the cumulative return since the beginning of the respective year divided by the number of months since then. The number of ESG funds per family and ESG AUM share is the average across all families (761). The sample represents open-end equity funds domiciled in the U.S. with a USD base currency between 2000 and 2022 from Morningstar Direct.

	ESG	Non-ESG
Monthly Return (%)	0.777	0.796
Monthly Net Return (%)	-0.014	-0.002
Net Assets (Mill. USD)	546	1224
Net Expense Ratio (%)	0.959	0.939
YTD Return (%)	0.557	0.599
Age (Years)	14.77	16.93
Number of Funds	72	817
Number of Funds per Family	1.51	
AUM Share (%)	4.18	

Table 2: Univariate Analysis.
This table shows the net difference in monthly performance (in percentage points) for pairs of ESG funds and non-ESG funds. Actual pairs are pairs of funds belonging to the same fund family, and matched pairs are pairs of an ESG fund and a matched fund from outside of the fund family. The first column shows the mean difference in net-of-style returns for actual pairs, along with the significance symbols of the test that the mean is zero. The second column shows the mean difference in net-of-style returns for matched pairs, along with the significance symbols of the test that the mean is zero. The third column shows the p-value of the t-statistic of the test that the two means are equal. The sample represents open-end equity funds domiciled in the U.S. with a USD base currency between 2000 and 2022 from Morningstar Direct. We indicate significance at the 10%, 5%, and 1% level by *, **, and ***, respectively.

2005 - 2022		
Actual Pairs	Matched Pairs	p-Val. Diff.
-0.006	-0.169***	<0.001

2005 - 2015		
Actual Pairs	Matched Pairs	p-Val. Diff.
-0.007	-0.143***	<0.001

2016 - 2022		
Actual Pairs	Matched Pairs	p-Val. Diff.
-0.006	-0.199***	<0.001

Table 3: Test of ESG Favoritism.
This table shows the results of monthly regressions of the difference in net-of-style returns (in percentage points) between an ESG fund and a matched non-ESG fund on various explanatory variables. Both specifications in the table show the estimated coefficients of the following regression equation:

$$\text{Net\_return}_{i,t}^{ESG} - \text{Net\_return}_{j,t}^{non\text{-}ESG} = \alpha + \beta \text{Same\_family}_{i,j} + \zeta \text{Same\_style}_{i,j} + \text{Controls} + \epsilon_{i,j,t}.$$

Model (1) includes only dummy variables for the same family and the same style of the two funds. Model (2) adds the size and age of both funds, and size and age of the respective fund families. Both specifications include fixed effects for the year, fund family, and investment style. The sample represents open-end equity funds domiciled in the U.S. with a USD base currency between 2000 and 2022 from Morningstar Direct. The standard errors shown in parenthesis are clustered at the ESG fund level. We indicate significance at the 10%, 5%, and 1% level by *, **, and ***, respectively.

	(1)	(2)
Same family	0.172***	0.144***
	(0.012)	(0.010)
Same style	−0.002	0.001
	(0.015)	(0.016)
Controls	No	Yes
Year FE	Yes	Yes
Family FE	Yes	Yes
Style FE	Yes	Yes
Observations	195,333	192,914
Adjusted R^2	0.012	0.016

Table 4: ESG Fund Characteristics and ESG Favoritism.
This table shows the results of monthly regressions of the difference in net-of-style returns (in percentage points) between an ESG fund and a matched non-ESG fund on various explanatory variables, separated by fund characteristics. Each cell corresponds to the coefficient on the dummy variable for the same family of Model (2) of Table (3). The samples are split each month into groups based on the ESG fund's fees (below or above the average in the family), YTD return (below or above the average in the investment style), and age (below or above the average in the family). The respective third column shows the p-value of the t-statistic of the test that the coefficients are equal. The sample represents open-end equity funds domiciled in the U.S. with a USD base currency between 2000 and 2022 from Morningstar Direct. We indicate significance at the 10%, 5%, and 1% level by *, **, and ***, respectively.

