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Ali Hassan
Jean-Baptiste Hasse
Christelle Lecourt

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Ali Hassan[a], Jean-Baptiste Hasse[a,b], Christelle Lecourt[a]

[a] *Aix-Marseille Univ., CNRS, AMSE, Marseille, France*
[b] *UCLouvain, LIDAM-LFIN, Louvain-La-Neuve, Belgium*

Abstract

In this paper, we examine the determinants of investor money flows in sustainable mutual funds. Owing to differences in preferences, we posit that ESG investors are more sensitive to mutual fund financial attributes than impact investors are. Using a dataset of 840 actively managed European sustainable equity funds for the period 2018–2025, we find that fund flows are significantly more sensitive to past performance for ESG funds than for impact funds. Our empirical results are in line with impact investor specificity among sustainable investors: the first invest for ESG values, whereas the latter invest with ESG values. Our findings are robust to alternative sustainable classifications, geographical investment areas, investor types and time sampling.

Keywords: *Impact investing; Mutual funds; Investor behavior; Cash flows.*

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Email addresses: ali.hassan@univ-amu.fr (Ali Hassan), jean-baptiste.hasse@univ-amu.fr (Jean-Baptiste Hasse), chistelle.lecourt@univ-amu.fr (Christelle Lecourt)

1. Introduction

In this paper, we investigate sustainable mutual fund attributes and investor behavior. Specifically, we examine investment choices related to nonpecuniary preferences: (i) alignment with environmental, social and governance (ESG) values and (ii) intentionality to contribute to measurable impact. Focusing on the dynamics of cash flows in ESG and impact mutual funds, we study the response of sustainable investors to past performance as a measure of revealed preference, capturing differences in utility derived from financial returns versus nonpecuniary impact contributions.

Understanding investors' preferences and decision-making processes is key for both scholars and policy-makers. The fight against climate change, environmental protection and the preservation of biodiversity require substantial investments. Capital must therefore be efficiently allocated to high-impact sustainable projects. However, investors' motivations are heterogeneous (Giglio et al., 2025); therefore, there are numerous sustainable investment practices. Starks (2023) introduced a taxonomy of sustainable finance, classifying ESG, socially responsible (SR) and impact investment to differentiate investment with and investment for moral values, respectively. Specifically, ESG and SR investors' decisions are aligned with their moral values, whereas impact investors' decisions are driven by the consequences of their investments.

How investors derive utility from sustainable investing and what impact their investments have are still major questions of an ongoing debate. The literature shows that investors have various preferences related to ESG values (Riedl and Smeets, 2017; Bauer et al., 2021). These nonpecuniary preferences play a key role in investors' decisions, and the way they interact with financial preferences is also crucial (Pedersen et al., 2021; Pástor et al., 2021). Consequently, the relationship between the utility derived from financial performance and that derived from ethical criteria has been under scrutiny. Most empirical studies on this topic focus on the flow–performance relationship in the mutual funds market because it allows the inference of agents' revealed preferences. Indeed, cash flow determinants reflect investors'

demand function, providing some insights into their preferences. In this vein, the recent contributions of Baily and Gnabo (2023), Ceccarelli et al. (2024) and Gibbon et al. (2025) are based on the empirical analysis of the flow–performance relationship across traditional and ESG mutual funds. ESG investors appear to be less sensitive to past performance, which indicates that they derive utility from the extrafinancial attributes of ESG funds, substituting ESG preferences for financial preferences. Empirical contributions dedicated to impact investing are scarce, but comparisons between traditional and impact investing yield similar results. Barber et al. (2021) show that investors have a willingness to pay (WTP) for impact. However, Heeb et al. (2023) nuance this result, finding that if investors have a WTP for sustainable investments, they have no higher WTP for greater impact.

In summary, the vast majority of empirical contributions are based on comparisons between traditional and sustainable funds. Investor preferences are typically investigated through the performance and cash flow determinants of traditional vs. ESG/impact mutual funds. However, little is known about the role that intentionality plays in preferences, i.e., the difference in investor behavior between those who invest with or for values. This paper aims to bridge the gap in the literature by examining the determinants of cash flows in a sample of equity mutual funds associated with either ESG or impact investing strategies. Funds are classified as ESG or impact funds relative to their names, using a novel dictionary of sustainability-related keywords. The flow–performance relationship is estimated via the regression of fund flows over past performance and fund-level control variables for ESG and impact funds. Without anticipating our results, we find that money flows are more sensitive to lagged risk-adjusted returns for ESG funds than for impact funds. Our empirical results are in line with impact investor specificity among sustainable investors: the first invest for ESG values, whereas the latter invest with ESG values. Therefore, impact investors exhibit a higher WTP than ESG investors do. Our findings are robust to alternative sustainable classifications, geographical investment areas, investor types and time sampling.

Our empirical investigations introduce two main innovations to the literature. First, we

construct a new dictionary of ESG and impact-related keywords. Compared with existing dictionaries, our novel dictionary has two key differences: the selection process and the entry type. Previous dictionaries are built via a discrete selection process of sustainability-related words, as in Nofsinger and Varma (2014) and El Ghoul and Karoui (2021), or built on several lexical databases to broaden such terminology, as in Candelon et al. (2021). In those dictionaries, entries are English words and English root words. More recently, Gibbon et al. (2025) introduced a broadened list including other language translations for some of the common terms used in the latter lists. Going further, we opt for a multilingual dictionary of ESG and impact-related keywords, grounded in the European regulatory framework. This methodological innovation enables a better classification of ESG and impact funds, addressing a key limitation in previous empirical studies (Statman and Glushkov, 2016). Second, our investigations focus on the comparison between ESG and impact funds, with particular attention to how investor behavior is shaped by intentionality and additionality, which are the two features that distinguish impact investing from ESG investing (Barber et al., 2021). By empirically examining the flow–performance relationship in light of these two innovations, our study provides new insights into investor behavior.

Our contribution is twofold. On the one hand, we provide additional evidence that impact and ESG investors have different preferences related to the financial and sustainable attributes of their portfolio holdings. Our findings enrich the literature on sustainable investor behavior and the flow–performance relationship for mutual fund markets. On the other hand, our findings highlight the fact that impact investing provides a more stable source of financing. Therefore, our findings have important implications for policy-makers who aim to design incentives and regulatory frameworks to channel financial flows toward high-impact projects that deliver significant environmental and social value.

The remainder of this paper is organized as follows. Section 2 presents the literature on sustainable investor preferences and the flow–performance relationship for the mutual fund

market. Section 3 introduces the hypotheses development. Section 4 describes the data, and Section 5 reports our empirical results and robustness checks. Finally, we summarize our findings and provide some policy recommendations in Section 6.

2. Literature review

2.1. Determinants of mutual fund flows

Investor flows play a central role in the allocation of capital across financial markets. In the context of mutual funds, the sensitivity of flows to past performance is a widely used proxy for investor preferences and behavior. Many empirical studies find that flows respond asymmetrically to returns: investors allocate more capital following strong performance but are slower to redeem after poor performance (Chevalier and Ellison, 1997; Sirri and Tufano, 1998). This stylized fact has motivated theoretical work seeking to rationalize why investors chase past winners. In particular, Berk and Green (2004) show that in rational markets, superior performance attracts inflows until decreasing returns to scale eliminate abnormal profits, generating an equilibrium in which fund size adjusts to managerial skill. Thus, the flow–performance relation reflects equilibrium learning and competition rather than persistent mispricing. Moreover, this asymmetry is not merely a statistical regularity: it also reveals the underlying preferences, incentives, and beliefs that drive investor behavior. In this sense, mutual fund flows act as a revealed preference mechanism, offering a window into the utility function that investors are optimizing.

