

# Capitalists or fiduciary conscious agents? ESG mutual fund fees and investor sophistication

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Abstract

Gil-Bazo & Ruiz-Verdú (2009) show that fund families strategically exploit a low performance sensitivity of investors, i.e., investors' low elasticity of demand with respect to performance, to increase fund fees. Given that environmentally, socially and governance (ESG) focused investors are recognised as those who put a higher weight on non-financial preferences in comparison with non-ESG focused investors and, consequently, ESG investors appear to be “patient” with underperforming ESG funds, we ask the question of whether fund families exploit ESG investors' lower performance sensitivity and charge them higher fees. We use a sample of 2,055 U.S. equity mutual funds to test this hypothesis and find that fund families do exploit retail ESG investor's low performance sensitivity when setting fees of ESG funds. We also find no evidence of such practices in the sample of institutional funds. Moreover, we find that the exploitative fee setting practices observed in the retail sample are driven by marketing fees and not by operating fees.

JEL classification: G11, G23, G29, G30

Key words: mutual funds, ESG, sustainability, fees, performance, performance sensitivity, financial sophistication, retail investors, institutional investors

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“We focus on sustainability not because we’re environmentalists,  
but because we are capitalists and fiduciaries to our clients.”

Larry Fink, CEO of Blackrock

Letter to the CEOs: The power of capitalism, January 2022<sup>2</sup>

## 1. Introduction

According to FINRA Investor Education Foundation’s study 21 percent of retail investors think they do not pay any kind of fee for investing, and a further 17 percent do not know how much they pay (Lin et al., 2022). Yet, every year mutual fund investors pay over US\$100B in mutual fund fees (Morris, 2020). The size of fees paid might not be an issue if fees reflected the quality of investment services provided by mutual funds, and particularly returns earned by investors. However, numerous studies show that this is not the case. There is ample evidence that fund families value high fee funds at the expense of their investors (Dukes et al., 2006; Houge and Wellman, 2007; English et al., 2011; Shirley and Stark, 2016; Grinblatt et al., 2015; Evans et al. 2017). Christoffersen and Musto (2002) and Gil-Bazo & Ruiz-Verdú (2009) show that fund families strategically set fees to exploit investors’ low elasticity of demand with respect to performance. This prompts a question of how do fund families set fees for environmentally, socially and governance (ESG) focused funds? Are factors affecting fees similar or different for retail and institutional funds given the differences in financial sophistication between these two groups of investors?

Numerous papers document that ESG mutual funds do not provide superior performance (Halbritter and Dorfleitner, 2015; Raghunandan and Rajgopal, 2022). It has been argued that ESG investors (i.e., investors of ESG funds) put up with the inferior performance of ESG funds because ESG investors put a higher weight on non-financial aspects of investment portfolios than non-ESG investors (i.e., investors of funds that are not ESG) and, consequently, ESG investors do not perceive the underperformance of ESG investments as a cause for disappointment (Amel-Zadeh and Serafeim, 2018; Baker, Egan and Sarkar, 2022; Goldstein, Kopytov, Shen and Xiang, 2022).

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<sup>2</sup> <https://www.blackrock.com/corporate/investor-relations/larry-fink-ceo-letter>

This “patience” of ESG investors with poorly performing ESG funds makes the investors less active and potentially lowers their elasticity of demand with respect to performance, i.e., their performance sensitivity. If so, it may fund families may treat them as being similar to investors with lower financial sophistication and, hence, incorporate in fund fee setting strategies in a similar manner. This should apply to both institutional and retail investors, maybe even more to institutional investors given that their investment horizons can be expected to be longer than those of individual investors.

Gil-Bazo & Ruiz-Verdú (2009) show that two factors related to investor financial sophistication play an important role in shaping fund fees: investors’ understanding of the link between fees and performance (i.e., fee-performance relationship), and how fund families incorporate investors’ elastic of demand with respect to performance (i.e., fee-elasticity relationship) into their fee setting strategy. We look how these two factors differ between ESG and non-ESG funds for institutional and retail investors.

We find that, only retail ESG funds are associated with lower performance elasticity in comparison with non-ESG funds. The performance elasticities of institutional ESG and non-ESG funds are statistically indifferent and neither of them statistically significantly impacts fees. In contrast, performance sensitivity of retail ESG investors is statistically lower than performance sensitivity of retail non-ESG investors, and this difference is exploited by fund families. We find strong evidence of a negative fee-sensitivity relationship for ESG funds meaning that fund families take advantage of ESG investors’ lower performance sensitivity and charge them higher fees.

We also find a strong negative fee-performance relationship for retail ESG funds but a positive one for institutional ESG funds. Both, retail and institutional non-ESG investors have positive fee-performance relationships. This means that retail ESG investors fall prey to ESG investing and the worse performing funds they hold, the higher fees they pay. Those higher fees are driven by marketing fees, i.e., fees fund families spend on advertising and distribution to attract even more “naïve” ESG investors.

Our results contribute to several strands of the literature. First, they contribute to the literature on fee setting practices of fund families and factors determining mutual fund fees (Tuffano and Sevick, 1997; Christoffersen and Musto, 2002; Houge and Wellman, 2007; Cremers, Driessen, Maenhout and Weinbaum, 2009; Ferris and Yan, 2009; Gil-Bazo and Ruiz-Verdú, 2009; Ivković and Weisbenner, 2009; Bailey et al., 2011; Ding and Wermers, 2012; Cumming et al.,

2019; Cooper, Haling and Yang, 2021). They enrich the literature on unfair practices of fund families and differences in treating (unsophisticated) retail and (sophisticated) (institutional) investors (Houge and Wellman, 2007; Gil-Bazo and Ruiz-Verdú, 2009; Zalewska and Zhang, 2020; Zalewska, 2022). They also contribute to the growing evidence on “ethical” aspects of ESG investing (Edmans, 2011; Dofleitner et al., 2014; Raghunandan and Rajgopal, 2022) and fees associated with ESG investing (Curtis, Fisch and Robertson, 2021; Kim and Yoon, 2022; Raghunandan and Rajgopal, 2022).

Our findings have far-reaching policy making and regulatory implications. While regulators and policy makers take steps to improve reporting standards of mutual funds, create taxonomy of ESG investing and reduce greenwashing, steps need to be taken to protect the most vulnerable investors from filing fund families’ pockets with undue fees.

## 2. Literature review and hypothesis statement

The growing concerns about climate change and its negative impact on environment, economies and societies have been contributing to the growth in interest in ESG investing. According to 2022 CIO survey<sup>3</sup>, 78% of private and business investors expressed concerns about climate change and numerous studies argue that ESG-concerned investors are willing to forsake some financial gains if investments are ESG friendly (Amel-Zadeh and Serafeim, 2018; Baker, Egan and Sarkar, 2022; Goldstein, Kopytov, Shen and Xiang, 2022).<sup>4</sup> Indeed, such willingness to sacrifice monetary gains is not purely philosophical because numerous studies document that non-ESG mutual funds outperform ESG ones (Halbritter and Dorfleitner, 2015; Raghunandan and Rajgopal, 2022). Moreover, there is evidence that fees charged by ESG funds are not lower than fees charged by non-ESG funds (Curtis, Fisch and Robertson, 2021; Kim and Yoon, 2022; Raghunandan and Rajgopal, 2022).

Factors shaping size and form of fees charged by mutual funds is a long-standing debate (Tuffano and Sevick, 1997; Christoffersen and Musto, 2002; Houge and Wellman, 2007; Cremers, Driessen, Maenhout and Weinbaum, 2009; Ferris and Yan, 2009; Gil-Bazo and Ruiz-

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<sup>3</sup> <https://www.esginvesting.co.uk/2022/11/db-cio-survey-investors-increase-esg-support/>

<sup>4</sup> There are considerably more papers devoted to the understanding of Socially Responsible Investing (SRI), e.g., Hamilton, Jo and Statman, 1993; Statman, 200; Bauer, Koedijk and Otten, 2005; Kreander, Gray, Power and Sinclair, 2005; Renneboog, Ter Horst and Zhang, 2008, 2011; Utz and Wimmer, 2014; Riedl and Smeets, 2017. SRI overlaps with ESG investing in the sense that social considerations are part of ESG objectives. It may be that the conclusions drawn for SRI investing extrapolate to ESG. However, such extrapolation may not be as straightforward as one would wish for if social or governance considerations were less than perfectly aligned with environmental considerations.

Verdú, 2009; Ivković and Weisbenner, 2009; Bailey et al., 2011; Ding and Wermers, 2012; Cumming et al., 2019; Cooper, Haling and Yang, 2021). It is well documented that the fee-performance relationship of unsophisticated investors is negative which is often interpreted as evidence that unsophisticated investors confuse high fees with high quality, i.e., unsophisticated investors expect that funds that charge high fees will also deliver high returns (Carhart, 1997; Daniel et al., 1997; Berk and Green, 2004; Golec and Starks, 2004; Gil-Bazo and Ruiz-Verdú, 2009; Fama and French., 2010). Gil-Bazo and Ruiz-Verdú (2009) show that the lack of investor sophistication has also more reaching consequences and affects how fund families set fund fees. They show that fund families strategically exploit a low elasticity of demand with respect to performance to increase fees. What do these findings imply for ESG funds and investors? Does it mean that the fee-performance and the fee-sensitivity relationships of ESG funds is even more negative than they are for non-ESG funds? Does it mean that fund families offering ESG funds are even more ruffles while setting fees of ESG funds than they are while setting fees of non-ESG funds?

While ESG investors may be more “patient” with poorly performing funds, and therefore less likely to vote with their feet than non-ESG investors, it does not mean that they are unsophisticated. Many ESG investors are institutional. Moreover, one could argue that those investors who consciously seek and choose to invest in ESG funds show some awareness, and therefore may be, on average, more sophisticated than the average investor. Thus, on the one hand there are arguments in support of the argument that fees of the ESG funds may be inflated by the weak fee-performance relationship of ESG investors and fund families strategically taking advantage of it when setting fees (Christoffersen and Musto, 2002; Gil-Bazo and Ruiz-Verdú, 2009); on the other hand, there are arguments pointing in the opposite direction (Grinblatt et al., 2012, 2016).

If retail investors’ starting position is a negative fee-performance relationship (as shown in the literature), and ESG investors are even more tolerant to fund poor performance than non-ESG investors, then the fee-performance relationship of ESG retail funds should be even more negative than that of the non-ESG funds. This conjecture hinges on the assumption that ESG investing preferences of retail investors are not positively correlated with their financial sophistication. If they are, i.e., ESG retail investors are relatively more sophisticated than non-ESG retail investors, then the fee-performance relationship of ESG retail funds could move in any direction in relation to the fee-performance relationship of the non-ESG retail funds. The

movement would depend on the relative differences in sophistication between the ESG and non-ESG investors, and the scale of the impact ESG preferences make.

In the case of institutional investors, who are expected to be a more uniform group with regard to performance sensitivity and avoidance of high fees than retail investors, the effect of ESG preferences should be much weaker than in the case of retail investors. First, fund families may find it more difficult to push fees up (the performance sensitivity effect may be much weaker than in the case of the retail funds even if performance sensitivity of ESG institutional funds is weaker than performance sensitivity of non-ESG institutional funds. Second, fee-performance relationship of the ESG funds should not be stronger than the fee-performance relationship of the non-ESG fund, which is not expected to be negative to start with.

If an increase in fees takes place, then the question arises whether it occurs through an increase marketing or operational fees?

If ESG funds engage in more monitoring of and data collection on firms they invest in (Dicolli et al., 2022; Curtis et al., 2021), than it might be that their operating cost, and therefore fees, are higher than those on non-ESG funds. However, there is also evidence that ESG fund managers rely on easily accessible ESG rankings rather than true ESG figures reported by companies they invest in, thus the argument that ESG portfolios are associated with higher information search costs may not be true (Ragunandan and Rajgopal, 2022). Thus, it is not altogether clear that running ESG funds should be associated with higher operating costs.

Similarly, it is not clear that marketing costs of ESG funds should be higher than those of non-ESG funds. ESG investing is so fashionable that funds should not have to spend vast amounts of money on attracting potential investors, although it is well documented that advertising is a very effective way of increasing flows (Jain and Wu, 2000; Elton et al., 2004; Cooper et al. 2005; Barber et al., 2005; Huang et al., 2007; Aydogdu and Wellman, 2011). If funds have high marketing fees, these funds are associated with investor exploitative practices (Malkiel, 1995; Huang, Wei and Yan, 2007). Thus, if we observe that the impact of performance sensitivity on fees is stronger in ESG funds, it is likely that it will manifest through marketing fees.

### 3. Data

Morningstar Direct classifies a fund as “Sustainable Investment” if a fund states in its prospectus or other regulatory filings that its focus is on sustainability, impact, green, or

environmental, social, and governance (ESG) factors. All actively managed U.S. equity mutual funds that fall into that category and were operational between January 2002 and December 2021 were selected as ESG for the purpose of this research. In total, we downloaded data for 2,055 funds of which 134 were ESG.

Using the self-declared investment focus, rather than ESG ratings, to classify funds has several advantages. First, it steps aside the problem of choosing any particular data vendor of ESG ratings (Dorfleitner, Halbritter, and Nguyen, 2014). Given that ESG ratings differ substantially across data vendors (not only in size, but most importantly have close to zero correlations with each other), opting for the classification that is not based on ratings, reduces a potential bias in separating ESG from non-ESG funds. Second, it steps aside the issue of choosing the “critical” ESG score above which funds are classified as ESG and below which they are not. Moreover, given that ESG scores can be quite volatile, and can be available for most recent years only, using a classification not based on ESG scores is advantageous. Finally, while investors may not have access to ESG scores, investors must be provided with annual statements and prospectuses. Therefore, it is more likely that investors have access to information about funds’ investment focus than ESG scores. Investors may also be more likely to be able to interpret the strategy statement than a numerical value of an ESG score given a low level of financial numeracy of the general population and opacity of ESG ratings.