Fees		
Below Average	Above Average	p-Val. Diff.
0.151***	0.134***	0.553

YTD Return		
Below Average	Above Average	p-Val. Diff.
0.171***	0.122***	0.025

Age		
Below Average	Above Average	p-Val. Diff.
0.136***	0.161***	0.209

Table 5: Paired Fund Characteristics and ESG Favoritism.
This table shows the results of monthly regressions of the difference in net-of-style returns (in percentage points) between an ESG fund and a matched non-ESG fund on various explanatory variables, separated by fund characteristics. Each cell corresponds to the coefficient on the dummy variable for the same family of Model (2) of Table (3). The samples are split each month into groups based on characteristics of the paired non-ESG funds in the same family. We split on the fees (bottom 25% and top 25% in the family), YTD return (bottom 25% and top 25% in the investment style; bottom 25% and top 25% in the family), age (bottom 25% and top 25% in the family), 1-year tracking error (bottom 25% and top 25% in the investment style), net assets (bottom 25% and top 25% in the family), and holdings-weighted ESG score (bottom 25% and top 25% in the family). The respective third column shows the p-value of the t-statistic of the test that the coefficients are equal. The sample represents open-end equity funds domiciled in the U.S. with a USD base currency between 2000 and 2022 from Morningstar Direct. We indicate significance at the 10%, 5%, and 1% level by *, **, and ***, respectively.

Fees			ESG Score		
Bottom 25%	Top 25%	p-Val. Diff.	Bottom 25%	Top 25%	p-Val. Diff.
0.198***	0.237***	0.070	0.267***	0.173***	<0.001
YTD Return (Style)			**Tracking Error**		
Bottom 25%	Top 25%	p-Val. Diff.	Bottom 25%	Top 25%	p-Val. Diff.
0.261***	0.204***	0.044	0.190***	0.258***	0.016
YTD Return (Family)			**Net Assets**		
Bottom 25%	Top 25%	p-Val. Diff.	Bottom 25%	Top 25%	p-Val. Diff.
0.245***	0.176***	0.004	0.188***	0.229***	0.048
Age					
Bottom 25%	Top 25%	p-Val. Diff.			
0.061***	0.248***	<0.001			

Table 6: Paired Fund Characteristics Combinations and ESG Favoritism.
This table shows the results of monthly regressions of the difference in net-of-style returns (in percentage points) between an ESG fund and a matched non-ESG fund on various explanatory variables, separated by fund characteristics. Each cell corresponds to the coefficient on the dummy variable for the same family of Model (2) of Table (3). The samples are split each month into groups based on the combination of characteristics of the paired non-ESG funds in the same family. We split on the net expense ratio (bottom 25% and top 25% in the family), YTD return (bottom 25% and top 25% in the family), age (bottom 25% and top 25% in the family), and select those funds for analysis that fall into the top (bottom) 25% in the combinations of the categories. The respective third column shows the p-value of the t-statistic of the test that the coefficients are equal. The sample represents open-end equity funds domiciled in the U.S. with a USD base currency between 2000 and 2022 from Morningstar Direct. We indicate significance at the 10%, 5%, and 1% level by *, **, and ***, respectively.

Fees and YTD Return		
Bottom	Top	p-Val. Diff.
0.179***	0.073***	0.012

Fees and Age		
Bottom	Top	p-Val. Diff.
0.237***	0.024	<0.001

YTD Return and Age		
Bottom	Top	p-Val. Diff.
0.429***	0.031	<0.001

Table 7: Family Characteristics and ESG Favoritism.
This table shows the results of monthly regressions of the difference in net-of-style returns (in percentage points) between an ESG fund and a matched non-ESG fund on various explanatory variables, separated by family characteristics. Each cell corresponds to the coefficient on the dummy variable for the same family of Model (2) of Table (3) without family controls and fixed effects. The fund families are split each month into groups based on size (bottom 25% and top 25% based on total net assets), number of funds in the family (below or above the average), age of the family (below or above the average), and heterogeneity in the individual fund's sizes within the family (below or above the average), number of ESG funds in the family (below or above the average), and AUM share of ESG funds in the family (below or above the average). We take the coefficient of variation of net assets of funds within the same family as our measure for heterogeneity in the individual fund's sizes within the family. The respective third column shows the p-value of the t-statistic of the test that the coefficients are equal. The sample represents open-end equity funds domiciled in the U.S. with a USD base currency between 2000 and 2022 from Morningstar Direct. We indicate significance at the 10%, 5%, and 1% level by *, **, and ***, respectively.