In addition to reflecting individual motives, flow–performance sensitivity is also shaped by institutional and structural factors, which differ across countries and affect investor responsiveness. Ferreira et al. (2012) emphasize that elements such as investor protection, governance quality, and market development significantly influence how flows react to performance. For example, Del Guercio et al. (2010) find that investors in broker-sold funds exhibit weaker responsiveness to performance than those in direct-sold funds do, primarily because of differences in distribution channels and search costs.

2.2. Sustainable investor behavior

While early studies examined this mechanism in conventional funds, recent research has extended it to sustainable investing, where nonfinancial motives increasingly shape investor behavior. A seminal study by Bollen (2007) revealed that compared with conventional funds, socially responsible (SRI) funds experience weaker outflows after poor performance. He interprets this as evidence that investors derive utility not only from financial returns but also from alignment with social values. This insight is supported by related findings in Benson and Humphrey (2008), who show that SRI funds attract more stable capital, and Renneboog et al. (2011), who find that ethical fund investors are less performance sensitive and motivated by pro-social preferences.

Subsequent work extends this interpretation. Riedl and Smeets (2017) show that ESG-oriented investors are more loyal and willing to trade off financial returns for social or environmental objectives. Barber et al. (2021) quantify this behavior by demonstrating that many investors exhibit a positive willingness to pay (WTP) for sustainability, accepting lower returns in exchange for higher Morningstar ESG Risk Ratings. Giglio et al. (2025) document heterogeneity in investors' ESG return expectations and motives, showing that those with more optimistic ESG beliefs tend to hold larger ESG portfolios. Jeffers et al. (2024) provide complementary evidence, showing that impact funds underperform relative to conventional benchmarks but offer lower market sensitivity, which suggests that investors may accept weaker returns in pursuit of nonfinancial goals.

More recent theoretical work incorporates sustainability preferences into formal asset pricing models. Pástor et al. (2021) and Pedersen et al. (2021) model investor utility as including a nonpecuniary component linked to ESG characteristics. These frameworks show that when investors value sustainability, regardless of whether this preference is rooted in value alignment or impact, their demand for ESG assets becomes less sensitive to short-term return fluctuations. As a result, capital flows into sustainable funds become more stable and persistent. However, these models remain agnostic about the source of nonfinancial utility, whether

it stems from consequentialist preferences for generating impact or from nonconsequentialist motives, such as identity signaling or "warm-glow" satisfaction. This distinction is crucial: while both preferences can generate sticky capital, they imply different demand elasticities under downside risk. In support of this distinction, Bauer et al. (2021) provide empirical evidence that ESG investors differ in their motivations and demand responses depending on whether they prioritize measurable impact or ethical alignment. This suggests heterogeneity in utility derivation that may translate into observable differences in flow–performance sensitivity.

Building on this, Heeb et al. (2023) empirically test whether investor preferences are driven by real-world impact or symbolic satisfaction. Using a framed field experiment, they find that while investors generally prefer sustainable assets, their WTP does not significantly increase with higher levels of absolute impact, even among self-identified impact investors. Instead, demand responds more to relative comparisons and is driven primarily by positive emotions, suggesting that preferences are shaped by warm-glow utility rather than by a consequentialist valuation of outcomes.

This view is supported by evidence from moral psychology. Bonnefon et al. (2025) show that investors prioritize value alignment but are unresponsive to whether their capital causally affects outcomes. Similarly, Gutsche et al. (2023) find that sustainable investment decisions are best explained by social preferences and warm glow feelings, rather than by financial return expectations or belief in measurable impact. These studies suggest that many investors derive utility from the symbolic act of holding "good" assets, rather than from directly causing measurable change.

This behavioral mechanism is also reflected in how investors respond to sustainability labels and fund classifications. Hartzmark and Sussman (2019) show that changes in sustainability ratings affect fund flows even in the absence of return differences, whereas Barber et al. (2021) find that demand for ESG funds responds strongly to firm-level Morningstar ESG Risk Ratings, which is consistent with identity-based or value-driven capital allocation.

Ceccarelli et al. (2024) provide further evidence that flows into low-carbon mutual funds are influenced not only by financial performance but also by sustainability orientation and public visibility, reinforcing the role of nonfinancial considerations in allocation decisions.

2.2.1. Impact investor behavior

Despite the growing literature on sustainable investing, one critical distinction remains underexplored: the behavioral difference between ESG and impact funds. Most studies treat sustainable funds as a single category, implicitly assuming similar investor motivations across fund types. However, ESG and impact funds differ fundamentally, most notably in terms of intentionality, defined as the ex ante commitment to generate measurable social or environmental outcomes. Starks (2023) develops a classification framework to distinguish between these fund types on the basis of this concept and places intentionality at the core of impact investing. ESG funds, by contrast, integrate environmental, social, and governance factors into investment decisions but typically lack a formal commitment to measurable impact. This conceptual distinction is widely recognized in practitioner taxonomies and has been formalized in recent academic work (Edmans and Kacperczyk, 2022; Jeffers et al., 2024). However, its behavioral implications remain largely untested.

Specifically, existing research does not answer the question of whether intentionality shapes investor behavior in ways that differentiate impact investors from their ESG counterparts. While prior studies show that ESG investors are more loyal and less sensitive to short-term performance than conventional investors are (Riedl and Smeets, 2017; Barber et al., 2021; Giglio et al., 2025), no empirical study has investigated whether this loyalty is stronger among impact investors. If investors are primarily motivated by "warm-glow" utility and gain satisfaction from value alignment or symbolic ownership, then we should observe similar flow–performance sensitivity across both ESG and impact funds. In contrast, if investors in impact funds are consequentialist, deriving utility from the causal generation of real-world change, then they may behave differently when returns fall short. In that case, their utility function would reflect impact production, and their demand function should be

less sensitive to short-term financial underperformance.

This divergence in investor motivation should manifest in the elasticity of investor flows with respect to past returns. Warm-glow investors may quickly redeem when financial returns decline, as their symbolic or emotional satisfaction is no longer reinforced. Consequentialist investors, however, may remain invested despite losses, provided their belief that their capital continues to contribute to measurable outcomes. In this sense, mutual fund flows serve as a revealed preference mechanism, offering indirect evidence about the utility functions investors seek to optimize.

3. Hypotheses development

This subsection develops two competing hypotheses regarding sustainable investor behavior. It aims to provide an economic rationale for each hypothesis and to situate the hypotheses within the literature.

The first hypothesis is based on the assumption that ESG and impact investors may share a similar marginal rate of substitution (MRS) between financial and nonpecuniary preferences. These investors derive utility from both financial and sustainable attributes and may exhibit a comparable trade-off between these preferences, regardless of whether the sustainable attribute pertains to ESG or impact signals. This assumption aligns with the literature suggesting that sustainable investors' willingness to pay (WTP) is not correlated with the level of impact in their portfolios (Heeb et al., 2023). A testable prediction can be derived from this assumption regarding investor behavior: the flow–performance relationship should be similar for ESG and impact funds.

Hypothesis 1 (H0)**.** *The flow–performance relationship of impact funds is equal to that of ESG funds.*

The null hypothesis implies that sustainable investors assess impact funds in the same way that they assess ESG funds as simply another candidate fund for sustainable investment. If so, then the determinants of cash flows should be similar for impact funds and ESG funds. Specifically, after controlling for other relevant variables, such as fund risk, fund age, fund size, and Morningstar Rating (Hartzmark and Sussman, 2019; Pástor and Vorsatz, 2020; Baily and Gnabo, 2023; Ceccarelli et al., 2024; Gibbon et al., 2025), the flow–performance sensitivity of impact funds should be equal to that of ESG funds.