The main characteristics of the funds (such as AUM, inception date, monthly returns, expense ratios, loads, and turnover ratios) were downloaded from the CRSP (The Center for Research in Security Prices) Survivor-Bias-Free U.S. mutual fund database. Given that small mutual funds may behave differently from other funds (Bohra et al., 2012; Chen et al., 2004), we restricted our sample to funds with total net assets (TNA) exceeding \$15 million. We have also collected names and characteristics of funds’ fund families.

Using information provided by CRSP about the primary asset classes, we separated funds into institutional and retail.<sup>5</sup> In total, the sample consists of 91 ESG funds (42 institutional and 49 retail) and 1,879 non-ESG funds (793 institutional and 1,086 retail). We also downloaded the Fama-French risk factors and the Momentum factors for the period January 2002-December 2021 from Kenneth French’s website. We refer to these factors as Carhart risk factors.

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<sup>5</sup> A fund is labeled an institutional fund if the “finst\_fund” indicator is “Yes”; a fund is labeled a retail fund if the “finst\_fund” indicator is “No”.

## 4. Variables and matching

### 4.1. Definitions of the variables

To calculate funds' risk adjusted returns, we first calculated monthly before-fee returns,  $R$ , as monthly after-fee returns (as reported by Morningstar) plus the annual expense ratio divided by 12. To calculate time series of monthly risk-adjusted returns, Alphas, we used three-year (at least 30 months) rolling windows of  $R$  and the Carhart risk factors. The restriction to use at least three years of data removed 8 non-ESG funds from the sample. Thus, the final sample consists of 91 ESG and 1,871 non-ESG funds, giving 376,420 fund-month observations.

For each fund included in the sample we calculated several monthly variables: Age is the number of years at the end of each calendar month, Size is the sum of the AUM (in millions of U.S dollars) of all the share classes of the fund, Turnover is the value of sales and aggregate purchases of securities divided by the average 12-month total net assets (TNA),  $Size_{EFF}$  is the size of fund family of the fund calculated as the sum of total net AUM of all the funds in the fund family that the fund belongs to. Moreover, following Gil-Bazo and Ruiz-Verdú (2009), we calculated the total fee ( $Fee_{ttl}$ ), marketing fee ( $Fee_{mrkt}$ ) and operating fee ( $Fee_{opt}$ ).  $Fee_{ttl}$  is one twelfth of the sum of a fund's expense ratio and  $(Load_{FR} + Load_{BK})/7$ ,<sup>6</sup> where  $Load_{FR}$  is a front-end load an investor is charged upon purchase, and  $Load_{BK}$  is a back-end load charged when an investor redeems a fund.  $Fee_{mrkt}$  is defined as one twelfth of the sum of 12b-1 fees,  $Load_{FR}$  and  $Load_{BK}$ .  $Fee_{opt}$  is defined as one twelfth of the expense ratio minus the 12b-1 fees. Also, following Gil-Bazo and Ruiz-Verdú (2009) we calculated the slope of the flows-performance relationship,  $S_t$ , to which we refer as Sensitivity. The details of the calculations of Sensitivity are in Appendix 1. All continuous variables are 1% winsorized.

In addition, we defined the ESG dummy equal to one for all the months a fund states in its prospectus that its investment focus includes sustainability, impact, green, or ESG objectives.

Tables 1 and 2 show the summary statistics of the core variables for the retail and the institutional funds respectively. Each table shows the statistics for the ESG (Panel A) and non-ESG (Panel B) funds. Panel C of Tables 1 and 2 show the results of the Fisher's Permutation test for the differences in means with bootstrap errors. The tables are consistent with the basic intuition that, on average, the retail funds are smaller, come from smaller fund families and charge higher fees than the institutional funds. The tables also show that, on average, ESG

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<sup>6</sup> The assumption of the average holding portfolio time being seven years is commonly used in the literature (e.g., Gil-Bazo and Ruiz-Verdú, 2009; Casavecchia and Tiwari, 2016; de Haan et al., 2021).



funds are smaller and deliver lower before-fees risk-adjusted returns (Alphas) than non-ESG funds regardless of whether they are retail or institutional. On average, the retail ESG funds have a higher turnover ratio than the retail non-ESG funds, but the opposite is true for the institutional funds. The average fees of the ESG funds are lower than average fees of the non-ESG funds regardless of whether the funds are retail or institutional. Finally, the average Sensitivity of the ESG funds is lower than the average Sensitivity of the non-ESG funds regardless of whether they are retail or institutional.

\*\*\*\*\* insert Table 1 and Table 2 here \*\*\*\*\*

Table 3 shows the distribution of investment styles in the ESG and the non-ESG samples for the retail (Panel A) and the institutional (Panel B) funds. Large blend and large growth are the most populous investment styles among both the ESG and non-ESG funds for both the retail and the institutional samples. However, while Small Blend, Small Growth and Small Value are quite popular investment styles among non-ESG funds, they are not so among the ESG funds, especially on the retail side. Thus, accounting for distributional differences between ESG and non-ESG funds, as well as between retail or institutional funds, is important to ensure the robustness of the analysis. Therefore, the non-ESG sample will need to be restricted to funds that are most comparable with the ESG funds.

\*\*\*\*\* insert Table 3 here \*\*\*\*\*

## 4.2. Matching

Previous studies comparing ESG and non-ESG funds used a range of different matching methods; for example, the Propensity Score Matching (Yu, 2014), K-Nearest Neighbours (Nofsinger and Varma, 2014).<sup>7</sup> These methods are static, i.e., they match an ESG fund with one (or more) non-ESG funds at a given time point to produce a comparison sample in terms of funds' investment strategy, fund size, and fund age. However, these “static” matching

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<sup>7</sup> Many prior studies use “static” methods (e.g., Goldreyer et al., 1999; Statman, 2000; Bauer et al., 2005; Bollen, 2007; Renneboog et al., 2008a; Nofsinger and Varma, 2014; Bauer et al. 2006).

methods can be ineffective because changes in the funds' characteristics may not follow similar patterns.

To accommodate a potentially dynamic nature of the ESG market evolution, we adopted the entropy balancing which rebalances data dynamically allowing to retain more information in a pre-processed data than it would be in the case in of a “static” matching (Hainmueller, 2012). Also, the entropy balancing does not require to test the balance check because the weights are directly adjusted to the known sample moments and vary smoothly across units.<sup>8</sup>

Following previous studies, we used Size, Age (to the exact month) and investment style as the parameters of first-order balancing constraints. The retail ESG funds are matched with non-ESG retail funds and the institutional ESG funds are matched with non-ESG institutional funds. In addition, to address a potential sample selection bias we restricted the non-ESG funds used for matching to only those which were offered by the fund families that also offer ESG funds. Restricting the sample to the fund families which provide ESG funds allows to shed light on within fund families' fee setting practices and assess whether they are this group specific or universal. The sample restricted to funds offered by fund families that provide ESG funds is referred to as ESG providers sample and the matching bases on this sample to ESG providers restricted matching.

Table 4 shows the summary statistics of the key variables after the matching using the whole sample (the columns headed “Whole sample”) and for the ESG providers restricted matching (the columns headed “ESG providers sample”) the for the retail (Panel A) and the institutional (Panel B) funds respectively. Two retail ESG funds and one institutional ESG funds were provided by fund families which did not provide non-ESG funds within the same investment styles. This omission did not have much impact on the ESG sample statistics. However, although restricting the sample to the ESG providers only reduced the number of fund families included in the study from 512 to 62, it did not have any material effect on the sample properties. The statistical differences between the average Size and Age of the ESG and non-ESG funds have been eliminated as the result of matching. Also, the differences between the fund family sizes became statistically insignificant when the ESG providers restricted matching was performed. In the case of the retail funds, before the matching the ESG funds had the average total fee and the operating fee lower than the non-ESG funds. After the matching, whether on

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<sup>8</sup> Entropy matching was successfully adopted in previous studies (e.g., Chahine et al., 2020; Madsen and McMullin, 2020; McMullin and Schonberger, 2020).

the whole sample or on the ESG providers restricted sample, the average total and the operating fees charged by the ESG funds became larger than the average corresponding fees charged by their matched non-ESG funds. In the case of  $Fee_{mrkt}$  there was no statistical difference between ESG and non-ESG funds before the matching. Post matching, the ESG funds'  $Fee_{mrkt}$  became statistically significantly larger than non-ESG funds'  $Fee_{mrkt}$ .

The comparison of the pre- and post-matching Alphas shows that the difference between the ESG funds and non-ESG funds declined post matching. Particularly, when the matching is restricted to the ESG providers, the statistical significance underperformance of the ESG funds disappears. The differences Sensitivity increased post matching.

In the case of the institutional funds, before the matching, the average total, marketing and operating fees of the ESG funds were lower than those of the non-ESG funds. Matching on the whole sample lowered the average total and operating fees (although preserved them being statistically significantly higher than the corresponding fees of the ESG funds) but increases the average marketing fee making it statistically significantly lower than the average marketing fee of the ESG funds. When the matching is restricted to ESG providers, all three types of fees of ESG funds became statistically significantly larger than the corresponding non-ESG fees.

The comparison of the average values of Alpha and Turnover for non-ESG funds shows that their post-matching values remained lower than their pre-matching values but still larger than the equivalent values for the ESG funds. However, when we matched the ESG funds with non-ESG funds within the ESG providing fund families, there is no statistical difference in the performance but the difference in Turnover increases.

Finally, although matching on the whole sample had no visible effect on the average values of the Sensitivity which remained higher for the non-ESG funds than it was for the ESG funds, the ESG providers restricted matching indicates that investors of the ESG funds are more performance sensitive than their non-ESG counterparts.

All in all, these results are consistent with the argument that, on average, neither ESG funds nor investors who chose ESG funds are a random sample. Narrowing the population of the non-ESG funds to those that have the same investment style, size and age as the ESG funds affects the populations' performance, fees, turnover and elasticity of sensitivity to performance. Restricting the matching to the fund families who operate ESG funds shows further differences across the populations and confirms that matching is necessary.

\*\*\*\*\* insert Table 4 \*\*\*\*\*

## 5. Performance, performance sensitivity and fees of ESG and non-ESG funds

The basic summary statistics presented in Panels C of Tables 1 and 2 show that the ESG funds statistically significantly underperform their non-ESG counterparts regardless of whether they are retail or institutional. The matching witing the whole sample confirms the underperformance of ESG funds but the matching with the ESG providers sample shows that there are no statistical differences in the performance between the ESG and the non-ESG funds. This may suggest that a decision to of fund families to offer ESG funds may not be random.

To shed more light on whether there are differences in the performance of the ESG and the non-ESG funds, Table 5 shows the results of regressing Alpha on the ESG dummy while controlling for the investment style and time dummies and when the extra two controls (Size, Age) are added.<sup>9</sup> Panel A shows the results for the retail funds and Panel B shows the results for the institutional funds. Each panel is divided into the “Whole sample” and “ESG providers sample” sections depending on whether all the funds or only those of ESG providers are used. Then, each section shows the results without matching and with matching.

Regardless of the specifications, samples and matching used or not the results are robust – there are no statistically significant differences in the performance of the ESG and the non-ESG funds even though there nearly all the coefficients estimated for the ESG dummy are negative.

\*\*\*\*\* insert Table 5 \*\*\*\*\*

Thus, these results are consistent with numerous previous studies showing that ESG funds do not provide superior (in the monetary sense) investment opportunities in comparison with non-ESG funds.

Table 6 provides results analogous to those presented in Table 5 except that Sensitivity is the dependent variable. Table 6 Panel A regressions confirm that retail ESG investors have lower Sensitivity than non-ESG counterparts. All the coefficients estimated for the ESG dummy are statistically significant at the 1% or 5% levels.

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<sup>9</sup> All the regressions presented in the paper are clustered at the fund level.

Table 6 Panel B regressions show that in contrast to the retail funds, Sensitivity of the institutional ESG funds does not differ, in statistical sense, from Sensitivity of non-ESG funds. All the eight coefficients estimated for the ESG dummy are statistically insignificant.

\*\*\*\*\* insert Table 6 \*\*\*\*\*

## 6. Determinants of fund fees

We start the analysis from regressions similar to those in Gil-Bazo and Ruiz-Verdú (2009) in order to determine whether in our sample Alpha and Sensitivity also have a negative association with fees. To save space only regressions with matched non-ESG funds are presented.

Table 7 Panel A and Panel B show the results for the retail and the institutional funds, respectively. Each panel has two sections: “Whole sample” shows the results when the all the non-ESG funds were used for matching with the ESG funds and “ESG providers sample” shows the results when only the funds of ESG providers were used for matching. Each section has three columns,  $Fee_{ttl}$ ,  $Fee_{mrkt}$ , and  $Fee_{oprt}$ , indicating the dependent variable used in the regressions.

The results are consistent with the previous research regardless of the matching technique. That is, retail funds are characterised by the negative fee-performance and the fee-sensitivity relationships because the coefficients estimated for Alpha and Sensitivity in the  $Fee_{ttl}$  regressions are statistically significantly negative at the 1% and 5% levels. Moreover, both relationships seem to be driven by the marketing fees rather than operating fees, given that all the coefficients estimated for Alpha and Sensitivity in the  $Fee_{mrkt}$  regressions are statistically significant at the 1% and 5% levels, and none of in the  $Fee_{oprt}$  regressions are.