Size of Family			Number of Funds in Family		
Bottom 25%	Top 25%	p-Val. Diff.	Below Average	Above Average	p-Val. Diff.
0.245***	0.140***	0.092	0.215***	0.143***	0.005
Age of Family			**Size Heterogeneity of Family**		
Young	Old	p-Val. Diff.	Below Average	Above Average	p-Val. Diff.
0.114***	0.197***	<0.001	0.162***	0.158***	0.881
Number of ESG Funds in Family			**ESG Fund AUM Share in Family**		
Below Average	Above Average	p-Val. Diff.	Below Average	Above Average	p-Val. Diff.
0.154***	0.163***	0.694	0.268***	0.163***	0.052

Table 8: Climate Change Concerns and ESG Favoritism.
This table shows the results of monthly regressions of the difference in net-of-style returns (in percentage points) between an ESG fund and a matched non-ESG fund on various explanatory variables. All specifications in the table show the estimated coefficients of the following regression equation, which is an extension of Model (2) in Table (3):

$$\begin{aligned}\text{Net\_return}_{i,t}^{ESG} - \text{Net\_return}_{j,t}^{non\text{-}ESG} = \\ \alpha + \beta\text{Same\_family}_{i,j} + \gamma\text{Same\_family}_{i,j} \times C_t \\ + \zeta\text{Same\_style}_{i,j} + \text{Controls} + \epsilon_{i,j,t},\end{aligned}$$

where C_t represents a measure of climate change awareness. In Model (1), we use a dummy variable indicating the period post COP21, from 2016 onwards. In Model (2), we use the one-year moving average of the standardized Media Climate Change Concern Index (MCCC) of Ardia et al. (2023). In Model (3), we include two dummy variables interacted with the same family dummy. The first dummy variable takes the value of 1 if the relative difference of MCCC and its one-year moving average is above the 75th percentile. The second dummy variable takes the value of 1 if the relative difference of MCCC and its one-year moving average is below the 25th percentile. The sample represents open-end equity funds domiciled in the U.S. with a USD base currency between 2000 and 2022 from Morningstar Direct. The standard errors shown in parenthesis are clustered at the ESG fund level. We indicate significance at the 10%, 5%, and 1% level by *, **, and ***, respectively.

	(1)	(2)	(3)
Same family	0.106***	0.108***	0.104***
	(0.014)	(0.011)	(0.020)
Same family | Post COP21	0.082***		
	(0.017)		
Same family | MA_{12} MCCC		0.101***	
		(0.012)	
Same family | High MCCC			0.007
			(0.032)
Same family | Low MCCC			0.133***
			(0.039)
Same style	0.001	−0.006	−0.005
	(0.016)	(0.015)	(0.015)
Controls	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Family FE	Yes	Yes	Yes
Style FE	Yes	Yes	Yes
Observations	192,914	187,817	187,817
Adjusted R^2	0.016	0.018	0.017

Table 9: Fund Flows and ESG Favoritism.
This table shows the results of monthly regressions of the difference in net-of-style returns (in percentage points) between an ESG fund and a matched non-ESG fund on various explanatory variables. Both specifications in the table show the estimated coefficients of the following regression equation, which is an extension of Model (2) in Table (3):

$$\begin{aligned}\text{Net\_return}_{i,t}^{ESG} - \text{Net\_return}_{j,t}^{non\text{-}ESG} = \\ \alpha + \beta\text{Same\_family}_{i,j} + \gamma\text{Same\_family}_{i,j} \times F_{i,t} \\ + \zeta\text{Same\_style}_{i,j} + \text{Controls} + \epsilon_{i,j,t},\end{aligned}$$