Alternatively, the second hypothesis is motivated by the assumption that impact investors exhibit a distinct behavioral feature from that of their ESG peers: the intention to generate some measurable social and environmental benefits through their investments. This specificity is supported by Barber et al. (2021), who highlight the higher WTP associated with high-impact venture capital funds. The investors' taste for impact is also evidenced by Jeffers et al. (2024), who provide empirical support for the different return-risk profiles of impact funds compared to traditional and ESG funds.

The dual objectives of impact investors with respect to financial performance and ESG benefits have direct implications for how their preferences are modeled in utility functions. Impact investors may place greater emphasis on nonfinancial outcomes than do ESG investors, who often treat sustainability as a constraint rather than a primary objective. Consequently, impact investors may be less sensitive to past returns than ESG investors when allocating capital.

Hypothesis 2 (H1)**.** *The flow–performance relationship of impact funds is weaker than that of ESG funds.*

The alternative hypothesis implies that impact investors do not assess sustainable funds

in the same way as their ESG peers do. Past performance is a less important criterion for them; thus, after controlling for other relevant variables, such as fund risk, fund age, fund size, and the Morningstar Rating, the flow–performance sensitivity of impact funds will be lower than that of ESG funds.

4. Data

Our objective is to investigate the empirical relationship between cash flows and past performance for sustainable investors. To this end, we construct a dataset covering 840 European sustainable equity funds actively managed over the period 2018–2025. Data collection and treatment are presented in Section 4.1. A preliminary analysis of the data is conducted in Section 4.2. For replicability purposes, details about the data collection procedure and ESG- and impact-related keyword dictionaries are displayed in Appendix A and Appendix B, respectively.

4.1. Data collection and treatment

Following the majority of the literature, we focus on active equity mutual funds. Indeed, restricting our analysis to equity funds allows us to build a sample of homogeneous mutual funds with similar cash flow determinants. Furthermore, limiting our empirical investigation to actively managed funds enables us to focus on cash flows that are not related to market movements. We opt for a dynamic panel data framework, as we aim to combine both cross-sectional and time series dimensions. Specifically, we choose a balanced panel dataset because we aim to control the impact of time-specific effects on the explanatory power of past performance.

From here, we depart from the literature focusing on European domiciled funds. Indeed, Europe is the ideal setting for studying the behavior of ESG and impact investors: it has the largest sustainable fund market, a mature investor base, and a strict regulatory framework. In particular, the naming requirements imposed by ESMA (2024) mean that fund names

carry informational content; they are not free advertising but subject to oversight. This institutional environment mitigates ESG-washing in names and increases the reliability of our classification strategy.

From the Morningstar Direct database, we apply several filters. First, we restrict our sample to domestic and international equity mutual funds domiciliated in Europe. We exclude passive funds, including index funds and passive ETFs, to focus exclusively on active mutual funds. Moreover, we further exclude the smallest funds in our sample, removing those with less than US 10 million of TNA to prevent any distortion of the TNA (Pástor and Vorsatz, 2020). Finally, we obtain a final sample of 840 unique actively managed domestic and international equity mutual funds domiciliated in Europe for the period August 2018–June 2025, with monthly fund information. The factor data were collected from Kenneth French's website. All return data are denominated in USD and include fees. For replication purposes, the data collection and treatment protocol is detailed in Appendix A.

Building on the European regulatory framework, we classify funds according to the terminology used in their names. To do so, we construct a multilingual dictionary of ESG- and impact-related keywords that is explicitly aligned with ESMA's 2024 guidelines on fund naming (ESMA, 2024). Our approach follows that of previous studies that rely on name-based classifications (Nofsinger and Varma, 2014; Gibbon et al., 2025; Candelon et al., 2021) but departs from them in two important respects. First, we extend the methodology to a multilingual setting that reflects the linguistic diversity of the European fund universe. Second, and more importantly, we anchor the dictionary in a regulatory naming standard rather than in ad hoc keyword lists, ensuring that the classification mirrors the terminology that managers are allowed and expected to use under ESMA's naming rules.

For ESG funds, the dictionary includes general sustainability terms such as "sustainable," "ESG," "green," "responsible," and related linguistic variants across the ten covered languages. For impact funds, we adopt a substantially stricter criterion: a fund is classified as impact only if the root "impact" appears explicitly in its official name. In the robustness analysis, this

criterion is further tightened by requiring that the fund also be disclosed as SFDR Article 9, thereby ensuring consistency between linguistic signals and regulatory commitments. Funds that do not meet either set of criteria are treated as traditional and excluded from the sustainable sample. The full multilingual ESG and impact keyword dictionaries are reported in Appendix Appendix B.

4.2. Descriptive statistics

Table 1 reports summary statistics for the main fund-level characteristics, comparing ESG and impact funds classified according to our dictionary-based methodology aligned with ESMA naming guidance. The average trailing one-year returns are nearly identical across groups at 0.075%, whereas benchmark-adjusted five-factor alphas are modest, on average, and somewhat higher for impact funds (0.38% versus 0.24% for ESG). Both returns and alphas exhibit substantial dispersion, which is consistent with the wide heterogeneity typical of active equity funds (Harvey and Liu, 2019).

Impact funds remain a small and young segment of the market: their average size is USD 0.33 billion compared with USD 0.40 billion for ESG funds, and they are approximately three years younger than ESG funds, on average. Impact funds also display slightly higher Morningstar ESG Risk Ratings, reflecting their stronger sustainability orientation, while Morningstar Ratings are broadly similar between the two groups. The volatility of monthly returns is approximately 5% for both segments. Overall, the descriptive evidence highlights meaningful structural differences: ESG funds are larger and more established, whereas impact funds are newer, smaller, and marginally more ESG intensive.

5. Empirical analysis

5.1. Modeling framework

For each fund, we observe total net assets (TNA), monthly returns, alpha, fund age, lagged flows, return volatility, the Morningstar Rating, and the Morningstar ESG Risk Rating.

Table 1: Descriptive statistics by fund type (monthly)

Variable	ESG	Impact
Return (12M, %)	0.075 (0.192)	0.075 (0.229)
Alpha (12M, %)	0.235 (1.086)	0.383 (1.462)
TNA (USD, billions)	0.399 (0.942)	0.329 (0.477)
Age (months)	142.723 (132.460)	100.360 (105.685)
Volatility (12M, %)	5.068 (1.729)	5.257 (2.055)
Morningstar ESG Risk Rating	3.697 (1.191)	3.981 (1.123)
Morningstar Rating	3.119 (1.047)	2.871 (1.120)
Observations	66,566	3,154
Number of funds	802	38

Notes: Entries report mean values with standard deviations in parentheses. Return (12M) is the trailing one-year return, expressed in percentage points. Alpha (12M) is the trailing one-year Fama–French five-factor alpha (benchmark-adjusted return), also in percentage points. Volatility (12M) is the standard deviation of monthly returns over the prior 12 months. TNA is total net assets, measured in billions of USD. Age is months since fund inception. Morningstar ESG Risk Rating and Morningstar Rating are proprietary Morningstar measures.