There also is statistical evidence that smaller funds charge smaller  $Fee_{ttl}$  and that funds that have larger Turnover charge higher fees. These conclusions extend to  $Fee_{oprt}$ . Interestingly, Turnover has a greater impact on the size of  $Fee_{mrkt}$  than on the size of  $Fee_{oprt}$ . Moreover, there is some evidence that bigger fund families are associated with charging lower  $Fee_{mrkt}$  and  $Fee_{oprt}$ , but this is true for  $Fee_{oprt}$  only in the sample of ESG providers. Finally, older funds tend to charge lower  $Fee_{oprt}$ .

The results of Table 7 Panel B are in a strong contrast to those in Panel A. In the case of the institutional funds the signs and statistical significance of the coefficients estimated for Alpha and Sensitivity confirm that these two factors play a substantially different role in influencing the size of fees of the institutional funds.

To start with the fee-performance relationship, it is definitively not negative for the institutional funds. All the coefficients estimated for  $Fee_{ttl}$  and  $Fee_{oprt}$  are positive and statistically significant at the 1% level. The coefficients estimated for  $Fee_{mrkt}$  are also positive but statistically insignificant. Thus, in contrast with the retail funds, institutional funds' fees are a better reflection of the investment opportunities they offer.

Regarding the fee-sensitivity relationship, the institutional funds are also in a stark contrast to the retail funds. All the coefficients estimated for Sensitivity are highly statistically insignificant. Thus, when it comes to setting fees for institutional investors, fund families seem to be less "exploitative" than it is in the case of setting fees for retail investors.

The signs and statistical significance (or its lack) of the controls also indicate that fund and fund family characteristics covary differently with fees for the institutional funds than they do for the retail funds.

Thus, Table 7 confirms that there are considerable differences in what attracts retail and institutional investors but also in how fund families treat these two groups of investors.

\*\*\*\*\* insert Table 7 \*\*\*\*\*

## 7. Determinants of ESG funds' fees

The results obtained so far show that fee-performance and fee-sensitivity relationships are very different for retail and institutional funds. The remaining question is whether these differences extend to the ESG funds and whether, given the evidence of low performance sensitivity of retail investors, fund families further exploit retail investors' vulnerabilities when offering funds under the ESG umbrella.

### 7.1. Retail funds

To assess whether there are differences between the ESG and the non-ESG funds we introduce interaction effects of the ESG dummy. Table 8 shows the results of regressions similar to those

presented in Table 7 but this time the ESG dummy and its interactions with Alpha and Sensitivity are added. Table 8 Panel A (“Whole sample”) shows the results when all the non-ESG funds were used for matching with the ESG funds and Panel B (“ESG providers sample”) shows the results when only the funds of ESG providers were used for matching. Each panel has three sections, one for  $Fee_{ttl}$  being the depended variable, one for  $Fee_{mkt}$  being the dependent variable and one for  $Fee_{opt}$  being the dependent variable. For each independent variable three specifications are shown: first and second have only one ESG interaction term, with Alpha and with Sensitivity, respectively. The third one has the interactions of the ESG dummy with Alpha and with Sensitivity.

The results uniformly show that the fee-performance relationship of ESG investors is statistically significantly lower than that of the non-ESG investors in the  $Fee_{ttl}$  and the  $Fee_{mkt}$  regressions. The coefficients estimated for the interaction term  $Alpha \times ESG$  in the regressions with  $Fee_{opt}$  as the dependent variable are also negative but not statistically significant. The statistically significant coefficients of  $Alpha \times ESG$  are so large that they overpower the coefficients estimated for Alpha. Interestingly, the Alpha coefficients estimated in the regressions with the interaction  $Alpha \times ESG$  are always positive, they are also statistically significant in the  $Fee_{ttl}$  and  $Fee_{opt}$  regressions. The only negative coefficients of Alpha are obtained when there is no interaction term of  $Alpha \times ESG$ . This shows that the negative fee-performance relationship reported in Table 7 was driven by the ESG funds. These results also show that the negative fee-performance relationship is strong for  $Fee_{mkt}$  but non-existent for  $Fee_{opt}$ . This is a bit surprising result because it suggests that ESG investors seem to have characteristics of unsophisticated investors who tend to confuse high fees with the quality of investment opportunities. The non-ESG investors matched with the ESG investors based on their preferences for funds’ age, size and investment style (regardless of whether the come from the fund families being ESG providers or not) do not have such characteristics. This, once more, indicates that the ESG investing attracts investors with particular preferences.

The effect of Sensitivity on the size of fees is also different for the ESG and the non-ESG investors. When there is no interaction  $Sensitivity \times ESG$ , all the coefficients estimated for Sensitivity are negative and those in the  $Fee_{ttl}$  and the  $Fee_{mkt}$  regressions are statistically significant at the 5% level. When the interaction  $Sensitivity \times ESG$  is added to the regressions, the coefficients estimated for Sensitivity become statistically insignificant and positive, and those for the  $Sensitivity \times ESG$  are negative and statistically significant at the 5% level in the  $Fee_{ttl}$  and  $Fee_{mkt}$  regressions, and statistically significant at the 10% level in the  $Fee_{opt}$

regression when the matching is done on the whole sample. The absolute value of the coefficients of Sensitivity $\times$ ESG in the ESG providers sample is twice the size of the corresponding coefficients in the whole sample. Thus, these results indicate that in the group of comparable funds, fund families utilise lower performance sensitivity of investors opting for ESG funds. Given that the impact of Sensitivity is even stronger for ESG providers suggests that fund families are more capitalists than fiduciaries of retail investors.

These results clearly demonstrate that although there is little evidence of ESG funds charging higher fees than non-ESG fund (only some of the coefficients obtained for the ESG dummy in the Fee<sub>mrkt</sub> regressions are statistically significantly positive, at the 5% and 10% levels) ESG investors' characteristics and preferences are strongly linked with fees charged by ESG funds. Particularly, fund families seem to utilise investors' low performance sensitivity and charge higher fees. The low performance sensitivity of ESG investors seems to help fund families to inflate marketing fees.

\*\*\*\*\* insert Table 8 here \*\*\*\*\*

To complete the discussion of the differences between the ESG and non-ESG investors, we split the sample into the ESG and the non-ESG funds and run regressions similar to those presented in Table 7, i.e., there are no interactions and the significance between the corresponding coefficients obtained for the ESG and the non-ESG funds is assessed through t-tests. Running separate regressions for the ESG and non-ESG funds allows for a more precise comparison of the coefficients of interest because this time it is not assumed that the controls covary with fees in the same way for the ESG and the non-ESG funds.

Table 9 has the format similar to Table 8, i.e., there are two panels (A for the whole sample matching and B for the ESG providers restricted matching), each panel has three sections (one for each of the dependent variables, Fee<sub>ttl</sub>, Fee<sub>mrkt</sub> and Fee<sub>oprt</sub>), and each section had two regressions (one based on the ESG funds (headed "ESG"), and one based on the matched non-ESG funds (headed "non-ESG") and the results of the t-test.

Table 9 shows that, regardless of the specification, the Alpha coefficients estimated for the matched non-ESG funds are positive and statistically significant (except for the one in the Fee<sub>mrkt</sub> regression in Panel A). In contrast, the Alpha coefficients estimated for the ESG funds when Fee<sub>ttl</sub> and Fee<sub>mrkt</sub> are the dependent variables are negative and highly statistically



significant. The absolute values of the statistically significant Alpha coefficients in the ESG fund regressions are much bigger than the corresponding absolute values of the Alpha coefficients estimated for the non-ESG funds. All the t-tests show statistically significant differences between the corresponding Alpha coefficients.

Also, there are statistical differences between the estimates of the Sensitivity coefficients for the ESG and the non-ESG funds. All the Sensitivity coefficients in the non-ESG regressions are positive and statistically insignificant. In contrast, they are all negative and statistically significant in the  $Fee_{titl}$  and  $Fee_{mrkt}$  regressions. All the t-tests show statistically significant differences between the corresponding Sensitivity coefficients with the ESG investors being less performance sensitive.

There also are some differences in how fees covary with control variables. There are considerably more statistically significant coefficients obtained for the non-ESG sample than for the ESG one, even when the non-ESG sample is restricted to the ESG providers. This further indicates differences in how fees of ESG and non-ESG funds are set.

\*\*\*\*\* insert Table 9 here \*\*\*\*\*

## 7.2. Institutional funds

Table 10 shows the results analogous to those presented in Table 8 but this time they are based on institutional funds. In contrast to the retail results, adding the interaction term  $Alpha \times ESG$  neither changes the significance nor the sign of the Alpha coefficients. Moreover, all the coefficients of  $Alpha \times ESG$  are positive. The strongest statistical significance (the 1% and 5% levels) is obtained for the  $Fee_{titl}$  regressions. The 10% significance is also obtained in the  $Fee_{opt}$  regressions and in the  $Fee_{mrkt}$  regression for the ESG providers sample. None of the Sensitivity or  $Sensitivity \times ESG$  coefficients are statistically significant.

These results show that, like in the retail sample, also in the institutional sample ESG investors differ from non-ESG investors. However, unlike in the retail sample, there is no evidence that the ESG institutional investors might be more “patient” with poorly performing funds. In fact, Table 10 results indicate that the institutional ESG investors have a much stronger fee-performance relationship than non-ESG investors, i.e., if they are willing to pay higher fees, they will require higher returns, too. The results also show no evidence of strategic fee setting

by fund families. Given the high level of investor sophistication, there might be no room for such practices.

\*\*\*\*\* insert Table 10 here \*\*\*\*\*

Table 11 completes the picture showing the results analogous to those in Table 9 but obtained for the institutional funds. Consistent with the results shown in Table 10, all the Alpha coefficients obtained for the ESG funds are positive and those in the  $Fee_{ttl}$  and  $Fee_{oprt}$  are statistically significant. Similarly, all the Alpha coefficients for the non-ESG sample are statistically significantly positive in the  $Fee_{ttl}$  and  $Fee_{oprt}$  regressions. Those obtained for the  $Fee_{mrkt}$  regressions are statistically insignificant. All the t-tests show statistically significant differences between the corresponding Alpha coefficients with the ESG investors being more performance sensitive than the non-ESG investors.

Table 11 also confirms a lack of statistically significant fee-sensitivity relationship for the institutional funds. All, but two, coefficients estimated for Sensitivity are statistically insignificant. The only two statistically significant (at the 10% level) coefficients were obtained for the  $Fee_{oprt}$  performance for the ESG funds. They are also positive. Even if none of the non-ESG funds' Sensitivity coefficients are statistically significant, the t-tests show that they are statistically significantly lower than the corresponding Sensitivity coefficients of the ESG funds. This means that even though, statistically speaking, Sensitivity does not affect fees of ESG and non-ESG funds, there are statistically significant differences between the two groups.

\*\*\*\*\* insert Table 11 here \*\*\*\*\*

## 8. Conclusions

There is a longstanding debate in the academic literature and among regulators on whether investors pay appropriate fees for mutual fund services. The general understanding is that investors are not financially sophisticated which cases that they tend to interpret high fees as an indication of high future returns and display a disposition bias. In turn, fund families exploit investors' low financial sophistication and set fees strategically to take advantage of investors' low elasticity of demand with respect to performance. There also is growing evidence that while ESG investing has become a popular and fast-growing trend among investors, ESG funds' services are opaque, untransparent and, *de facto*, investor unfriendly. This in combination with

the argument that ESG investors are even more “patient” with poorly performing funds than non-ESG investors, prompted us to ask the question of whether fund families offering ESG funds are even more ruffles when setting fees of ESG funds than they are when setting fees of non-ESG funds?

We address this question by comparing the fee-performance and the fee-sensitivity relationships of ESG and non-ESG funds. We test for any differences in the relationships separately for retail and institutional funds given that financial sophistication of retail and of institutional investors differ substantially. To make sure that ESG funds are compared against most representative non-ESG funds we perform two entropy matching procedures. First, we match ESG funds with non-ESG funds based on their age, size and investment strategy. Second, we additionally request that the matched non-ESG funds come from the same fund families as the ESG funds. This additional restriction ensures that we do not pick differences between fund families who declare to provide ESG mutual funds and those who do not, but that any observed differences in fees are linked to being an ESG fund or not.

As many previous studies, we also find that ESG funds do not provide superior investment opportunities regardless of whether they are retail or institutional. The risk adjusted gross returns (Alphas) of ESG funds are statistically indifferent from the corresponding Alphas of the non-ESG funds. We also document that retail ESG investors have statistically significantly lower performance sensitivity than retail non-ESG investors but that there are no differences between the institutional ESG and non-ESG investors.

Consistent with our expectations (and previous studies) we find that there are negative and strongly statistically significant fee-performance and fee-sensitivity relationships for retail investors. In contrast, we document that institutional investors have a positive and strongly statistically significant fee-performance relationship and that there is no evidence of a statistically significant fee-sensitivity relationship. We find evidence that retail ESG investors having lower performance sensitivity receive a worse deal than non-ESG investors. Fund families utilise retail investors low performance sensitivity of ESG investors to set higher fees than in equivalent non-ESG funds. There is no evidence of such practices for institutional funds. We also find evidence that the strategic setting of retail ESG funds’ fees affects marketing fees, i.e., fees that cover costs of advertising and distribution of funds. This further adds to the evidence of fund families being more capitalists than fiduciary agents of their investors.