where $F_{i,t}$ represents a measure of fund flows of ESG fund i. In Model (1), we directly use monthly net flows. In Model (2), we include two dummy variables interacted with the same family dummy. The first dummy variable takes the value of 1 if the fund flows of the ESG fund currently exceed the average fund flow of the family. The second dummy variable takes the value of 1 if the fund flows of the ESG fund currently lag the average fund flow of the family. Correspondingly, Model (2) does not include the same family dummy independently. The sample represents open-end equity funds domiciled in the U.S. with a USD base currency between 2000 and 2022 from Morningstar Direct. The standard errors shown in parenthesis are clustered at the ESG fund level. We indicate significance at the 10%, 5%, and 1% level by *, **, and ***, respectively.

	(1)	(2)
Same family	0.151***	
	(0.010)	
Same family |	−0.019***	
Net Flows	(0.003)	
Same family |		0.084***
Flow Outperf.		(0.025)
Same family |		0.208***
Flow Underperf.		(0.024)
Same style	0.004	0.005
	(0.016)	(0.016)
Controls	Yes	Yes
Year FE	Yes	Yes
Family FE	Yes	Yes
Style FE	Yes	Yes
Observations	184,499	184,485
Adjusted R^2	0.019	0.016

Table 10: Impact of ESG Fund Inception.
This table shows the results of monthly regressions of the difference in net-of-style returns (in percentage points) between a fund with an ESG fund in the same family and a matched fund outside the fund family. Both specifications in the table show the estimated coefficients of the following regression equation:

$$\text{Net\_return}_{i,k,t}^{non\text{-}ESG} - \text{Net\_return}_{j,l,t}^{non\text{-}ESG} = \alpha + \delta \mathbb{1}_{\{\tau_k > 0\}} + \text{Controls} + \epsilon_{i,j,t},$$

where τ_k denotes the years since the inception of the ESG fund in family k. Hence, $\mathbb{1}_{\{\tau_k>0\}}$ is a dummy variable which is 1 if an ESG fund in family k already exists in period t. We restrict the sample to $\tau_k \in [-5, 5]$. Model (1) includes only this dummy variable. Model (2) adds the size and age of both funds, and size and age of the respective fund families. The sample represents open-end equity funds domiciled in the U.S. with a USD base currency between 2000 and 2022 from Morningstar Direct. The standard errors shown in parenthesis are clustered at the fund family level. We indicate significance at the 10%, 5%, and 1% level by *, **, and ***, respectively.

	(1)	(2)
Post ESG Fund Inception	-0.092^{**}	-0.094^{**}
	(0.042)	(0.045)
Controls	No	Yes
Observations	69,329	68,605
Adjusted R^2	0.0004	0.010

Table 11: Opposite Trades and ESG Favoritism.
This table shows the results of monthly regressions of the difference in net-of-style returns (in percentage points) between an ESG fund and a matched non-ESG fund on various explanatory variables. Here, the difference in net-of-style returns is computed with the cumulated return over the leading three months. Both specifications in the table show the estimated coefficients of the following regression equation, which is an extension of Model (2) in Table (3):

$$\begin{aligned}\text{Net\_return}_{i,t}^{ESG} - \text{Net\_return}_{j,t}^{non-ESG} = \alpha + \beta\text{Same\_family}_{i,j} + \gamma O_{i,j,t} \\ + \delta\text{Same\_family}_{i,j} \times O_{i,j,t} \\ + \zeta\text{Same\_style}_{i,j} + \text{Controls} + \epsilon_{i,j,t},\end{aligned}$$

where $O_{i,j,t}$ represents a measure of opposite trades between funds i and j. This measure is based on antagonistic changes in the two funds' portfolio holdings per quarter. In Model (1), we use the average absolute market value change in the holdings across all opposite changes in the number of shares. In Model (2), we use the minimum. Both opposite trade measures are scaled by the size of the ESG fund. The sample represents open-end equity funds domiciled in the U.S. with a USD base currency between 2000 and 2022 from Morningstar Direct. Portfolio holdings are obtained from the CRSP Mutual Fund Holding database. The standard errors shown in parenthesis are clustered at the ESG fund level. We indicate significance at the 10%, 5%, and 1% level by *, **, and ***, respectively.