Following Bollen (2007); Ceccarelli et al. (2024); Gibbon et al. (2025), flows are computed as follows:

$$\text{Flow}_{it} = \frac{\text{TNA}_{it} - \text{TNA}_{i,t-1}(1 + R_{it})}{\text{TNA}_{i,t-1}}, \tag{1}$$

where TNA_{it} is the total net assets of fund i at time t and R_{it} is the raw return. To mitigate the effect of outliers, flows are winsorized at the 1st and 99th percentiles as in Gibbon et al. (2025).

To estimate the flow–performance relationship, we regress flows on lagged trailing 12-month performance. The return horizon follows Baily and Gnabo (2023), who recommend a one-year window to capture investor reactions to sustained performance rather than monthly returns that could induce some volatility noise. Performance is entered either as raw returns or as an alpha relative to benchmarks. Because investor reactions may be asymmetric, we split performance into positive and negative components, distinguishing inflows after gains from redemptions after losses, as in Bollen (2007) and Baily and Gnabo (2023).

All specifications include controls for fund size, age, volatility, Morningstar ESG Risk Rating, and Morningstar Rating. In dynamic variants, we add lagged flows and volatility, following Ceccarelli et al. (2024), who show that flow stickiness is shaped by past fund dynamics. To account for gradual repositioning strategies, we include fund-specific linear trends interacted with ESG and impact indicators. Month fixed effects capture market-wide

shocks, and Morningstar category fixed effects absorb structural differences across investment styles. Standard errors are two-way clustered by both fund and time to account for serial correlation and cross-sectional dependence.

Formally, the baseline regression can be written as follows:

$$\begin{aligned}\text{Flow}_{i,t} = \quad & \alpha_0 + \alpha_1 D_i^{\text{Imp}} \\ & + \beta_+^{\text{ESG}} \, \text{Perf}_{i,t-1,+}^{12M} \, D_i^{\text{ESG}} + \beta_-^{\text{ESG}} \, \text{Perf}_{i,t-1,-}^{12M} \, D_i^{\text{ESG}} \\ & + \beta_+^{\text{Imp}} \, \text{Perf}_{i,t-1,+}^{12M} \, D_i^{\text{Imp}} + \beta_-^{\text{Imp}} \, \text{Perf}_{i,t-1,-}^{12M} \, D_i^{\text{Imp}} \\ & + \theta' X_{i,t-1} + \mu_i + \lambda_t + \epsilon_{i,t},\end{aligned} \tag{2}$$

where $Flow_{i,t}$ is the fund flow of mutual fund i at time t, D_i^{ESG} and D_i^{Imp} are the ESG and impact dummies, respectively, $Perf^{12M}$ denotes either trailing 12-month returns or alpha, depending on the specification and $X_{i,t-1}$ is a set of control variables including fund-level data. These control variables include age ($ln(Age_{i,t-1})$), total net assets ($ln(TNA_{i,t-1})$), the volatility of the return ($ReturnVolatility_{i,t-1}$), the lagged flow ($Flow_{i,t-1}$), a time fixed effects for ESG ($Trend.ESG$) and impact ($Trend.Impact$) mutual funds to capture the specific growth of these market segments, respectively, and the two scores attributed by Morningstar ($MorningstarESGRiskRating_{i,t-1}$ and $MorningstarRating_{i,t-1}$). These two last control variables are introduced to control the difference between the announcement of the ESG attribute of the fund and its official evaluation by Morningstar. The β coefficients on the interaction terms capture differential flow sensitivities. For instance, the comparison of β_-^{ESG} and β_-^{Imp} directly tests whether impact investors redeem less aggressively in response to losses than ESG investors do. λ_t is the time fixed effects and μ_i is the investment style fixed effects that are also introduced to account for potential unobserved heterogeneity across funds. Finally, $\epsilon_{i,t}$ are i.i.d. normally distributed residuals.

The balanced panel described by Eq. (2) is estimated via fixed effects OLS. [1] Two-way clustered standard (fund and time) errors are reported as in Baily and Gnabo (2023).

To verify the robustness of the results, we undertake several exercises. First, we test alternative classifications by intersecting fund names and descriptions with SFDR Articles 8 and 9. Second, we assess temporal stability by splitting the sample into early and recent periods. Third, we explore geographic heterogeneity within Europe by focusing on funds that allocate more than 80% of assets to EU equities. Finally, we examine investor-based heterogeneity by comparing institutional and retail share classes. Together, these tests ensure that our findings are not driven by classification choice, sample period, portfolio focus, or investor type.

This empirical design provides a way to infer preferences between investing with and investing for values. If impact investors are motivated by consequentialist preferences, redemptions after poor performance should be attenuated compared with those of ESG investors. In contrast, if flows respond equally across ESG and impact funds, sustainable investing is driven primarily by symbolic alignment rather than intentionality. We therefore expect to find that impact investors display weaker performance sensitivity and greater loyalty, which is consistent with the interpretation that they derive utility from achieving outcomes rather than from value signaling alone.

5.2. Main results

Table 2 reports baseline flow–performance sensitivities for ESG and impact funds. Using raw returns, we find that both ESG and impact investors respond positively to recent gains and that ESG investors additionally react to recent losses. These patterns are partly mechanical since raw returns embed both systematic risk exposures (e.g., market, size, value) and managerial skill. In contrast, the Fama–French five-factor alpha provides a benchmark-

[1] As in our case, T and N are large ($T = 83$ and $N = 840$), the literature shows that the magnitude of the Nickell bias is $\frac{1}{T}$ and therefore negligible (see Nickell, 1981; Hsiao, 2014).

adjusted measure of performance that filters out factor betas and isolates the component attributable to active management. When we rely on the alpha—our preferred specification given that we study reactions to active performance rather than broad market dynamics—the results change markedly. ESG flows remain strongly sensitive to performance, whereas impact flows are small in magnitude and statistically weak.

This contrast shows that ESG investors chase risk-adjusted performance, whereas impact investors display limited responsiveness to managerial skill and maintain more stable allocations. The stronger sensitivities observed in the raw-return models should therefore be interpreted as responses to factor exposures rather than as evidence of superior stock-picking ability. This interpretation aligns with prior work showing that mutual fund investors often react to simple return signals rather than to the alpha (Ben-David et al., 2022). In summary, the alpha-based estimates underpin our main conclusion: ESG investors behave like conventional performance-chasing investors with a sustainability tilt, whereas impact investors exhibit attenuated performance sensitivity consistent with outcome-oriented investment motives.

5.3. Robustness checks

EU subsample results. Table 3 reports the estimates for the subsample of funds that allocate at least 80% of assets to EU equities. The results broadly confirm the baseline patterns but sharpen the contrast between ESG and impact investors. ESG funds exhibit strong and significant flow sensitivity to both gains and losses, whether performance is measured with raw returns or the alpha, which is consistent with performance-oriented investor behavior. In contrast, impact funds display weaker and less systematic sensitivities: coefficients on raw returns are smaller and less robust, whereas alpha interactions are not only insignificant but also occasionally negative, suggesting that impact investors are not performance chasers and may even reduce flows when alpha is positive. Overall, these results indicate that within the EU-focused subsample, ESG investors remain highly performance driven, whereas impact investors are less responsive to financial signals, which is consistent with more stable and

Table 2: Flow–performance sensitivities: ESG vs. Impact (name-based classification)