These finding highlight the deeply enrooted problems of the mutual fund industry in relation to representation and protection of investors' interests. They call for more transparency and even more regulation to reduce unfair practices of fund families.

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Table 1. Summary statistics of retail ESG funds (Panel A) and retail non-ESG funds (Panel B)

|                            | Panel A: ESG |           |        |        |       | Panel B: non-ESG |           |        |        |         | Panel C: Difference of Means |
|----------------------------|--------------|-----------|--------|--------|-------|------------------|-----------|--------|--------|---------|------------------------------|
|                            | Mean         | Std. Dev. | Min    | Max    | Obs   | Mean             | Std. Dev. | Min    | Max    | Obs     | ESG - non-ESG                |
| Alpha                      | 0.008        | 0.203     | -1.087 | 0.958  | 5,453 | 0.024            | 0.247     | -2.090 | 2.269  | 127,592 | -0.016***                    |
| Sensitivity                | 0.020        | 0.008     | 0.002  | 0.053  | 5,453 | 0.021            | 0.012     | 0.002  | 0.252  | 127,592 | -0.001***                    |
| Age                        | 11.125       | 8.163     | 0.083  | 48.250 | 5,424 | 11.926           | 7.702     | 0.083  | 48.417 | 126,898 | -0.802***                    |
| Size (US\$B)               | 0.331        | 0.965     | 0.000  | 10.582 | 5,325 | 0.916            | 5.513     | 0.000  | 319.62 | 125,840 | -0.585***                    |
| Turnover                   | 0.741        | 0.982     | 0.000  | 8.270  | 5,325 | 0.698            | 0.868     | 0.000  | 20.180 | 126,898 | 0.042***                     |
| Size <sub>FF</sub> (US\$B) | 12.285       | 33.487    | 0.000  | 828.14 | 5,453 | 58.244           | 174.63    | 0.000  | 2175.8 | 127,592 | -45.986***                   |
| Fee <sub>titl</sub>        | 0.180        | 0.101     | 0.009  | 0.482  | 5,347 | 0.186            | 0.107     | 0.000  | 0.933  | 368,047 | -0.006***                    |
| Fee <sub>mrkt</sub>        | 0.100        | 0.095     | 0.000  | 0.315  | 5,126 | 0.106            | 0.102     | 0.000  | 0.871  | 277,551 | -0.006                       |
| Fee <sub>oprt</sub>        | 0.080        | 0.027     | 0.000  | 0.241  | 5,424 | 0.081            | 0.029     | 0.000  | 0.336  | 299,716 | -0.001***                    |

Table 2. Summary statistics of institutional ESG (Panel A) and non-ESG funds (Panel B); Panel C shows t-tests for the differences in the means of the variables for the ESG and non-ESG samples

|                            | Panel A: ESG |           |        |         |       | Panel B: non-ESG |           |        |         |        | Panel C: Difference of Means |
|----------------------------|--------------|-----------|--------|---------|-------|------------------|-----------|--------|---------|--------|------------------------------|
|                            | Mean         | Std. Dev. | Min    | Max     | Obs   | Mean             | Std. Dev. | Min    | Max     | Obs    | ESG – non-ESG                |
| Alpha                      | -0.002       | 0.192     | -1.085 | 0.956   | 2,542 | 0.011            | 0.221     | -3.716 | 3.735   | 85,101 | -0.013***                    |
| Sensitivity                | 0.021        | 0.009     | 0.005  | 0.051   | 2,542 | 0.022            | 0.010     | 0.002  | 0.245   | 85,101 | -0.001***                    |
| Age (years)                | 7.895        | 5.932     | 0.083  | 32.000  | 2,505 | 8.389            | 6.290     | 0.083  | 47.750  | 84,877 | -0.494***                    |
| Size (US\$B)               | 0.281        | 0.676     | 0.000  | 9.089   | 2,460 | 0.698            | 4.023     | 0.000  | 189.64  | 84,229 | -0.416***                    |
| Turnover                   | 0.595        | 0.810     | 0.000  | 8.270   | 2,419 | 0.622            | 0.547     | 0.000  | 7.960   | 84,229 | -0.027***                    |
| Size <sub>FF</sub> (US\$B) | 32.488       | 149.56    | 0.000  | 2,175.8 | 2,542 | 63.723           | 175.97    | 0.000  | 2,175.8 | 85,101 | -31.235***                   |
| Fee <sub>titl</sub> (%)    | 0.070        | 0.035     | 0.007  | 0.269   | 2,520 | 0.074            | 0.035     | 0.000  | 0.424   | 84,229 | -0.004***                    |
| Fee <sub>mrkt</sub> (%)    | 0.005        | 0.016     | 0.000  | 0.119   | 2,242 | 0.006            | 0.023     | 0.000  | 0.310   | 84,058 | -0.002*                      |
| Fee <sub>oprt</sub> (%)    | 0.066        | 0.029     | 0.007  | 0.186   | 2,542 | 0.068            | 0.026     | 0.000  | 0.267   | 84,279 | -0.002***                    |

Table 3. Number of ESG and non-ESG fund per investment styles

| Investment Style | Panel A: Retail |         | Panel B: Institutional |         |
|------------------|-----------------|---------|------------------------|---------|
|                  | ESG             | non-ESG | ESG                    | non-ESG |
| Large Blend      | 18              | 229     | 13                     | 160     |
| Large Growth     | 13              | 214     | 7                      | 128     |
| Large Value      | 4               | 153     | 6                      | 91      |
| Mid Blend        | 1               | 61      | 6                      | 50      |
| Mid Growth       | 7               | 92      | 2                      | 60      |
| Mid Value        | 1               | 55      | 1                      | 62      |
| Small Blend      | 1               | 123     | 3                      | 105     |
| Small Growth     | 2               | 80      | 3                      | 70      |
| Small Value      | 2               | 79      | 1                      | 67      |
| Total            | 49              | 1,086   | 42                     | 793     |

Table 4: The summary statistics of the variables after matching

|                        |                            | Whole sample |         |            | ESG providers sample |         |           |
|------------------------|----------------------------|--------------|---------|------------|----------------------|---------|-----------|
|                        |                            | ESG          | non-ESG | Diff       | ESG                  | non-ESG | Diff      |
| Panel A: Retail        |                            |              |         |            |                      |         |           |
| Matching variables     | Age (years)                | 11.125       | 11.125  | 0.000      | 11.125               | 11.125  | 0.000     |
|                        | Size (US\$B)               | 0.331        | 0.331   | 0.000      | 0.331                | 0.331   | 0.000     |
| Other variables        | Alpha                      | 0.008        | 0.014   | -0.006***  | 0.008                | 0.005   | 0.003     |
|                        | Sensitivity                | 0.020        | 0.023   | -0.03***   | 0.020                | 0.025   | -0.05***  |
|                        | Turnover                   | 0.741        | 0.683   | 0.058***   | 0.741                | 0.684   | 0.058***  |
|                        | Size <sub>FF</sub> (US\$B) | 12.285       | 43.229  | -30.944*** | 12.285               | 12.284  | 0.000     |
|                        | Fee <sub>titl</sub> (%)    | 0.180        | 0.176   | 0.004***   | 0.180                | 0.179   | 0.001***  |
|                        | Fee <sub>mkt</sub> (%)     | 0.100        | 0.098   | 0.002***   | 0.100                | 0.109   | -0.009*** |
|                        | Fee <sub>opt</sub> (%)     | 0.080        | 0.077   | 0.003***   | 0.080                | 0.072   | 0.008***  |
| Panel B: Institutional |                            |              |         |            |                      |         |           |
|                        | Age (years)                | 7.895        | 7.896   | -0.001     | 7.895                | 7.896   | -0.001    |
|                        | Size (US\$B)               | 0.281        | 0.282   | -0.001     | 0.281                | 0.282   | -0.001    |
|                        | Alpha                      | 0.001        | 0.007   | -0.006***  | -0.002               | -0.003  | 0.001     |
|                        | Sensitivity                | 0.021        | 0.022   | -0.001***  | 0.021                | 0.020   | 0.001***  |
|                        | Turnover                   | 0.595        | 0.610   | -0.005***  | 0.595                | 0.664   | -0.069*** |
|                        | Size <sub>FF</sub> (US\$B) | 32.488       | 59.021  | -26.533*** | 32.488               | 32.488  | 0.000     |
|                        | Fee <sub>titl</sub> (%)    | 0.070        | 0.072   | -0.002***  | 0.070                | 0.063   | 0.007***  |
|                        | Fee <sub>mkt</sub> (%)     | 0.005        | 0.007   | -0.003***  | 0.005                | 0.005   | 0.000***  |
|                        | Fee <sub>opt</sub> (%)     | 0.066        | 0.064   | 0.002***   | 0.065                | 0.061   | 0.004***  |

Table 5. Regressions explaining risk-adjusted gross return (Alpha of the Carhart model)

|                          | Whole sample |           |          |           | ESG providers sample |           |         |           |
|--------------------------|--------------|-----------|----------|-----------|----------------------|-----------|---------|-----------|
|                          | All          | Matched   |          |           | All                  | Matched   |         |           |
| Panel A: Retail          |              |           |          |           |                      |           |         |           |
| Constant                 | -0.029**     | -0.003    | -0.012   | 0.031     | 0.010***             | 0.051***  | 0.007   | 0.073***  |
|                          | (-2.39)      | (-0.22)   | (-0.36)  | (0.86)    | (2.74)               | (3.30)    | (1.61)  | (2.88)    |
| ESG                      | -0.013       | -0.011    | -0.008   | -0.013    | -0.002               | 0.001     | 0.000   | -0.005    |
|                          | (-1.20)      | (-1.06)   | (-0.68)  | (-1.16)   | (-0.18)              | (0.13)    | (0.01)  | (-0.45)   |
| ln(Size <sub>t-1</sub> ) |              | 0.013***  |          | 0.014***  |                      | 0.011***  |         | 0.013***  |
|                          |              | (11.35)   |          | (5.06)    |                      | (7.44)    |         | (4.64)    |
| ln(Age <sub>t-1</sub> )  |              | -0.046*** |          | -0.053*** |                      | -0.038*** |         | -0.049*** |
|                          |              | (-9.99)   |          | (-5.05)   |                      | (-5.61)   |         | (-4.53)   |
| R <sup>2</sup> adj       | 0.060        | 0.074     | 0.054    | 0.075     | 0.064                | 0.076     | 0.056   | 0.076     |
| Obs.                     | 86,799       | 86,799    | 86,799   | 86,799    | 26,610               | 26,610    | 26,618  | 26,610    |
| FE Year and Style        | Yes          | Yes       | Yes      | Yes       | Yes                  | Yes       | Yes     | Yes       |
| Panel B: Institutional   |              |           |          |           |                      |           |         |           |
| Constant                 | 0.118***     | 0.090***  | 0.191*** | 0.159***  | 0.002                | -0.012    | 0.001   | -0.018    |
|                          | (6.79)       | (4.90)    | (3.86)   | (3.12)    | (0.44)               | (-0.94)   | (0.20)  | (-0.80)   |
| ESG                      | -0.017       | -0.014    | -0.013   | -0.013    | -0.012               | -0.007    | -0.004  | -0.004    |
|                          | (-1.41)      | (-1.21)   | (-1.09)  | (-1.14)   | (-0.98)              | (-0.56)   | (-0.34) | (-0.34)   |
| ln(Size <sub>t-1</sub> ) |              | 0.007***  |          | 0.006***  |                      | 0.007***  |         | 0.006***  |
|                          |              | (8.52)    |          | (2.99)    |                      | (5.37)    |         | (2.85)    |
| ln(Age <sub>t-1</sub> )  |              | -0.010*** |          | -0.001    |                      | -0.010*   |         | -0.003    |
|                          |              | (-2.66)   |          | (-0.09)   |                      | (-1.77)   |         | (-0.32)   |
| R <sup>2</sup> adj       | 0.061        | 0.067     | 0.067    | 0.071     | 0.068                | 0.075     | 0.066   | 0.071     |
| Obs.                     | 131,830      | 131,830   | 131,830  | 131,830   | 22,612               | 22,612    | 22,612  | 22,612    |
| FE Year and Style        | Yes          | Yes       | Yes      | Yes       | Yes                  | Yes       | Yes     | Yes       |

P-values are shown in brackets. \*\*\* - 1% statistical significance, \*\* - 5% statistical significance, \* - 10% statistical significance.