	(1)	(2)
Same family	0.107***	0.113***
	(0.031)	(0.031)
Opposite trades	−0.074**	
	(0.031)	
Opposite trades | Same family	0.092***	
	(0.031)	
Opposite trades min		−0.073**
		(0.030)
Opposite trades min | Same family		0.097***
		(0.031)
Same style	0.034	0.033
	(0.035)	(0.035)
Controls	Yes	Yes
Year FE	Yes	Yes
Family FE	Yes	Yes
Style FE	Yes	Yes
Observations	150,971	150,971
Adjusted R^2	0.029	0.029

Table 12: IPO Allocations.
This table shows descriptive statistics regarding IPO allocations of ESG funds and non-ESG siblings. The third column shows the p-value of the t-statistic of the test that the two means are equal. Allocation weight is the share per fund of the total family allocation per IPO. Underpricing dollar to TNA is defined as the first-day return of the participated IPO divided by the total net assets of the respective fund at the beginning of the quarter. The list of U.S. IPOs between 2000 and 2022 is from Bloomberg.

	ESG	Non-ESG	p-Val. Diff.
Mean 1st-day Return (%)	25.70	30.86	<0.001
Median 1st-day Return (%)	18.18	22.72	0.009
Mean Allocation Weight (%)	36.74	13.37	<0.001
Median Allocation Weight (%)	13.80	8.96	<0.001
Mean Underpricing Dollar to TNA (%)	0.36	0.27	0.042
Median Underpricing Dollar to TNA (%)	0.11	0.08	<0.001
Number of IPOs	590	1,644	
Number of Funds	50	639	

Figure 1: ESG AUM Share.
This figure shows the average AUM share of ESG funds over time across all fund families covered in our sample. The sample represents open-end equity funds domiciled in the U.S. with a USD base currency between 2000 and 2022 from Morningstar Direct.

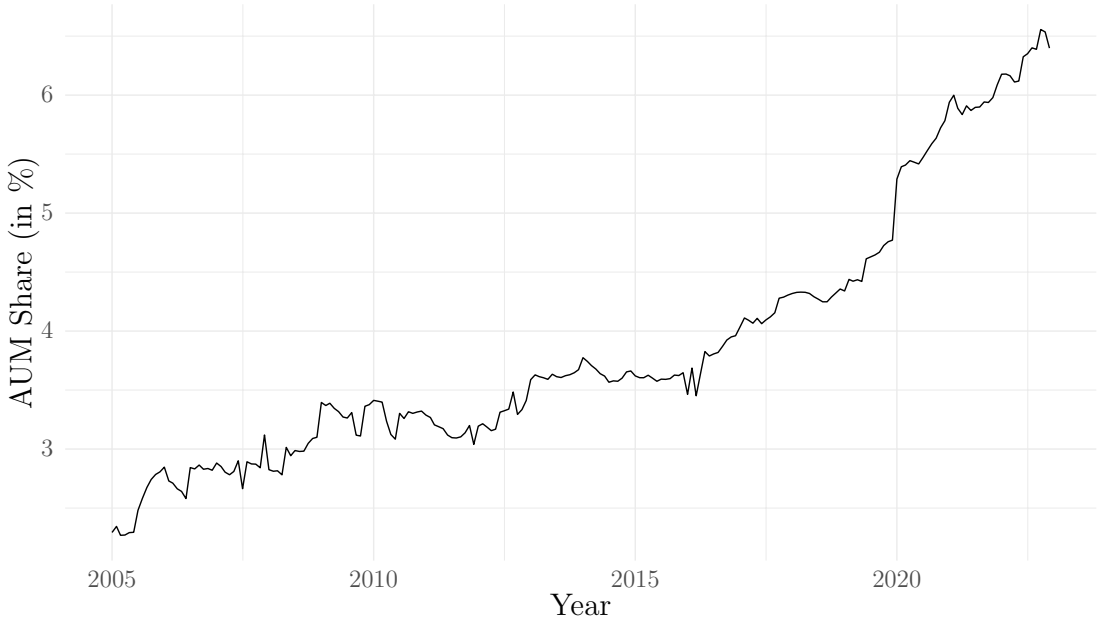


Figure 2: Fund Flows.
This figure shows the average monthly net flow for ESG and non-ESG funds. The sample is split based on the net-of-style return quartiles in the full sample. All net flow observations are corrected for the value-weighted monthly average net flow in the respective fund group. The sample represents open-end equity funds domiciled in the U.S. with a USD base currency between 2000 and 2022 from Morningstar Direct.