	Raw Returns		5-Factor Alpha	
	(1)	**(2)**	**(3)**	**(4)**
Dependent variable: $Flow_t$				
D^{Imp}	0.0127	0.0097	0.0189*	0.0137*
	(0.0080)	(0.0061)	(0.0088)	(0.0065)
$\text{Ret}^{12M}_{t-1,+} \times D^{\text{ESG}}$	0.0470**	0.0333**		
	(0.0087)	(0.0085)		
$\text{Ret}^{12M}_{t-1,-} \times D^{\text{ESG}}$	0.0349**	0.0240**		
	(0.0101)	(0.0075)		
$\text{Ret}^{12M}_{t-1,+} \times D^{\text{Imp}}$	0.0684**	0.0449*		
	(0.0228)	(0.0170)		
$\text{Ret}^{12M}_{t-1,-} \times D^{\text{Imp}}$	0.0097	0.0080		
	(0.0221)	(0.0147)		
$\text{Alpha}^{12M}_{t-1,+} \times D^{\text{ESG}}$			0.0032***	0.0021**
			(0.0006)	(0.0005)
$\text{Alpha}^{12M}_{t-1,-} \times D^{\text{ESG}}$			0.0053***	0.0040***
			(0.0005)	(0.0006)
$\text{Alpha}^{12M}_{t-1,+} \times D^{\text{Imp}}$			0.0030	0.0019
			(0.0016)	(0.0016)
$\text{Alpha}^{12M}_{t-1,-} \times D^{\text{Imp}}$			-0.0036	-0.0028
			(0.0024)	(0.0017)
$\log(Age_{t-1})$	0.0005***	0.0003***	0.0004***	0.0003***
	(<0.0001)	(<0.0001)	(<0.0001)	(<0.0001)
$\log(TNA_{t-1})$	-0.0011*	-0.0010*	-0.0011*	-0.0010*
	(0.0004)	(0.0004)	(0.0004)	(0.0004)
Volatility_{t-1}	-0.0013**	-0.0009*	-0.0015*	-0.0009*
	(0.0005)	(0.0003)	(0.0005)	(0.0003)
$\text{Morningstar ESG Risk Rating}_{t-1}$	0.0018***	0.0013***	0.0017***	0.0012***
	(0.0005)	(0.0003)	(0.0005)	(0.0003)
$\text{Morningstar Rating}_{t-1}$	0.0021***	0.0016***	0.0026***	0.0019***
	(0.0005)	(0.0004)	(0.0005)	(0.0004)
Trend ESG_{t-1}	-0.0000	-0.0000	-0.0000	-0.0000
	(<0.0001)	(<0.0001)	(<0.0001)	(<0.0001)
$\text{Trend Impact}_{t-1}$	-0.0002	-0.0002	-0.0002	-0.0002
	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Flow_{t-1}		0.2855***		0.2866***
		(0.0171)		(0.0173)
Fixed effects: Time	Yes	Yes	Yes	Yes
Fixed effects: Style	Yes	Yes	Yes	Yes
Observations	67,978	67,978	67,978	67,978
R^2	0.06356	0.13941	0.05996	0.13784
Adj. R^2	0.06121	0.13724	0.05761	0.13567

Notes: Sample restricted to sustainable funds (ESG or Impact); Traditional funds are excluded. Dependent variable is monthly fund flow. All regressors are lagged one month. Time and Morningstar-category fixed effects included. Standard errors two-way clustered by fund (ISIN) and time. In columns (1)-(2) performance is Ret^{12M}; in columns (3)-(4) performance is Alpha^{12M} (Fama-French 5-factor). Each performance measure is split into positive and negative parts. Very small standard errors are shown as < 0.0001. Significance: $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$. The results are computed using R 4.5.0 (R Core Team, 2025).

intentional allocation motives.

Table 3: Flow–performance sensitivities: ESG vs. Impact (EU subsample, name-based classification)

	Raw Returns		**5-Factor Alpha**	
	(1)	**(2)**	**(3)**	**(4)**
Dependent variable: $Flow_t$				
D^{Imp}	-0.0253	-0.0197	-0.0215	-0.0173
	(0.0161)	(0.0136)	(0.0138)	(0.0117)
$\text{Ret}^{12M}_{t-1,+} \times D^{\text{ESG}}$	0.0615***	0.0514***		
	(0.0123)	(0.0103)		
$\text{Ret}^{12M}_{t-1,-} \times D^{\text{ESG}}$	0.0500**	0.0392**		
	(0.0162)	(0.0141)		
$\text{Ret}^{12M}_{t-1,+} \times D^{\text{Imp}}$	0.0364	0.0239*		
	(0.0206)	(0.0110)		
$\text{Ret}^{12M}_{t-1,-} \times D^{\text{Imp}}$	0.0333	0.0339		
	(0.0271)	(0.0244)		
$\text{Alpha}^{12M}_{t-1,+} \times D^{\text{ESG}}$			0.0032*	0.0030**
			(0.0014)	(0.0011)
$\text{Alpha}^{12M}_{t-1,-} \times D^{\text{ESG}}$			0.0053***	0.0043***
			(0.0014)	(0.0011)
$\text{Alpha}^{12M}_{t-1,+} \times D^{\text{Imp}}$			-0.0086*	-0.0097**
			(0.0041)	(0.0039)
$\text{Alpha}^{12M}_{t-1,-} \times D^{\text{Imp}}$			0.0146	0.0129
			(0.0086)	(0.0072)
$\log(Age_{t-1})$	-0.0036***	-0.0026***	-0.0036***	-0.0026***
	(0.0009)	(0.0007)	(0.0009)	(0.0007)
$\log(TNA_{t-1})$	-0.0035***	-0.0034***	-0.0036***	-0.0034***
	(0.0007)	(0.0006)	(0.0007)	(0.0006)
Volatility_{t-1}	-0.0010	-0.0008	-0.0015	-0.0007
	(0.0008)	(0.0007)	(0.0009)	(0.0007)
$\text{Morningstar ESG Risk Rating}_{t-1}$	0.0015*	0.0013*	0.0017*	0.0012*
	(0.0007)	(0.0006)	(0.0007)	(0.0006)
$\text{Morningstar Rating}_{t-1}$	0.0035***	0.0031***	0.0040***	0.0035***
	(0.0008)	(0.0007)	(0.0008)	(0.0007)
Trend ESG_{t-1}	<0.0001	<-0.0001	<0.0001	0.00001
	(0.0001)	(0.0001)	(<0.0001)	(<0.0001)
$\text{Trend Impact}_{t-1}$	0.0004*	0.0004*	0.0005*	0.0004*
	(0.0002)	(0.0002)	(0.0002)	(0.0002)
Flow_{t-1}		0.1662***		0.1696***
		(0.0223)		(0.0225)
FE: Time	Yes	Yes	Yes	Yes
FE: Style	Yes	Yes	Yes	Yes
Observations	16,047	16,047	16,047	16,047
R^2	0.06447	0.09101	0.06062	0.08836
$Adj.R^2$	0.05730	0.08399	0.05342	0.08132

Notes: Dependent variable is monthly fund flow. Subsample includes funds with at least 80% invested in EU markets. All regressors are lagged one month. Time and Morningstar category fixed effects included. Standard errors are two-way clustered by fund (ISIN) and month. In columns (1)-(2), performance is Ret^{12M}; in columns (3)-(4), performance is Alpha^{12M} (Fama-French 5-factor). Each is split into positive/negative components. Labels $***$, $**$, and $*$ indicate significance at the 1%, 5%, and 10% levels, respectively. The results are computed using R 4.5.0 (R Core Team, 2025).