Table 6. Regressions explaining performance sensitivity (Sensitivity)

|                          | Whole sample         |                       |                      |                       | ESG providers sample |                       |                      |                        |
|--------------------------|----------------------|-----------------------|----------------------|-----------------------|----------------------|-----------------------|----------------------|------------------------|
|                          | All                  |                       | Matched              |                       | All                  |                       | Matched              |                        |
| Panel A: Retail          |                      |                       |                      |                       |                      |                       |                      |                        |
| Constant                 | 0.021***<br>(26.04)  | 0.022***<br>(9.50)    | 0.020***<br>(23.82)  | 0.024***<br>(8.30)    | 0.020***<br>(93.28)  | 0.021***<br>(53.37)   | 0.024***<br>(110.72) | 0.025***<br>(99.76)    |
| ESG                      | -0.017***<br>(-2.86) | -0.011**<br>(-2.05)   | -0.014***<br>(-2.74) | -0.010**<br>(-2.29)   | -0.011***<br>(-3.08) | -0.004***<br>(-3.17)  | -0.009**<br>(-2.06)  | -0.004***<br>(-2.92)   |
| ln(Size <sub>t-1</sub> ) |                      | 0.018***<br>(30.47)   |                      | 0.013***<br>(34.34)   |                      | 0.017***<br>(45.29)   |                      | 0.015***<br>(73.04)    |
| ln(Age <sub>t-1</sub> )  |                      | -0.030***<br>(-32.00) |                      | -0.026***<br>(-38.23) |                      | -0.024***<br>(-62.49) |                      | -0.024***<br>(-104.78) |
| R <sup>2</sup> adj       | 0.012                | 0.293                 | 0.008                | 0.243                 | 0.014                | 0.019                 | 0.009                | 0.005                  |
| Obs.                     | 88,554               | 88,554                | 88,554               | 88,554                | 26,354               | 26,354                | 26,354               | 26,354                 |
| FE Year and Style        | Yes                  | Yes                   | Yes                  | Yes                   | Yes                  | Yes                   | Yes                  | Yes                    |
| Panel B: Institutional   |                      |                       |                      |                       |                      |                       |                      |                        |
| Constant                 | 0.022***<br>(38.87)  | 0.023***<br>(26.46)   | 0.021***<br>(13.97)  | 0.023***<br>(3.61)    | 0.022***<br>(82.26)  | 0.020***<br>(55.63)   | 0.021***<br>(72.06)  | 0.020***<br>(35.70)    |
| ESG                      | 0.003<br>(0.64)      | 0.003<br>(0.61)       | 0.002<br>(0.33)      | -0.000<br>(-0.04)     | 0.001<br>(0.13)      | 0.000<br>(0.28)       | 0.001<br>(0.18)      | -0.001<br>(-0.82)      |
| ln(Size <sub>t-1</sub> ) |                      | 0.010***<br>(11.98)   |                      | 0.014***<br>(11.09)   |                      | 0.015***<br>(58.78)   |                      | 0.018***<br>(52.78)    |
| ln(Age <sub>t-1</sub> )  |                      | -0.023***<br>(-15.64) |                      | -0.026***<br>(-11.90) |                      | -0.024***<br>(-51.18) |                      | -0.024***<br>(-35.70)  |
| R <sup>2</sup> adj       | 0.006                | 0.176                 | 0.005                | 0.193                 | 0.008                | 0.003                 | 0.007                | 0.002                  |
| Obs.                     | 128,197              | 128,197               | 128,197              | 128,197               | 22,224               | 22,224                | 22,224               | 22,224                 |
| FE Year and Style        | Yes                  | Yes                   | Yes                  | Yes                   | Yes                  | Yes                   | Yes                  | Yes                    |

P-values are shown in brackets. \*\*\* - 1% statistical significance, \*\* - 5% statistical significance, \* - 10% statistical significance.

Table 7. Regressions explaining factors determining fund fees (Fee<sub>tit</sub>, Fee<sub>mrkt</sub>, Fee<sub>oprt</sub>, as specified in the headings of the columns)

|                             | Panel A: Retail     |                     |                      |                      |                      |                      | Panel B: Institutional |                      |                      |                      |                     |                      |
|-----------------------------|---------------------|---------------------|----------------------|----------------------|----------------------|----------------------|------------------------|----------------------|----------------------|----------------------|---------------------|----------------------|
|                             | Whole sample        |                     |                      | ESG providers sample |                      |                      | Whole sample           |                      |                      | ESG providers sample |                     |                      |
|                             | Fee <sub>tit</sub>  | Fee <sub>mrkt</sub> | Fee <sub>oprt</sub>  | Fee <sub>tit</sub>   | Fee <sub>mrkt</sub>  | Fee <sub>oprt</sub>  | Fee <sub>tit</sub>     | Fee <sub>mrkt</sub>  | Fee <sub>oprt</sub>  | Fee <sub>tit</sub>   | Fee <sub>mrkt</sub> | Fee <sub>oprt</sub>  |
| Alpha <sub>t-1</sub>        | -2.589**<br>(-2.17) | -3.040**<br>(-2.51) | 0.391<br>(1.53)      | -4.803***<br>(-2.91) | -5.302***<br>(-3.15) | 0.433<br>(1.27)      | 1.345***<br>(3.83)     | 0.330<br>(0.88)      | 0.894***<br>(3.38)   | 1.986***<br>(3.54)   | 0.593<br>(1.56)     | 1.266***<br>(3.02)   |
| Sensitivity <sub>t</sub>    | -0.037**<br>(-2.04) | -0.013**<br>(-2.08) | -0.024<br>(-0.17)    | -0.021**<br>(-2.06)  | -0.014**<br>(-2.01)  | -0.009<br>(-1.05)    | 0.010<br>(1.33)        | -0.004<br>(-0.25)    | 0.014<br>(1.58)      | 0.023<br>(1.36)      | 0.003<br>(0.21)     | 0.019<br>(1.01)      |
| ln(Age <sub>t-1</sub> )     | -0.015<br>(-0.57)   | -0.012<br>(-1.38)   | -0.006***<br>(-3.59) | -0.024<br>(-1.58)    | -0.016<br>(-1.35)    | -0.008***<br>(-3.39) | 0.008***<br>(3.59)     | 0.003**<br>(2.21)    | 0.004***<br>(2.69)   | 0.011***<br>(3.44)   | 0.004**<br>(2.24)   | 0.006**<br>(2.52)    |
| ln(Size <sub>t-1</sub> )    | -0.007**<br>(-2.41) | -0.004<br>(-1.62)   | -0.002***<br>(-4.25) | -0.007*<br>(-1.79)   | -0.005<br>(-1.20)    | -0.002***<br>(-3.37) | -0.005***<br>(-8.18)   | -0.002***<br>(-2.72) | -0.003***<br>(-6.42) | -0.005***<br>(-6.45) | -0.003**<br>(-2.34) | -0.003***<br>(-4.28) |
| ln(Size <sub>FF,t-1</sub> ) | -0.010<br>(-0.91)   | -0.006**<br>(-2.54) | -0.004***<br>(-5.34) | -0.001<br>(-0.14)    | 0.002<br>(0.48)      | -0.003**<br>(-2.25)  | -0.006***<br>(-4.09)   | -0.001**<br>(-2.31)  | -0.005***<br>(-6.04) | -0.005***<br>(-3.55) | 0.000<br>(0.80)     | -0.005***<br>(-4.23) |
| Turnover <sub>t-1</sub>     | 0.022***<br>(3.11)  | 0.013**<br>(2.16)   | 0.009***<br>(5.99)   | 0.026***<br>(2.74)   | 0.016*<br>(1.95)     | 0.010***<br>(5.11)   | 0.009***<br>(2.99)     | -0.002***<br>(-2.79) | 0.011***<br>(4.17)   | 0.011***<br>(2.83)   | -0.002**<br>(-2.30) | 0.012***<br>(3.67)   |
| Constant                    | 0.182***<br>(6.25)  | 0.085***<br>(2.87)  | 0.099***<br>(15.61)  | 0.213***<br>(4.68)   | 0.129***<br>(2.89)   | 0.085***<br>(8.39)   | 0.106***<br>(11.65)    | 0.002<br>(0.63)      | 0.105***<br>(14.82)  | 0.105***<br>(8.63)   | 0.004<br>(0.90)     | 0.101***<br>(10.11)  |
| R-squared                   | 0.083               | 0.067               | 0.297                | 0.117                | 0.085                | 0.311                | 0.324                  | 0.071                | 0.391                | 0.458                | 0.157               | 0.425                |
| Obs.                        | 86,799              | 85,510              | 83,274               | 26,610               | 26,384               | 26,343               | 129,003                | 128,952              | 128,838              | 22,612               | 22,371              | 22,236               |
| FE Year and Style           | Yes                 | Yes                 | Yes                  | Yes                  | Yes                  | Yes                  | Yes                    | Yes                  | Yes                  | Yes                  | Yes                 | Yes                  |

P-values are shown in brackets. \*\*\* - 1% statistical significance, \*\* - 5% statistical significance, \* - 10% statistical significance.



Table 8. Regressions explaining factors determining fund fees (Fee<sub>tit</sub>, Fee<sub>mrkt</sub>, Fee<sub>oprt</sub>, as specified in the headings of the columns) for retail funds.

|                               | Whole sample         |                      |                      |                      |                     |                      |                      |                      |                      | ESG providers sample |                      |                      |                      |                      |                      |                      |                      |                      |
|-------------------------------|----------------------|----------------------|----------------------|----------------------|---------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
|                               | Fee <sub>tit</sub>   |                      |                      | Fee <sub>mrkt</sub>  |                     |                      | Fee <sub>oprt</sub>  |                      |                      | Fee <sub>tit</sub>   |                      |                      | Fee <sub>mrkt</sub>  |                      |                      | Fee <sub>oprt</sub>  |                      |                      |
| Alpha <sub>t-1</sub>          | 1.832***<br>(2.58)   | -2.480**<br>(-2.18)  | 1.850***<br>(2.61)   | 1.328<br>(1.07)      | -2.933**<br>(-2.51) | 1.341<br>(1.09)      | 0.468**<br>(2.51)    | 0.395*<br>(1.72)     | 0.471**<br>(2.48)    | 1.537*<br>(1.87)     | -4.803***<br>(-2.90) | 1.579*<br>(1.81)     | 0.808<br>(0.74)      | -5.302***<br>(-3.16) | 0.829<br>(0.76)      | 0.687***<br>(3.26)   | 0.430<br>(1.25)      | 0.708***<br>(3.38)   |
| Alpha <sub>t-1</sub> ×ESG     | -8.671***<br>(-3.89) |                      | -8.729***<br>(-3.91) | -8.577***<br>(-3.81) |                     | -8.621***<br>(-3.83) | -0.144<br>(-0.30)    |                      | -0.154<br>(-0.32)    | -8.259***<br>(-3.64) |                      | -8.311***<br>(-3.66) | -7.946***<br>(-3.50) |                      | -7.972***<br>(-3.52) | -0.348<br>(-0.71)    |                      | -0.372<br>(-0.76)    |
| ESG                           | -0.004<br>(-0.34)    | -0.011<br>(-0.98)    | -0.010<br>(-0.93)    | 0.004**<br>(2.34)    | 0.003*<br>(1.85)    | 0.003**<br>(2.01)    | -0.008<br>(-0.04)    | -0.014<br>(-0.55)    | -0.013<br>(-0.55)    | -0.004<br>(-0.30)    | -0.007<br>(-0.50)    | -0.006<br>(-0.45)    | -0.009<br>(-0.67)    | -0.011<br>(-0.80)    | -0.010<br>(-0.75)    | 0.005*<br>(1.73)     | 0.004<br>(1.43)      | 0.004<br>(1.44)      |
| Sensitivity <sub>t</sub>      | -0.038**<br>(-2.07)  | 0.055<br>(1.07)      | 0.055<br>(1.13)      | -0.017**<br>(-2.01)  | 0.037<br>(1.05)     | 0.037<br>(1.04)      | -0.024<br>(-0.13)    | 0.015<br>(1.06)      | 0.015<br>(0.86)      | -0.023**<br>(-2.09)  | 0.026<br>(1.00)      | 0.029<br>(0.93)      | -0.017**<br>(-2.06)  | 0.021<br>(0.73)      | 0.025<br>(0.67)      | -0.007<br>(-1.02)    | 0.005<br>(1.40)      | 0.004<br>(1.37)      |
| Sensitivity <sub>t</sub> ×ESG |                      | -0.124***<br>(-2.80) | -0.139***<br>(-3.08) |                      | -0.081**<br>(-2.25) | -0.096***<br>(-2.69) |                      | -0.047*<br>(-1.89)   | -0.047*<br>(-1.92)   |                      | -0.474**<br>(-2.49)  | -0.376**<br>(-2.41)  |                      | -0.150**<br>(-2.20)  | -0.057**<br>(-2.12)  |                      | -0.330<br>(-1.57)    | -0.324<br>(-1.53)    |
| ln(Age <sub>t-1</sub> )       | -0.021***<br>(-3.80) | -0.021***<br>(-3.68) | -0.021***<br>(-3.80) | -0.013*<br>(-1.66)   | -0.013<br>(-1.54)   | -0.013*<br>(-1.66)   | -0.006***<br>(-3.75) | -0.006***<br>(-3.75) | -0.006***<br>(-3.75) | -0.025***<br>(-3.67) | -0.024***<br>(-3.58) | -0.025***<br>(-3.67) | -0.017<br>(-1.47)    | -0.016<br>(-1.36)    | -0.017<br>(-1.48)    | -0.008***<br>(-3.53) | -0.008***<br>(-3.43) | -0.008***<br>(-3.52) |
| ln(Size <sub>t-1</sub> )      | -0.006**<br>(-2.25)  | -0.006**<br>(-2.36)  | -0.006**<br>(-2.26)  | -0.004<br>(-1.44)    | -0.004<br>(-1.54)   | -0.004<br>(-1.44)    | -0.002***<br>(-4.28) | -0.002***<br>(-4.29) | -0.002***<br>(-4.28) | -0.007*<br>(-1.73)   | -0.007*<br>(-1.79)   | -0.007*<br>(-1.73)   | -0.004<br>(-1.12)    | -0.004<br>(-1.19)    | -0.004<br>(-1.12)    | -0.003***<br>(-3.49) | -0.003***<br>(-3.43) | -0.003***<br>(-3.49) |
| ln(Size <sub>FF,t-1</sub> )   | -0.010<br>(-0.94)    | -0.010<br>(-0.92)    | -0.010<br>(-0.95)    | -0.006<br>(-0.60)    | -0.006<br>(-0.55)   | -0.006<br>(-2.61)    | -0.004***<br>(-5.54) | -0.004***<br>(-5.52) | -0.004***<br>(-5.52) | -0.003<br>(-0.19)    | -0.004<br>(-0.14)    | -0.003<br>(-0.19)    | -0.001<br>(-0.27)    | 0.002<br>(-0.43)     | -0.001<br>(-0.27)    | -0.002*<br>(-1.80)   | -0.003**<br>(-2.08)  | -0.002*<br>(-1.80)   |
| Turnover <sub>t-1</sub>       | 0.023***<br>(3.26)   | 0.022***<br>(3.17)   | 0.023***<br>(3.27)   | 0.014**<br>(2.27)    | 0.013**<br>(2.16)   | 0.014**<br>(2.27)    | 0.009***<br>(6.39)   | 0.009***<br>(6.45)   | 0.009***<br>(6.39)   | 0.026***<br>(2.79)   | 0.026***<br>(2.75)   | 0.026***<br>(2.80)   | 0.016**<br>(2.00)    | 0.016*<br>(1.94)     | 0.016**<br>(2.01)    | 0.010***<br>(5.12)   | 0.010***<br>(5.17)   | 0.010***<br>(5.15)   |
| Constant                      | 0.185***<br>(6.58)   | 0.189***<br>(6.67)   | 0.188***<br>(6.71)   | 0.088***<br>(3.04)   | 0.091***<br>(3.13)  | 0.090***<br>(3.13)   | 0.099***<br>(17.84)  | 0.099***<br>(18.12)  | 0.099***<br>(18.17)  | 0.220***<br>(4.04)   | 0.213***<br>(4.64)   | 0.222***<br>(4.06)   | 0.145***<br>(2.70)   | 0.131***<br>(2.90)   | 0.145***<br>(2.71)   | 0.077***<br>(7.20)   | 0.084***<br>(8.23)   | 0.078***<br>(7.30)   |
| R-squared                     | 0.102                | 0.087                | 0.096                | 0.062                | 0.047               | 0.039                | 0.332                | 0.350                | 0.286                | 0.122                | 0.117                | 0.122                | 0.087                | 0.085                | 0.087                | 0.361                | 0.361                | 0.362                |
| Obs                           | 89,626               | 89,626               | 89,626               | 86,315               | 86,315              | 86,315               | 88,594               | 88,594               | 88,594               | 26,610               | 26,610               | 26,610               | 26,315               | 26,315               | 26,315               | 26,154               | 26,154               | 26,154               |
| FE Year & Style               | Yes                  | Yes                  | Yes                  | Yes                  | Yes                 | Yes                  | Yes                  | Yes                  | Yes                  | Yes                  | Yes                  | Yes                  | Yes                  | Yes                  | Yes                  | Yes                  | Yes                  | Yes                  |