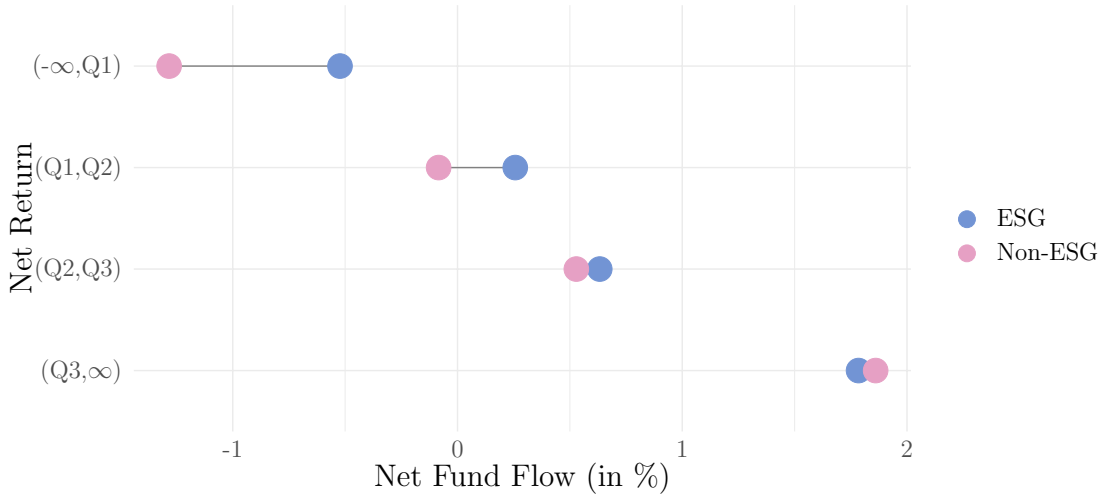


Figure 3: Number of ESG Fund Inceptions over Time.
This figure shows the annual number of inceptions of ESG funds. The sample represents open-end equity funds domiciled in the U.S. with a USD base currency between 2000 and 2022 from Morningstar Direct.