Retail vs. Institutional.. Table 4 reports pooled results where impact performance sensitivities are interacted with retail and institutional share-class dummies: D^{Retail} and D^{Inst}, respectively. The impact label itself attracts higher flows, on average, only in the alpha specifications, where the impact dummy is positive and significant, while the institutional dummy

is never significant. Using raw returns, impact flows are strongly gains sensitive for both retail and institutional investors, but only institutional impact funds exhibit pronounced loss sensitivity: the interaction with past negative returns is large and significant for institutional share classes, whereas it is small and insignificant for retail. In the alpha-based regressions, retail impact flows respond mildly to a positive alpha and do not react to a downside alpha, whereas institutional impact flows load very strongly on a negative alpha but not on a positive alpha, implying that institutions are particularly punitive when risk-adjusted performance turns negative. Controls behave as before: flows are highly persistent, larger funds attract fewer flows, older funds load positively, volatility dampens flows, and Morningstar ratings and ESG scores present a strong, positive association with flows. Overall, the pooled specification confirms that both retail and institutional impact investors chase upside raw returns, but only institutional impact investors exhibit pronounced downside sensitivity to a negative alpha, which is consistent with stronger monitoring and benchmark discipline among institutional clients.

Recent subsample results. Table 5 shows that in the most recent half of the sample, ESG flows are clearly performance sensitive: they increase after past gains and load significantly on losses; the same pattern holds when performance is risk-adjusted, with ESG flows reacting to both positive and negative 5-factor alphas. Impact flows, by contrast, are selective: they respond to past *gains* in raw returns but show no sensitivity to losses, and in the alpha specifications, they do *not* respond to positive alpha while exhibiting outflow sensitivity to *negative* alpha. Controls behave as expected: flows are persistent, larger and older funds attract fewer flows, Morningstar Ratings are strongly positive, and volatility has limited explanatory power. Overall, the recent period amplifies the contrast-ESG investors appear to be more performance-chasing on both the raw and the risk-adjusted dimensions, whereas impact investors remain less responsive to upside performance and penalize mainly downside risk-adjusted outcomes.

Table 4: Flow–performance sensitivities: Impact × Retail vs. Institutional

	Raw Returns		5-Factor Alpha	
	(1)	(2)	(3)	(4)
Dependent variable: $Flow_t$				
D^{Imp}	0.0109	0.0083	0.0191*	0.0139*
	(0.0076)	(0.0058)	(0.0087)	(0.0064)
D^{Instit}	0.0001	0.0001	0.0000	0.0000
	(0.0013)	(0.0009)	(0.0013)	(0.0009)
$\text{Ret}^{12M}_{t-1,+} \times D^{\text{Imp}} \times D^{\text{Retail}}$	0.0703**	0.0452**		
	(0.0227)	(0.0160)		
$\text{Ret}^{12M}_{t-1,-} \times D^{\text{Imp}} \times D^{\text{Retail}}$	-0.0281	-0.0183		
	(0.0181)	(0.0134)		
$\text{Ret}^{12M}_{t-1,+} \times D^{\text{Imp}} \times D^{\text{Inst}}$	0.0733	0.0517		
	(0.0387)	(0.0285)		
$\text{Ret}^{12M}_{t-1,-} \times D^{\text{Imp}} \times D^{\text{Inst}}$	0.1026**	0.0713***		
	(0.0346)	(0.0148)		
$\text{Alpha}^{12M}_{t-1,+} \times D^{\text{Imp}} \times D^{\text{Retail}}$			0.0045*	0.0026
			(0.0020)	(0.0014)
$\text{Alpha}^{12M}_{t-1,-} \times D^{\text{Imp}} \times D^{\text{Retail}}$			-0.0011	-0.0009
			(0.0015)	(0.0010)
$\text{Alpha}^{12M}_{t-1,+} \times D^{\text{Imp}} \times D^{\text{Inst}}$			0.0041	0.0022
			(0.0075)	(0.0053)
$\text{Alpha}^{12M}_{t-1,-} \times D^{\text{Imp}} \times D^{\text{Inst}}$			0.0154***	0.0097***
			(0.0034)	(0.0022)
$\log(Age_{t-1})$	0.0004***	0.0003***	0.0004***	0.0003***
	(<0.0001)	(<0.0001)	(<0.0001)	(<0.0001)
$\log(TNA_{t-1})$	-0.0011*	-0.0010*	-0.0011*	-0.0010*
	(0.0004)	(0.0004)	(0.0004)	(0.0004)
Volatility_{t-1}	-0.0015**	-0.0010**	-0.0016**	-0.0011**
	(0.0005)	(0.0003)	(0.0005)	(0.0003)
Morningstar ESG Risk Rating_{t-1}	0.0018***	0.0013***	0.0017***	0.0012***
	(0.0005)	(0.0003)	(0.0005)	(0.0003)
$\text{Morningstar Rating}_{t-1}$	0.0031***	0.0023***	0.0032***	0.0023***
	(0.0005)	(0.0004)	(0.0005)	(0.0004)
Trend ESG_{t-1}	0.0000	0.0000	0.0000	0.0000
	(0.0001)	(0.0000)	(0.0001)	(0.0001)
Trend $Impact_{t-1}$	-0.0002	-0.0001	-0.0002	-0.0002
	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Flow_{t-1}		0.2903***		0.2921***
		(0.0173)		(0.0175)
FE: Time	Yes	Yes	Yes	Yes
FE: Style	Yes	Yes	Yes	Yes
Observations	67,896	67,896	67,896	67,896
R^2	0.05760	0.13654	0.05544	0.13557
$Adj.R^2$	0.05522	0.13435	0.05306	0.13337

Notes: Dependent variable is monthly fund flow. Sample includes ESG and Impact funds; ESG serves as the baseline group. Impact performance sensitivities are interacted with a dummy for institutional share classes; retail is the omitted category within the Impact group. All regressors are lagged one month. Month and Morningstar category fixed effects included. Standard errors are two-way clustered by ISIN and month. Columns (1)–(2) use Ret^{12M}, columns (3)–(4) use Alpha^{12M} (Fama-French 5-factor), each split into positive and negative components. Significance codes: $*** p < 0.01$, $** p < 0.05$, $* p < 0.1$. Results are computed using R 4.5.0 (R Core Team, 2025).

Table 5: Flow–performance sensitivities: ESG vs. Impact (recent subsample, name-based classification)