P-values are shown in brackets. \*\*\* - 1% statistical significance, \*\* - 5% statistical significance, \* - 10% statistical significance.

Table 9. Regressions explaining factors determining fund fees (Fee<sub>titl</sub>, Fee<sub>mrkt</sub>, Fee<sub>oprt</sub>, as specified in the headings of the columns) for retail funds.

|                              | Whole sample         |                      |           |                      |                      |           |                      |                       |           | ESG providers sample |                      |           |                      |                    |           |                     |                      |          |
|------------------------------|----------------------|----------------------|-----------|----------------------|----------------------|-----------|----------------------|-----------------------|-----------|----------------------|----------------------|-----------|----------------------|--------------------|-----------|---------------------|----------------------|----------|
|                              | Fee <sub>titl</sub>  |                      |           | Fee <sub>mrkt</sub>  |                      |           | Fee <sub>oprt</sub>  |                       |           | Fee <sub>titl</sub>  |                      |           | Fee <sub>mrkt</sub>  |                    |           | Fee <sub>oprt</sub> |                      |          |
|                              | ESG                  | Non-ESG              | Diff      | ESG                  | Non-ESG              | Diff      | ESG                  | Non-ESG               | Diff      | ESG                  | Non-ESG              | Diff      | ESG                  | Non-ESG            | Diff      | ESG                 | Non-ESG              | Diff     |
| Alpha <sub>t-1</sub>         | -7.038***<br>(-3.25) | 2.293***<br>(3.90)   | -9.331*** | -7.435***<br>(-3.44) | 1.825<br>(1.42)      | -9.260*** | 0.320<br>(0.69)      | 0.435***<br>(2.72)    | -0.115*** | -7.001***<br>(-3.25) | 2.390**<br>(2.39)    | -9.391*** | -7.384***<br>(-3.46) | 1.615*<br>(1.69)   | -8.999**  | 0.314<br>(0.67)     | 0.724***<br>(4.00)   | -0.41*** |
| Sensitivity <sub>t</sub>     | -0.073**<br>(-2.06)  | 0.033<br>(1.12)      | -0.106*** | -0.040**<br>(-2.28)  | 0.022<br>(1.38)      | -0.062**  | -0.033<br>(-1.45)    | 0.011<br>(0.45)       | -0.044**  | -0.071**<br>(-2.26)  | 0.027<br>(0.96)      | 0.098**   | -0.037**<br>(-2.06)  | 0.026<br>(0.66)    | -0.063*** | -0.034<br>(-1.45)   | 0.002<br>(1.10)      | -0.036** |
| ln(Age <sub>t-1</sub> )      | -0.030<br>(-0.71)    | -0.008<br>(-0.38)    | -0.023*   | -0.021<br>(-1.39)    | -0.005<br>(-1.03)    | -0.016*   | -0.009***<br>(-2.64) | -0.003**<br>(-2.40)   | 0.006*    | -0.031<br>(-0.72)    | -0.006<br>(-0.46)    | -0.025*** | -0.021<br>(-1.38)    | -0.003<br>(-0.38)  | -0.018*   | -0.009<br>(-0.63)   | -0.003<br>(-0.94)    | 0.006    |
| ln(Size <sub>t-1</sub> )     | -0.008<br>(-1.50)    | -0.005***<br>(-3.64) | -0.003*   | -0.006<br>(-1.16)    | -0.002*<br>(-1.84)   | -0.004*   | -0.002**<br>(-2.00)  | -0.002***<br>(-8.34)  | 0.000     | -0.008<br>(-1.46)    | -0.002<br>(-1.16)    | -0.006*** | -0.006<br>(-1.13)    | 0.001<br>(0.42)    | -0.007*** | -0.002**<br>(-2.01) | -0.003***<br>(-6.33) | 0.001    |
| ln(Size <sub>EFF,t-1</sub> ) | -0.004<br>(-0.04)    | -0.014***<br>(-3.64) | 0.010**   | -0.002<br>(-0.40)    | -0.009***<br>(-8.64) | 0.007**   | -0.002<br>(-1.31)    | -0.005***<br>(-15.65) | 0.003**   | 0.004<br>(0.04)      | -0.008***<br>(-2.67) | 0.008***  | -0.002<br>(-0.39)    | -0.004<br>(-1.44)  | 0.006***  | -0.002<br>(-1.31)   | -0.004***<br>(-6.77) | 0.002*** |
| Turnover <sub>t-1</sub>      | 0.025**<br>(2.26)    | 0.020***<br>(5.53)   | 0.005***  | 0.015<br>(1.56)      | 0.013***<br>(3.88)   | 0.002***  | 0.010***<br>(4.55)   | 0.007***<br>(8.78)    | 0.003***  | 0.025**<br>(2.23)    | 0.030***<br>(4.75)   | -0.005*** | 0.015<br>(1.53)      | 0.021***<br>(3.52) | -0.006*** | 0.010***<br>(4.51)  | 0.009***<br>(6.12)   | 0.001*** |
| Constant                     | 0.219***<br>(3.60)   | 0.157***<br>(11.31)  |           | 0.144**<br>(2.43)    | 0.039***<br>(2.94)   |           | 0.076***<br>(6.13)   | 0.119***<br>(39.82)   |           | 0.220***<br>(3.61)   | 0.245***<br>(7.13)   |           | 0.145**<br>(2.44)    | 0.138***<br>(4.27) |           | 0.077***<br>(6.20)  | 0.109***<br>(15.40)  |          |
| R-squared                    | 0.196                | 0.053                |           | 0.195                | 0.041                |           | 0.353                | 0.38                  |           | 0.162                | 0.062                |           | 0.131                | 0.052              |           | 0.425               | 0.330                |          |
| Obs                          | 5,347                | 84,279               |           | 5,043                | 81,272               |           | 5,320                | 83,274                |           | 5,347                | 21,256               |           | 5,043                | 21,341             |           | 5,320               | 21,023               |          |
| FE Year & Style              | Yes                  | Yes                  |           | Yes                  | Yes                  |           | Yes                  | Yes                   |           | Yes                  | Yes                  |           | Yes                  | Yes                |           | Yes                 | Yes                  |          |

P-values are shown in brackets. \*\*\* - 1% statistical significance, \*\* - 5% statistical significance, \* - 10% statistical significance.

Table 10. Regressions explaining factors determining fund fees (Fee<sub>it</sub>, Fee<sub>mrkt</sub>, Fee<sub>oprt</sub>, as specified in the headings of the columns) for institutional funds.

|                               | Whole sample         |                      |                      |                      |                      |                      |                      |                      |                      | ESG providers sample |                      |                      |                      |                      |                      |                      |                      |                      |
|-------------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
|                               | Fee <sub>it</sub>    |                      |                      | Fee <sub>mrkt</sub>  |                      |                      | Fee <sub>oprt</sub>  |                      |                      | Fee <sub>it</sub>    |                      |                      | Fee <sub>mrkt</sub>  |                      |                      | Fee <sub>oprt</sub>  |                      |                      |
| Alpha <sub>t-1</sub>          | 0.737***<br>(2.69)   | 1.473***<br>(4.04)   | 0.743***<br>(2.72)   | 0.176<br>(0.97)      | 0.380<br>(1.44)      | 0.177<br>(0.97)      | 0.503***<br>(2.55)   | 0.970***<br>(3.55)   | 0.508***<br>(2.68)   | 0.420*<br>(1.77)     | 1.971***<br>(3.53)   | 0.421*<br>(1.86)     | -0.137<br>(-0.64)    | 0.593<br>(1.52)      | -0.133<br>(-0.62)    | 0.512**<br>(2.11)    | 1.253***<br>(3.00)   | 0.513**<br>(2.11)    |
| Alpha <sub>t-1</sub> ×ESG     | 1.698**<br>(2.28)    |                      | 1.684**<br>(2.26)    | 0.472<br>(1.32)      |                      | 0.470<br>(1.31)      | 1.119*<br>(1.96)     |                      | 1.103*<br>(1.93)     | 2.188***<br>(2.69)   |                      | 2.188***<br>(2.69)   | 1.023*<br>(1.74)     |                      | 1.020*<br>(1.74)     | 1.065*<br>(1.68)     |                      | 1.064*<br>(1.68)     |
| ESG                           | -0.008**<br>(-2.41)  | -0.009***<br>(-3.06) | -0.009***<br>(-3.11) | -0.003<br>(-1.06)    | -0.003<br>(-1.22)    | -0.003<br>(-1.22)    | -0.004<br>(-1.41)    | -0.005<br>(-1.48)    | -0.005<br>(-1.48)    | -0.007**<br>(-2.05)  | -0.007**<br>(-2.09)  | -0.007**<br>(-2.15)  | -0.001<br>(-0.24)    | -0.001<br>(-0.29)    | -0.001<br>(-0.31)    | -0.005<br>(-1.45)    | -0.005<br>(-1.50)    | -0.005<br>(-1.51)    |
| Sensitivity <sub>t</sub>      | 0.011<br>(1.06)      | -0.008<br>(-0.32)    | -0.006<br>(-0.29)    | -0.002<br>(-0.12)    | -0.004<br>(-0.22)    | -0.002<br>(-0.27)    | 0.013<br>(1.21)      | -0.004<br>(-1.27)    | -0.004<br>(-1.23)    | 0.020<br>(1.52)      | -0.032<br>(-1.14)    | -0.029<br>(-1.29)    | 0.002<br>(0.34)      | -0.038<br>(-1.35)    | -0.036<br>(-1.33)    | 0.017<br>(1.04)      | 0.005<br>(0.53)      | 0.007<br>(0.58)      |
| Sensitivity <sub>t</sub> ×ESG |                      | 0.038<br>(1.04)      | 0.039<br>(1.09)      |                      | 0.006<br>(0.44)      | 0.006<br>(0.36)      |                      | 0.032<br>(1.02)      | 0.033<br>(1.01)      |                      | 0.131<br>(1.20)      | 0.127<br>(1.33)      |                      | 0.058<br>(0.86)      | 0.044<br>(0.91)      |                      | 0.082<br>(0.92)      | 0.083<br>(0.94)      |
| ln(Age <sub>t-1</sub> )       | 0.007***<br>(3.57)   | 0.008***<br>(3.53)   | 0.007***<br>(3.58)   | 0.003**<br>(2.10)    | 0.003**<br>(2.09)    | 0.003**<br>(2.10)    | 0.005***<br>(2.71)   | 0.005***<br>(2.73)   | 0.005***<br>(2.71)   | 0.011***<br>(3.38)   | 0.011***<br>(3.46)   | 0.011***<br>(3.39)   | 0.004**<br>(2.20)    | 0.004**<br>(2.26)    | 0.004**<br>(2.20)    | 0.006**<br>(2.42)    | 0.006**<br>(2.52)    | 0.006**<br>(2.42)    |
| ln(Size <sub>t-1</sub> )      | -0.005***<br>(-7.98) | -0.005***<br>(-7.83) | -0.005***<br>(-7.98) | -0.002***<br>(-2.68) | -0.002***<br>(-2.66) | -0.002***<br>(-2.67) | -0.003***<br>(-6.27) | -0.003***<br>(-6.25) | -0.003***<br>(-6.28) | -0.005***<br>(-6.37) | -0.005***<br>(-6.39) | -0.005***<br>(-6.36) | -0.003**<br>(-2.34)  | -0.003**<br>(-2.33)  | -0.003**<br>(-2.34)  | -0.003***<br>(-4.22) | -0.003***<br>(-4.25) | -0.003***<br>(-4.22) |
| ln(Size <sub>FF,t-1</sub> )   | -0.006***<br>(-5.24) | -0.006***<br>(-5.22) | -0.006***<br>(-5.24) | -0.001<br>(-1.54)    | -0.001<br>(-1.53)    | -0.001<br>(-1.54)    | -0.005***<br>(-6.93) | -0.005***<br>(-6.93) | -0.005***<br>(-6.94) | -0.006***<br>(-3.94) | -0.005***<br>(-3.65) | -0.006***<br>(-3.94) | 0.000<br>(0.50)      | 0.000<br>(0.74)      | 0.000<br>(0.50)      | -0.006***<br>(-4.45) | -0.005***<br>(-4.30) | -0.006***<br>(-4.45) |
| Turnover <sub>t-1</sub>       | 0.013***<br>(2.76)   | 0.013***<br>(2.87)   | 0.013***<br>(2.76)   | 0.003***<br>(3.26)   | 0.002***<br>(3.23)   | 0.003***<br>(3.26)   | 0.010***<br>(4.07)   | 0.011***<br>(4.15)   | 0.010***<br>(4.08)   | 0.010***<br>(2.70)   | 0.011***<br>(2.81)   | 0.010***<br>(2.70)   | -0.002***<br>(-2.62) | -0.002***<br>(-2.36) | -0.002***<br>(-2.63) | 0.012***<br>(3.55)   | 0.012***<br>(3.65)   | 0.012***<br>(3.55)   |
| Constant                      | 0.116***<br>(14.74)  | 0.115***<br>(14.61)  | 0.116***<br>(14.66)  | 0.005<br>(1.36)      | 0.005<br>(1.33)      | 0.006<br>(1.39)      | 0.110***<br>(16.80)  | 0.110***<br>(16.81)  | 0.111***<br>(16.79)  | 0.115***<br>(8.84)   | 0.106***<br>(8.82)   | 0.116***<br>(8.79)   | 0.005<br>(0.76)      | 0.004<br>(0.87)      | 0.006<br>(0.78)      | 0.109***<br>(9.61)   | 0.102***<br>(10.26)  | 0.110***<br>(9.59)   |
| R-squared                     | 0.338                | 0.336                | 0.338                | 0.073                | 0.072                | 0.073                | 0.404                | 0.403                | 0.404                | 0.338                | 0.336                | 0.338                | 0.073                | 0.072                | 0.073                | 0.404                | 0.403                | 0.404                |
| Obs                           | 129,003              | 129,003              | 129,003              | 128,952              | 128,952              | 128,952              | 128,838              | 128,838              | 128,838              | 22,612               | 22,612               | 22,612               | 22,371               | 22,371               | 22,371               | 22,146               | 22,146               | 22,146               |
| FE Year & Style               | Yes                  | Yes                  | Yes                  | Yes                  | Yes                  | Yes                  | Yes                  | Yes                  | Yes                  | Yes                  | Yes                  | Yes                  | Yes                  | Yes                  | Yes                  | Yes                  | Yes                  | Yes                  |