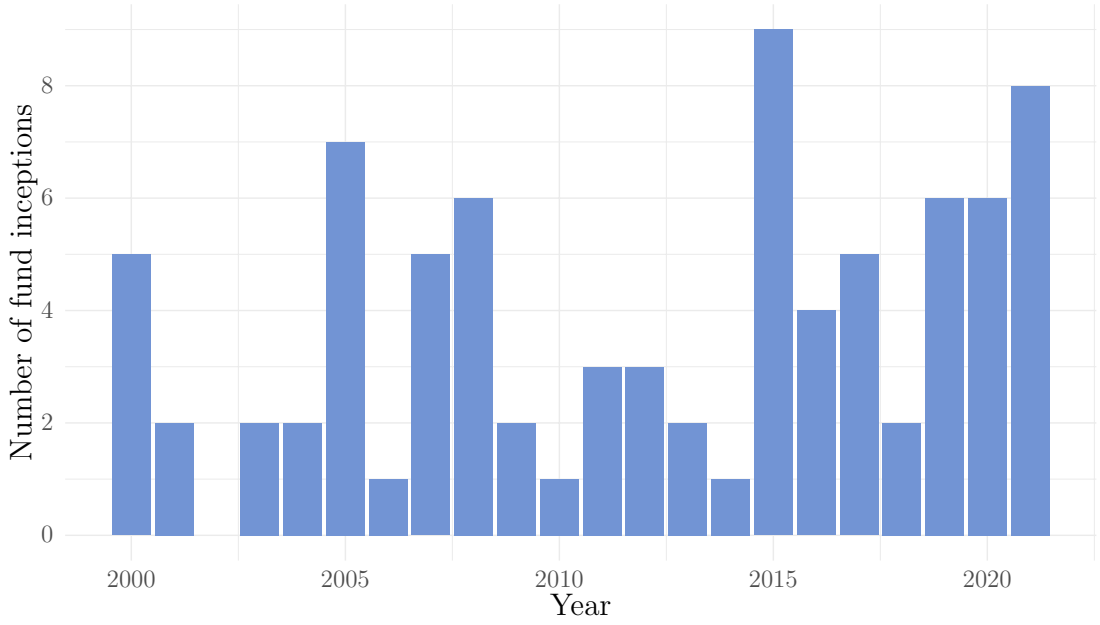
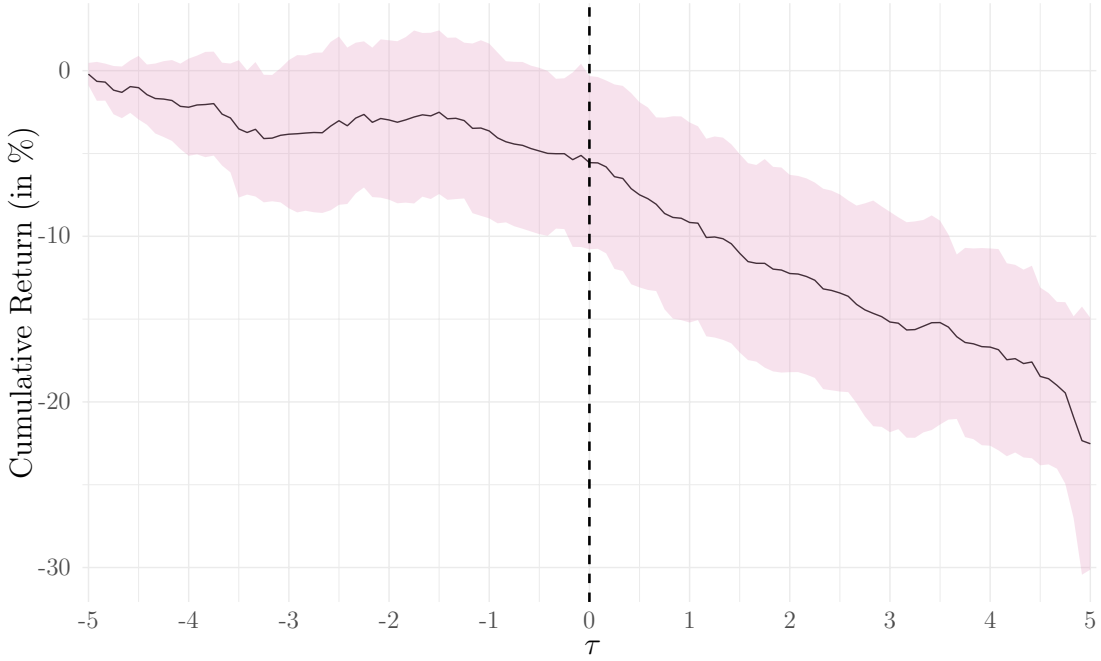


Figure 4: Cumulative Return Differential since ESG Fund Inception.
This figure shows the cumulative return differential between a non-ESG fund from a family that includes at least one ESG fund at one point during our sample period and a matched fund outside the family. The cumulative return differential is calculated over a ten-year window (five years before and after the ESG fund inception in the family). We restricted the sample to return series covering the full period. The time since the ESG fund inception τ follows the definition in Section 4.2. The solid line represents the average and the shaded area represents the 99% confidence interval. The sample represents open-end equity funds domiciled in the U.S. with a USD base currency between 2000 and 2022 from Morningstar Direct.



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Internet Appendix to "ESG Favoritism in Mutual Fund Families"

In the Internet Appendix, we provide additional evidence for the findings in the main body. In particular, Table IA-1 provides a differentiated treatment of outside-family non-ESG funds used for the matching procedure depending on the existence of ESG funds in their respective fund families. Table IA-2 provides a comprehensive investigation of the robustness of our results accounting for funds, which only during the sample period, based on their name, changed from a non-ESG fund into an ESG fund. Finally, we redo our main tests using alternative matching procedures in Table IA-3.