	Raw Returns		**5-Factor Alpha**	
	(1)	**(2)**	**(3)**	**(4)**
Dependent variable: $Flow_t$				
D^{Imp}	-0.0019	-0.0032	0.0050	0.0035
	(0.0110)	(0.0084)	(0.0129)	(0.0102)
$\text{Ret}^{12M}_{t-1,+} \times D^{\text{ESG}}$	0.0640***	0.0527***		
	(0.0068)	(0.0052)		
$\text{Ret}^{12M}_{t-1,-} \times D^{\text{ESG}}$	0.0251**	0.0186**		
	(0.0091)	(0.0076)		
$\text{Ret}^{12M}_{t-1,+} \times D^{\text{Imp}}$	0.0809**	0.0615**		
	(0.0226)	(0.0227)		
$\text{Ret}^{12M}_{t-1,-} \times D^{\text{Imp}}$	-0.0188	-0.0163		
	(0.0157)	(0.0129)		
$\text{Alpha}^{12M}_{t-1,+} \times D^{\text{ESG}}$			0.0038***	0.0030***
			(0.0007)	(0.0006)
$\text{Alpha}^{12M}_{t-1,-} \times D^{\text{ESG}}$			0.0038***	0.0032***
			(0.0009)	(0.0007)
$\text{Alpha}^{12M}_{t-1,+} \times D^{\text{Imp}}$			0.0020	0.0015
			(0.0023)	(0.0020)
$\text{Alpha}^{12M}_{t-1,-} \times D^{\text{Imp}}$			-0.0032	-0.0029*
			(0.0016)	(0.0012)
$\log(Age_{t-1})$	-0.0008***	-0.0007***	-0.0008***	-0.0007***
	(0.0002)	(0.0001)	(0.0002)	(0.0001)
$\log(TNA_{t-1})$	-0.0014**	-0.0013***	-0.0014***	-0.0014***
	(0.0004)	(0.0003)	(0.0004)	(0.0004)
Volatility_{t-1}	0.0004	0.0003	0.0006	0.0005
	(0.0005)	(0.0004)	(0.0005)	(0.0004)
$\text{Morningstar ESG Risk Rating}_{t-1}$	0.0005	0.0005	0.0006	0.0005
	(0.0005)	(0.0004)	(0.0004)	(0.0004)
$\text{Morningstar Rating}_{t-1}$	0.0026***	0.0022***	0.0031***	0.0026***
	(0.0005)	(0.0005)	(0.0005)	(0.0005)
Trend ESG_{t-1}	<0.0001	<0.0001	<0.0001	<0.0001
	(<0.0001)	(<0.0001)	(<0.0001)	(<0.0001)
Trend $Impact_{t-1}$	<0.0001	<0.0001	-<0.0001	-<0.0001
	(0.0002)	(0.0001)	(0.0002)	(0.0002)
Flow_{t-1}		0.1961***		0.1981***
		(0.0138)		(0.0140)
FE: Time	Yes	Yes	Yes	Yes
FE: Style	Yes	Yes	Yes	Yes
Observations	34,818	34,818	34,818	34,818
R^2	0.05015	0.08777	0.04765	0.08611
$Adj.R^2$	0.04659	0.08432	0.04408	0.08265

Notes: Dependent variable is monthly fund flow. Subsample includes only the most recent half of the sample period. All regressors are lagged one month. Time and Morningstar category fixed effects included. Standard errors are two-way clustered by fund (ISIN) and month. In columns (1)-(2), performance is Ret^{12M}; in columns (3)-(4), performance is Alpha^{12M} (Fama-French 5-factor). Each is split into positive/negative components. Labels $***$, $**$, and $*$ indicate significance at the 1%, 5%, and 10% levels, respectively. The results are computed using R 4.5.0 (R Core Team, 2025).

SFDR-keyword intersection. We further restrict the impact category to funds that (i) include "impact" in the name, (ii) have fund descriptions explicitly confirming impact orientation, and (iii) are classified as SFDR Article 9. Table 6 shows that this stricter definition sharpens the contrast with ESG funds. Impact flows respond significantly to raw returns—both gains and losses—suggesting that investors in these funds still react to simple performance signals. However, once performance is benchmark adjusted, the sensitivities of impact flows essentially disappear. ESG funds, by contrast, remain robustly performance sensitive in both raw and alpha specifications, with flows reacting to gains and losses alike. Thus, under the narrowest impact definition, the evidence suggests that apparent performance sensitivity in impact funds is largely driven by raw return comovements, not by risk-adjusted manager skill. Overall, these findings reinforce our main conclusion: ESG investors behave as performance chasers, whereas impact investors appear to be less responsive to the genuine alpha, which is consistent with intentional and nonfinancial allocation motives.

Table 6: Flow–performance sensitivities: ESG vs. Impact (name-based classification ∩ SFDR Article 9)

	Raw Returns		5-Factor Alpha	
	(1)	(2)	(3)	(4)
Dependent variable: $Flow_t$				
D^{Imp}	0.0009	0.0005	0.0024	0.0016
	(0.0093)	(0.0070)	(0.0095)	(0.0070)
$\text{Ret}^{12M}_{t-1,+} \times D^{\text{ESG}}$	0.0539***	0.0377***		
	(0.0099)	(0.0077)		
$\text{Ret}^{12M}_{t-1,-} \times D^{\text{ESG}}$	0.0422***	0.0278***		
	(0.0099)	(0.0077)		
$\text{Ret}^{12M}_{t-1,+} \times D^{\text{Imp}}$	0.0573***	0.0396***		
	(0.0132)	(0.0098)		
$\text{Ret}^{12M}_{t-1,-} \times D^{\text{Imp}}$	0.0743***	0.0483***		
	(0.0201)	(0.0155)		
$\text{Alpha}^{12M}_{t-1,+} \times D^{\text{ESG}}$			0.0037***	0.0025***
			(0.0008)	(0.0006)
$\text{Alpha}^{12M}_{t-1,-} \times D^{\text{ESG}}$			0.0044***	0.0033***
			(0.0011)	(0.0007)
$\text{Alpha}^{12M}_{t-1,+} \times D^{\text{Imp}}$			0.0014	0.0033
			(0.0044)	(0.0024)
$\text{Alpha}^{12M}_{t-1,-} \times D^{\text{Imp}}$			0.0058	0.0038
			(0.0077)	(0.0056)
$\log(Age_{t-1})$	0.0023***	0.0015***	0.0005***	0.0003***
	(0.0004)	(0.0003)	(0.0001)	(0.0001)
$\log(TNA_{t-1})$	-0.0030***	-0.0028***	-0.0030***	-0.0028***
	(0.0009)	(0.0007)	(0.0009)	(0.0007)
Volatility_{t-1}	-0.0004	-0.0006	-0.0005	-0.0005
	(0.0004)	(0.0004)	(0.0004)	(0.0004)
Morningstar ESG Risk Rating_{t-1}	0.0021**	0.0015**	0.0020**	0.0014*
	(0.0007)	(0.0004)	(0.0007)	(0.0005)
Morningstar Rating_{t-1}	0.0036***	0.0028***	0.0040***	0.0031***
	(0.0007)	(0.0005)	(0.0007)	(0.0005)
Trend ESG_{t-1}	-<0.0001	-<0.0001	-<0.0001	-<0.0001
	(0.00007)	(0.00006)	(0.00006)	(0.00007)
Trend $Impact_{t-1}$	0.0003	0.0003	0.0002	0.0002
	(0.0002)	(0.0002)	(0.0002)	(0.0002)
Flow_{t-1}		0.2793***		0.2822***
		(0.0204)		(0.0244)
FE: Time	Yes	Yes	Yes	Yes
FE: Style	Yes	Yes	Yes	Yes
Observations	35,342	35,342	35,342	35,342
R^2	0.06977	0.14209	0.06636	0.14057
$Adj.R^2$	0.06573	0.13834	0.06230	0.13681

Notes: Impact funds are defined as those that (i) include "impact" in the name, (ii) have descriptions confirming impact orientation, and (iii) are classified as SFDR Article 9. ESG funds are defined as those that (i) include ESG related keyword in the name, (ii) have descriptions confirming ESG orientation, and (iii) are classified as SFDR Article 8. All regressors are lagged one month. Time and Morningstar category fixed effects included. Standard errors are two-way clustered by ISIN and time. In columns (1)–(2), performance is Ret^{12M}; in columns (3)–(4), performance is Alpha^{12M} (Fama-French 5-factor). Each performance measure is split into positive and negative components. Significance codes: $***$ $p < 0.01$, $**$ $p < 0.05$, $*$ $p < 0.1$. The results are computed using R 4.5.0 (R Core Team, 2025).

6. Conclusion

In this paper, we study investor behavior and sustainable mutual fund attributes. Specifically, we compare the dynamics of investors cash flows in impact and ESG mutual funds. Our empirical results indicate that impact investors are less sensitive to past performance than ESG investors are. Our contribution is twofold: (i) we provide additional evidence that

impact and ESG investors have different preferences relative to intentionality to contribute to measurable ESG benefits, and (ii) our findings highlight the fact that impact investing provides a more stable source of financing.