P-values are shown in brackets. \*\*\* - 1% statistical significance, \*\* - 5% statistical significance, \* - 10% statistical significance.

Table 11. Regressions explaining factors determining fund fees (Fee<sub>tit</sub>, Fee<sub>mrkt</sub>, Fee<sub>opr</sub>, as specified in the headings of the columns) for retail funds.

|                             | Whole sample       |           |           |                     |           |          |                    |           |          | ESG providers sample |           |          |                     |           |           |                    |           |          |
|-----------------------------|--------------------|-----------|-----------|---------------------|-----------|----------|--------------------|-----------|----------|----------------------|-----------|----------|---------------------|-----------|-----------|--------------------|-----------|----------|
|                             | Fee <sub>tit</sub> |           |           | Fee <sub>mrkt</sub> |           |          | Fee <sub>opr</sub> |           |          | Fee <sub>tit</sub>   |           |          | Fee <sub>mrkt</sub> |           |           | Fee <sub>opr</sub> |           |          |
|                             | ESG                | Non-ESG   | Diff      | ESG                 | Non-ESG   | Diff     | ESG                | Non-ESG   | Diff     | ESG                  | Non-ESG   | Diff     | ESG                 | Non-ESG   | Diff      | ESG                | Non-ESG   | Diff     |
| Alpha <sub>t-1</sub>        | 2.393***           | 0.715***  | 1.678***  | 0.878               | 0.181     | 0.697*** | 1.397**            | 0.463***  | 0.934**  | 2.402***             | 0.589*    | 1.813*** | 0.912               | -0.041    | 0.953***  | 1.386**            | 0.628**   | 0.758*** |
|                             | (3.19)             | (2.87)    |           | (0.68)              | (1.06)    |          | (2.19)             | (2.68)    |          | (3.17)               | (1.93)    |          | (0.61)              | (-0.19)   |           | (2.13)             | (2.26)    |          |
| Sensitivity <sub>t</sub>    | 0.030              | -0.005    | 0.035***  | 0.002               | -0.001    | 0.003**  | 0.028*             | -0.004    | 0.032*** | 0.031                | -0.028    | 0.059*** | 0.003               | -0.036    | 0.039***  | 0.027*             | 0.007     | 0.020*** |
|                             | (1.39)             | (-0.32)   |           | (0.22)              | (-0.22)   |          | (1.80)             | (-1.27)   |          | (1.38)               | (-1.21)   |          | (0.23)              | (-1.37)   |           | (1.79)             | (0.51)    |          |
| ln(Age <sub>t-1</sub> )     | 0.011**            | 0.003***  | 0.008*    | 0.005*              | 0.001     | 0.004*   | 0.007*             | 0.003***  | 0.004*   | 0.011**              | 0.007***  | 0.004*** | 0.005*              | 0.002*    | 0.003***  | 0.006*             | 0.005***  | 0.001*** |
|                             | (2.54)             | (3.34)    |           | (1.75)              | (0.95)    |          | (1.73)             | (3.14)    |          | (2.51)               | (5.25)    |          | (1.74)              | (1.87)    |           | (1.71)             | (3.49)    |          |
| ln(Size <sub>t-1</sub> )    | -0.006***          | -0.005*** | -0.001    | -0.003*             | -0.002*** | -0.001   | -0.003**           | -0.003*** | 0.000    | -0.006***            | -0.005*** | 0.000    | -0.003*             | -0.002*** | -0.001    | -0.003**           | -0.003*** | 0.000    |
|                             | (-4.23)            | (-15.36)  |           | (-1.74)             | (-5.88)   |          | (-2.62)            | (-13.75)  |          | (-4.24)              | (-10.89)  |          | (-1.72)             | (-3.79)   |           | (-2.62)            | (-7.26)   |          |
| ln(Size <sub>FF,t-1</sub> ) | -0.006***          | -0.006*** | -0.000*** | 0.001               | -0.001*** | 0.002*** | -0.006***          | -0.005*** | -0.001** | -0.006***            | -0.007*** | 0.001*** | 0.001               | -0.000    | 0.001***  | -0.006***          | -0.006*** | 0.000    |
|                             | (-3.28)            | (-10.91)  |           | (0.64)              | (-4.16)   |          | (-4.05)            | (-16.28)  |          | (-3.22)              | (-8.86)   |          | (0.63)              | (-1.25)   |           | (-3.98)            | (-9.16)   |          |
| Turnover <sub>t-1</sub>     | 0.016**            | 0.010***  | 0.005***  | 0.003**             | 0.002**   | 0.001*** | 0.013***           | 0.008***  | 0.005*** | 0.010**              | 0.008***  | 0.002*** | -0.003**            | -0.002**  | -0.001*** | 0.013***           | 0.009***  | 0.004*** |
|                             | (2.10)             | (3.65)    |           | (2.05)              | (2.37)    |          | (2.98)             | (6.40)    |          | (2.09)               | (3.99)    |          | (-2.28)             | (-2.03)   |           | (2.96)             | (5.03)    |          |
| Constant                    | 0.106***           | 0.120***  |           | 0.003               | 0.005*    |          | 0.104***           | 0.117***  |          | 0.108***             | 0.134***  |          | 0.003               | 0.015***  |           | 0.105***           | 0.121***  |          |
|                             | (7.15)             | (27.51)   |           | (0.37)              | (1.91)    |          | (8.61)             | (33.93)   |          | (7.05)               | (16.89)   |          | (0.38)              | (4.05)    |           | (8.51)             | (16.26)   |          |
| R-squared                   | 0.489              | 0.240     |           | 0.203               | 0.035     |          | 0.459              | 0.392     |          | 0.489                | 0.240     |          | 0.203               | 0.035     |           | 0.459              | 0.392     |          |
| Obs                         | 2,520              | 126,483   |           | 2,507               | 126,445   |          | 2,493              | 126,345   |          | 2,520                | 20,092    |          | 2,507               | 19,851    |           | 2,493              | 19,743    |          |
| FE Year & Style             | Yes                | Yes       |           | Yes                 | Yes       |          | Yes                | Yes       |          | Yes                  | Yes       |          | Yes                 | Yes       |           | Yes                | Yes       |          |

P-values are shown in brackets. \*\*\* - 1% statistical significance, \*\* - 5% statistical significance, \* - 10% statistical significance.

## Appendix 1

Following Gil-Bazo and Ruiz-Verdú(2009), we construct the convex flow-performance sensitivity via following regression with three-year (36 month) rolling window.

$$\begin{aligned}
 Flow_{i,t} = & a_0 + b_0 Alpha_{i,t} + b_1 Alpha_{i,t} Age_{i,t} + b_2 Alpha_{i,t} \frac{Q}{MAX_{i,t-1}} + b_3 Middle_{,it-1} \\
 & + b_4 Alpha_{i,t} Middle_{,it-1} + b_5 Middle_{,it-1} PC_{i,t-1} \\
 & + b_6 Alpha_{i,t} Middle_{,it-1} PC_{i,t-1} + b_7 High_{,it-1} + b_8 Alpha_{i,t} High_{,it-1} \\
 & + b_9 High_{,it-1} PC_{i,t-1} + b_{10} Alpha_{i,t} High_{,it-1} PC_{i,t-1} + Controls_{i,t-1} + \varphi_{i,t}
 \end{aligned}$$

where  $\varphi_{i,t}$  is a generic error term. The proxy for past performance,  $Perf_{i,t}$ , is the fund's four-factor alpha in year  $t-1$ , net of fees performance of all funds with the same investment strategy in that month. The term  $Middle_{,it-1}$  ( $High_{,it-1}$ ) is a dummy variable that equals one if  $Alpha_{i,t}$  it is in the middle (top) third of all funds with the same investment strategy in month  $t$ .

The variables  $Age_{i,t}$  and  $\frac{Q}{MAX_{i,t-1}}$  are, respectively, the log of the fund's age in month and the fund's  $\frac{Q}{MAX_{i,t-1}}$ , is a sensitivity proxy proposed by Christoffersen and Musto (2002).  $\frac{Q}{MAX_{i,t-1}}$  is equal to the fund  $i$ 's total net asset value at the beginning of the period  $t$  divided the maximum total net asset value of the fund  $i$  in the timespan up to month  $t$ . The variable  $PC_{i,t}$  is a proxy for participation costs. We consider two of the proxies of participant costs proposed by Huang, Wei, and Yan (2007): (1) Total assets managed by the company and (2) A dummy variable that equals one if there is another fund managed by the same management company with performance in the top 5% of investment strategy, that is, a "star" fund. We use the second proxy to avoid the protentional multilinearity.

The control variables comprise the log of fund size (in millions) and age; total load, expense ratio, log of total net asset value for all funds under the same management company, volatility of net return. Prior studies already show that retail funds and institutional funds show the difference flow-performance patterns (James & Karceski, 2006; Evans and Fahlenbrach, 2012; Salganik-Shoshan ,2016; Jiang &Yukse,2017), so I estimate the sensitivity proxy for retail funds and institutional funds separately.