Table IA-1: Test of ESG Favoritism without ESG Family Matching.
This table shows the results of monthly regressions of the difference in net-of-style returns (in percentage points) between an ESG fund and a matched non-ESG fund on various explanatory variables. All specifications are equivalent to Model (2) in Table (3) of the main body. The sample represents open-end equity funds domiciled in the U.S. with a USD base currency between 2000 and 2022 from Morningstar Direct. In Model (1), the sample is as defined in Section 3. In comparison, in Model (2), we exclude from the base sample matched non-ESG funds that are part of a fund family that includes an ESG fund. In Model (3), we redo the matching using solely non-ESG funds part of a fund family without ESG funds. The standard errors shown in parenthesis are clustered at the ESG fund level. We indicate significance at the 10%, 5%, and 1% level by *, **, and ***, respectively.

	(1)	(2)	(3)
Same family	0.144***	0.141***	0.136***
	(0.010)	(0.011)	(0.010)
Same style	0.001	0.005	0.002
	(0.016)	(0.020)	(0.016)
Controls	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Family FE	Yes	Yes	Yes
Style FE	Yes	Yes	Yes
Observations	192,914	160,053	188,657
Adjusted R^2	0.016	0.015	0.016

Table IA-2: Test of ESG Favoritism Accounting for Name Changes.
This table shows the results of monthly regressions of the difference in net-of-style returns (in percentage points) between an ESG fund and a matched non-ESG fund on various explanatory variables. All specifications are equivalent to Model (2) in Table (3) of the main body. The sample represents open-end equity funds domiciled in the U.S. with a USD base currency between 2000 and 2022 from Morningstar Direct. In Model (1), the sample consists of all ESG funds as defined in Section 3. In Model (2), we exclude ESG funds with a name change during the sample period. In Model (3), we only consider ESG funds with a name change. The standard errors shown in parenthesis are clustered at the ESG fund level. We indicate significance at the 10%, 5%, and 1% level by *, **, and ***, respectively.

	(1)	(2)	(3)
Same family	0.144***	0.136***	0.151***
	(0.010)	(0.017)	(0.012)
Same style	0.001	0.001	0.001
	(0.016)	(0.027)	(0.020)
Controls	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Family FE	Yes	Yes	Yes
Style FE	Yes	Yes	Yes
Observations	192,914	86,690	106,224
Adjusted R^2	0.016	0.026	0.012

Table IA-3: Alternative Matching Procedures.
This table shows the results of monthly regressions of the difference in net-of-style returns (in percentage points) between an ESG fund and a matched non-ESG fund on various explanatory variables. All specifications are equivalent to Model (2) in Table (3) of the main body. The fund matching for the samples in Models (1) and (2) is based on the Mahalanobis distance on fees, YTD return, and age. The fund matching for the samples in Models (3) and (4) is based on the Euclidean distance on fees, YTD return, and age. In Models (1) and (3), the ESG funds are paired with all non-ESG funds in the family and their respective matches outside the family. In Models (2) and (4), the ESG funds are each randomly paired with a single non-ESG fund in the family and its respective match outside the family. The sample represents open-end equity funds domiciled in the U.S. with a USD base currency between 2000 and 2022 from Morningstar Direct. The standard errors shown in parenthesis are clustered at the ESG fund level. We indicate significance at the 10%, 5%, and 1% level by *, **, and ***, respectively.

	(1)	(2)	(3)	(4)
Same family	0.144***	0.211***	0.122***	0.231***
	(0.010)	(0.032)	(0.013)	(0.031)
Same style	0.001	0.106**	−0.002	0.021
	(0.016)	(0.048)	(0.013)	(0.057)
Controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Family FE	Yes	Yes	Yes	Yes
Style FE	Yes	Yes	Yes	Yes
Observations	192,914	15,325	224,848	17,342
Adjusted R^2	0.016	0.017	0.014	0.017