Finally, the flow-to-performance sensitivity is defined by:

$$Flow_{i,t} = b_0 + b_1 Age_{i,t} + b_2 \frac{Q}{MAX_{i,t-1}} + b_4 I_{M,it-1} + b_6 Perf_{i,t} I_{M,it-1} PC_{i,t-1} + b_7 I_{H,it-1} + b_8 I_{H,it-1} + b_{10} I_{H,it-1} PC_{i,t-1}$$

| Variable                                       | Institutional        | Retail               |
|--|----------------------|----------------------|
| Alpha <sub>t-1</sub>                           | 0.680**<br>(2.39)    | 0.096<br>(0.93)      |
| In(Age) <sub>t-1</sub> *Alpha <sub>t-1</sub>   | -0.223***<br>(-4.16) | -0.055***<br>(-3.98) |
| $\frac{Q}{MAX_{i,t-1}}$ *Alpha <sub>t-1</sub>  | 5.130**<br>(2.34)    | 1.177**<br>(2.44)    |
| High <sub>t-1</sub> *Alpha <sub>t-1</sub>      | 0.955***<br>(3.13)   | 0.421***<br>(3.86)   |
| Middle <sub>t-1</sub> *Alpha <sub>t-1</sub>    | 0.620**<br>(2.24)    | 0.312***<br>(2.98)   |
| High <sub>t-1</sub>                            | 0.029***<br>(4.33)   | 0.020***<br>(4.98)   |
| Middle <sub>t-1</sub>                          | 0.014***<br>(4.06)   | 0.009***<br>(4.74)   |
| PC*Middle <sub>t-1</sub>                       | -0.002*<br>(-1.95)   | 0.001**<br>(2.19)    |
| PC*High <sub>t-1</sub>                         | 0.002***<br>(2.83)   | 0.003***<br>(3.77)   |
| PC*High <sub>t-1</sub> *Alpha <sub>t-1</sub>   | 1.581<br>(1.40)      | 0.549***<br>(3.18)   |
| PC*Middle <sub>t-1</sub> *Alpha <sub>t-1</sub> | 0.714<br>(0.59)      | 0.879<br>(1.53)      |
| Load   | 0.008<br>(1.11)      | 0.000<br>(0.33)      |
| In(Size <sub>t-1</sub> )                       | -0.007***<br>(-4.53) | -0.005***<br>(-5.07) |
| In(SizeFF, t-1)                                | 0.000**<br>(2.08)    | 0.001***<br>(4.21)   |
| Ln(age) <sub>t-1</sub>                         | -0.006***<br>(-4.58) | -0.002***<br>(-3.29) |
| $\frac{Q}{MAX_{i,t-1}}$                        | 0.085***<br>(4.38)   | 0.047***<br>(5.21)   |
| Expense Ratio <sub>t-1</sub>                   | -0.110***<br>(-3.67) | -0.059***<br>(-4.60) |
| Flow <sub>t-1</sub>                            | 0.000**<br>(2.40)    | 0.000***<br>(2.59)   |
| Volatility <sub>t-1</sub>                      | -0.287**<br>(-2.54)  | -0.148***<br>(-2.58) |
| R-squared                                      | 0.011                | 0.011                |
| Observations                                   | 131,380              | 88,799               |

The estimation results shows that both retail funds and institutional funds' flows are positively related to past (relative) performance; the flow-performance relation is convex. Consistent with prior studies, institutional funds are more sensitive to the low-performance funds compared with institutional funds. In addition, flow-to-performance sensitivity decreases with fund age; and consistent with Christoffersen and Musto's (2002), Q/MAX is positively associated with flow-to- performance sensitivity

Table 5C. Fee regressions

| Panel A: Retail          |                      |                       |                     |                      |                      |                       |                     |                      |
|--------------------------|----------------------|-----------------------|---------------------|----------------------|----------------------|-----------------------|---------------------|----------------------|
|                          | Whole sample         |                       |                     |                      | ESG providers sample |                       |                     |                      |
|                          | All                  |                       | Matched             |                      | All                  |                       | Matched             |                      |
| Constant                 | 0.186***<br>(79.63)  | 0.211***<br>(50.70)   | 0.185***<br>(58.84) | 0.212***<br>(20.44)  | 0.176***<br>(43.84)  | 0.208***<br>(29.87)   | 0.181***<br>(35.02) | 0.206***<br>(17.54)  |
| ESG                      | 0.001<br>(0.09)      | 0.003<br>(0.30)       | 0.007<br>(0.59)     | 0.007<br>(0.64)      | 0.014<br>(1.16)      | 0.006<br>(0.50)       | -0.003<br>(-0.27)   | -0.003<br>(-0.28)    |
| ln(Size <sub>t-1</sub> ) |                      | -0.007***<br>(-7.22)  |                     | -0.007***<br>(-2.76) |                      | -0.010***<br>(-7.19)  |                     | -0.006***<br>(-2.56) |
| ln(Age <sub>t-1</sub> )  |                      | 0.002<br>(1.11)       |                     | -0.001<br>(-0.17)    |                      | 0.006*<br>(1.77)      |                     | 0.000<br>(0.03)      |
| R <sup>2</sup> adj       | 0.016                | 0.037                 | 0.026               | 0.046                | 0.029                | 0.074                 | 0.020               | 0.038                |
| Obs.                     | 89,626               | 89,626                | 89,626              | 89,626               | 26,610               | 26,610                | 26,610              | 26,610               |
| FE Year and Style        | Yes                  | Yes                   | Yes                 | Yes                  | Yes                  | Yes                   | Yes                 | Yes                  |
| Panel B: Institutional   |                      |                       |                     |                      |                      |                       |                     |                      |
| Constant                 | 0.074***<br>(112.90) | 0.084***<br>(85.95)   | 0.072***<br>(74.35) | 0.082***<br>(29.49)  | 0.065***<br>(61.81)  | 0.076***<br>(55.14)   | 0.064***<br>(43.15) | 0.074***<br>(25.48)  |
| ESG                      | 0.002<br>(0.54)      | 0.000<br>(0.05)       | 0.003<br>(0.66)     | 0.003<br>(0.83)      | 0.011**<br>(2.40)    | 0.007*<br>(1.67)      | 0.004<br>(0.99)     | 0.003<br>(0.89)      |
| ln(Size <sub>t-1</sub> ) |                      | -0.005***<br>(-22.96) |                     | -0.005***<br>(-8.45) |                      | -0.005***<br>(-16.78) |                     | -0.006***<br>(-8.97) |
| ln(Age <sub>t-1</sub> )  |                      | 0.005***<br>(12.87)   |                     | 0.005***<br>(4.02)   |                      | 0.006***<br>(10.75)   |                     | 0.007***<br>(5.22)   |
| R <sup>2</sup> adj       | 0.083                | 0.185                 | 0.082               | 0.183                | 0.108                | 0.293                 | 0.083               | 0.236                |
| Obs.                     | 129,003              | 129,003               | 129,003             | 129,003              | 22,612               | 22,612                | 22,612              | 22,612               |
| FE Year and Style        | Yes                  | Yes                   | Yes                 | Yes                  | Yes                  | Yes                   | Yes                 | Yes                  |

Table 5C2. Fee regressions (Marketing Fee)

| Panel A: Retail          |                     |                      |                     |                     |                      |                      |                     |                      |
|--------------------------|---------------------|----------------------|---------------------|---------------------|----------------------|----------------------|---------------------|----------------------|
|                          | Whole sample        |                      |                     |                     | ESG providers sample |                      |                     |                      |
|                          | All                 |                      | Matched             |                     | All                  |                      | Matched             |                      |
| Constant                 | 0.106***<br>(46.90) | 0.116***<br>(29.35)  | 0.106***<br>(34.81) | 0.129***<br>(12.72) | 0.103***<br>(28.13)  | 0.122***<br>(18.55)  | 0.110***<br>(22.42) | 0.130***<br>(11.42)  |
| ESG                      | 0.002<br>(1.12)     | 0.004<br>(0.56)      | 0.007*<br>(1.79)    | 0.007**<br>(2.04)   | 0.002<br>(0.21)      | 0.002<br>(0.22)      | -0.011<br>(-0.93)   | -0.010<br>(-0.99)    |
| ln(Size <sub>t-1</sub> ) |                     | -0.003***<br>(-4.87) |                     | -0.003**<br>(-2.16) |                      | -0.005***<br>(-4.39) |                     | -0.004<br>(-1.46)    |
| ln(Age <sub>t-1</sub> )  |                     | 0.002***<br>(25.03)  |                     | 0.002***<br>(6.75)  |                      | 0.003<br>(0.88)      |                     | -0.003<br>(-0.70)    |
| R <sup>2</sup> adj       | 0.000               | 0.002                | 0.000               | 0.001               | 0.013                | 0.029                | 0.016               | 0.025                |
| Obs.                     | 86,315              | 86,315               | 86,315              | 86,315              | 26,384               | 26,384               | 26,384              | 26,384               |
| FE Year and Style        | Yes                 | Yes                  | Yes                 | Yes                 | Yes                  | Yes                  | Yes                 | Yes                  |
| Panel B: Institutional   |                     |                      |                     |                     |                      |                      |                     |                      |
| Constant                 | 0.006***<br>(14.95) | 0.009***<br>(12.98)  | 0.008***<br>(12.22) | 0.010***<br>(6.03)  | 0.004***<br>(7.62)   | 0.007***<br>(7.34)   | 0.005***<br>(6.16)  | 0.008***<br>(4.28)   |
| ESG                      | -0.002<br>(-0.77)   | -0.002<br>(-1.14)    | -0.001<br>(-1.60)   | -0.001<br>(-1.74)   | 0.001<br>(-0.52)     | 0<br>(-0.04)         | -0.000<br>(-0.11)   | -0.001<br>(-0.28)    |
| ln(Size <sub>t-1</sub> ) |                     | -0.001***<br>(-8.56) |                     | -0.002**<br>(-2.56) |                      | -0.002***<br>(-6.07) |                     | -0.002***<br>(-3.02) |
| ln(Age <sub>t-1</sub> )  |                     | 0.002***<br>(6.20)   |                     | 0.002***<br>(2.74)  |                      | 0.002***<br>(5.05)   |                     | 0.003***<br>(3.20)   |
| R <sup>2</sup> adj       | 0.000               | 0.000                | 0.000               | 0.001               | 0.007                | 0.092                | 0.016               | 0.102                |
| Obs.                     | 128,952             | 128,952              | 128,952             | 128,952             | 22,371               | 22,371               | 22,371              | 22,371               |
| FE Year and Style        | Yes                 | Yes                  | Yes                 | Yes                 | Yes                  | Yes                  | Yes                 | Yes                  |

Table 5C3. Fee regressions (Operating Fee)

| Panel A: Retail          |                     |                       |                     |                      |                      |                       |                     |                      |
|--------------------------|---------------------|-----------------------|---------------------|----------------------|----------------------|-----------------------|---------------------|----------------------|
|                          | Whole sample        |                       |                     |                      | ESG providers sample |                       |                     |                      |
|                          | All                 |                       | Matched             |                      | All                  |                       | Matched             |                      |
| Constant                 | 0.106***<br>(46.90) | 0.116***<br>(29.35)   | 0.106***<br>(34.81) | 0.129***<br>(12.72)  | 0.073***<br>(81.46)  | 0.086***<br>(58.72)   | 0.073***<br>(61.62) | 0.077***<br>(28.10)  |
| ESG                      | -0.001<br>(-1.46)   | -0.002<br>(-0.74)     | -0.000<br>(-0.08)   | -0.000<br>(-0.13)    | 0.011***<br>(3.87)   | 0.008***<br>(2.86)    | 0.006*<br>(1.79)    | 0.006*<br>(1.85)     |
| ln(Size <sub>t-1</sub> ) |                     | -0.004***<br>(-15.84) |                     | -0.003***<br>(-5.02) |                      | -0.004***<br>(-12.66) |                     | -0.003***<br>(-4.92) |
| ln(Age <sub>t-1</sub> )  |                     | 0.001***<br>(2.88)    |                     | 0.003**<br>(2.40)    |                      | 0.003***<br>(4.21)    |                     | 0.003**<br>(2.55)    |

|                          |                      |                       |                     |                      |                     |                       |                     |                      |
|--------------------------|----------------------|-----------------------|---------------------|----------------------|---------------------|-----------------------|---------------------|----------------------|
| R <sup>2</sup> adj       | 0.007                | 0.012                 | 0.018               | 0.029                | 0.101               | 0.244                 | 0.076               | 0.112                |
| Obs.                     | 88,594               | 88,594                | 88,594              | 88,594               | 26,343              | 26,343                | 26,343              | 26,343               |
| FE Year and Style        | Yes                  | Yes                   | Yes                 | Yes                  | Yes                 | Yes                   | Yes                 | Yes                  |
| Panel B: Institutional   |                      |                       |                     |                      |                     |                       |                     |                      |
| Constant                 | 0.067***<br>(140.71) | 0.075***<br>(117.02)  | 0.063***<br>(87.83) | 0.071***<br>(36.12)  | 0.062***<br>(72.13) | 0.070***<br>(65.37)   | 0.061***<br>(52.36) | 0.067***<br>(29.74)  |
| ESG                      | 0.004<br>(1.36)      | 0.004<br>(1.01)       | 0.003<br>(0.49)     | 0.003<br>(0.49)      | 0.009**<br>(2.31)   | 0.006*<br>(1.72)      | 0.005<br>(1.19)     | 0.004<br>(1.13)      |
| ln(Size <sub>t-1</sub> ) |                      | -0.003***<br>(-21.30) |                     | -0.003***<br>(-6.97) |                     | -0.004***<br>(-14.61) |                     | -0.004***<br>(-7.00) |
| ln(Age <sub>t-1</sub> )  |                      | 0.003***<br>(10.47)   |                     | 0.003***<br>(2.82)   |                     | 0.004***<br>(8.67)    |                     | 0.005***<br>(3.75)   |
| R <sup>2</sup> adj       | 0.003                | 0.020                 | 0.016               | 0.048                | 0.121               | 0.253                 | 0.080               | 0.175                |
| Obs.                     | 128,838              | 128,838               | 128,838             | 128,838              | 22,236              | 22,236                | 22,236              | 22,236               |
| FE Year and Style        | Yes                  | Yes                   | Yes                 | Yes                  | Yes                 | Yes                   | Yes                 | Yes                  |