The literature documents the distinctive feature of impact investing compared with ESG investing with respect to intentionality. Our results add a new argument in favor of impact investing: impact investors are more loyal than ESG investors are, providing a more stable source of financing for emitters. Hence, policy-makers should promote financing mechanisms on the basis of impact objectives rather than thematic focus or exclusion constraints. In addition, policy-makers should promote financing mechanisms based on blended finance or public guaranties to fuel cash flows toward high-impact sustainable projects.

Some limitations, such as the fact that our study is restricted to a sample of actively managed European equity mutual funds, call for further research. Extending our empirical investigation to US mutual funds or fixed-income funds would enable a broader generalization of our findings. For instance, such an extension would allow for a comparative analysis of investor behavior across different asset classes and regulatory environments.

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Appendix A. Building a European Equity Mutual Funds Dataset

Our empirical analysis focuses on mutual funds domiciled in Europe, including both open-end funds and exchange-traded funds (ETFs). The data collection and filtering procedure was conducted as follows:

1. Fund universe construction: We began by compiling a comprehensive list of mutual funds available in the Morningstar database, including both open-end and exchange-traded equity funds.

2. Filtering criteria: To ensure consistency and relevance, we applied the following filters:

   - Equity funds only: we retained only funds classified as equity funds (Morningstar Category Group = Equity), excluding other asset classes, such as fixed income or balanced funds;
   - Minimum Fund Size: Funds with assets under management (AUM) below USD 10 million were excluded (Fund Size in USD >= 10,000,000). These very small funds are known to exhibit characteristics that differ significantly from those of larger, more representative funds.
   - Oldest share class selection: To avoid duplicate entries, only the oldest share class of each fund was retained (Oldest Share = TRUE).
   - Geographic focus: Only funds domiciled in Europe were included, in line with the study's focus on the European market (Domicile = All Europe).

3. Extracting data points: To extract the relevant data points, we developed a custom filtering mask and a data extraction model. This framework allowed us to systematically retrieve the variables of interest from the database while ensuring consistency across all observations. The list of data points is reported in Table A.1.

4. Missing data imputation: To address missing values, we applied different imputation methods depending on the nature of the data:

- For categorical variables, missing values at time t were imputed using the corresponding value from time $t-1$, assuming temporal stability in financial and ESG ratings;
- For random financial variables, missing values were imputed using predicted values from a five-factor CAPM regression model. This approach leverages the relationship between fund returns and market factors to estimate plausible values for missing data.

Funds with fewer than 24 monthly return observations were excluded to ensure a sufficient data history for meaningful analysis.

5. The factor data were obtained from Kenneth French's website.

Table A.1: Variable Definitions and Sources

Variable	Symbol	Type	Description
Net fund flows	Flow_{it}	Dependent	Net investor flows, adjusted for asset returns. Computed as $\frac{\text{TNA}_{it}-\text{TNA}_{it-1}(1+R_{it})}{\text{TNA}_{it-1}}$.
Positive past performance (12M)	$\text{Perf}^{12M}_{i,t-1,+}$	Independent	Fund's trailing 12-month performance if positive; equals $\max(\text{Perf}^{12M}_{i,t-1}, 0)$. Represents past gains.
Negative past performance (12M)	$\text{Perf}^{12M}_{i,t-1,-}$	Independent	Fund's trailing 12-month performance if negative; equals $\min(\text{Perf}^{12M}_{i,t-1}, 0)$. Represents past losses.
ESG fund dummy	D_i^{ESG}	Independent	Equals 1 if the fund is classified as ESG, 0 otherwise.
Impact fund dummy	D_i^{Imp}	Independent	Equals 1 if the fund is classified as Impact, 0 otherwise.
Performance interactions (ESG)	$\text{Perf}^{12M}_{i,t-1,+} \times D_i^{\text{ESG}}$, $\text{Perf}^{12M}_{i,t-1,-} \times D_i^{\text{ESG}}$	Interaction	Capture ESG funds' sensitivity to past positive and negative performance.
Performance interactions (Impact)	$\text{Perf}^{12M}_{i,t-1,+} \times D_i^{\text{Imp}}$, $\text{Perf}^{12M}_{i,t-1,-} \times D_i^{\text{Imp}}$	Interaction	Capture Impact funds' sensitivity to past positive and negative performance relative to ESG.
Lagged controls	$X_{i,t-1}$	Control vector	Includes lagged fund characteristics: log(TNA), log(Age), and volatility.
Morningstar Rating	$\text{MSRating}_{i,t-1}$	Control	Overall Morningstar star rating, ranging from 1 to 5, reflecting past risk-adjusted returns relative to category peers.
Morningstar ESG Risk Rating	$\text{ESGScore}_{i,t-1}$	Control	Morningstar's ESG Risk Rating, where lower values indicate lower unmanaged ESG risk exposure.
Lagged flow	$\text{Flow}_{i,t-1}$	Control	Captures persistence in investor flows.
Morningstar category FE	μ_i	Fixed effect	Controls for time-invariant differences across Morningstar fund categories.
Time fixed effects	λ_t	Fixed effect	Controls for common time shocks affecting all funds (e.g., macro or market-wide effects).
Error term	ϵ_{it}	Residual	Idiosyncratic component capturing unexplained variation in flows.

Appendix B.

Our classification method for ESG and impact mutual funds is based on the dictionary approach proposed by Nofsinger and Varma (2014) and extended by Candelon et al. (2021). Specifically, we identify ESG and impact funds through a keyword search of mutual fund names using a dictionary of ESG- and impact-related terms. This approach is grounded in recent literature showing that fund names are important determinants of investor demand (El Ghoul and Karoui, 2021; Gibbon et al., 2025). Moreover, regulatory institutions have reported that fund names are significant drivers of fund flows (ESMA, 2023, 2025). We take this a step further by constructing a dictionary of keywords on the basis of ESMA (2024) guidelines for fund naming. The advantage of this approach is that it relies on the European regulatory framework, which is widely recognized and used as a benchmark across Europe.

Our dictionary covers ten European languages (English, French, German, Spanish, Italian, Dutch, Swedish, Danish, Norwegian, and Portuguese). For each language, sustainability-related terms were translated and verified for semantic equivalence, ensuring that the same conceptual criteria were applied across jurisdictions. The ESG category includes terms associated with environmental themes, social responsibility, ethical or religious orientation, climate-related concepts, and governance. In contrast, the impact category is deliberately narrow and restricted to the linguistic root ”impact” and its common variants (e.g., *impacto*, *impatto*). This choice reflects the specific meaning of "impact" in sustainable finance, where the term refers to intentional, measurable real-world outcomes rather than broad ESG alignment.

Funds are classified as ESG when their name or description contains at least one ESG keyword and as impact when they contain the impact root. All remaining funds are treated as traditional funds. In our robustness analysis, we introduce a stricter definition of impact funds by intersecting name-based identification with regulatory status: only funds that (i) include the ”impact” keyword in their name and description and (ii) are formally disclosed as SFDR Article 9 are retained as impact funds. ESG funds in this robust version correspond

to Article 8. This intersection ensures coherence between linguistic cues and regulatory commitments and mitigates the risk of false positives arising from marketing language alone.

Keyword detection is performed using case-insensitive exact and partial matching, with manual review to reduce spurious classifications. The complete multilingual dictionary, detailing all ESG and impact keywords by language, is presented in Table B.1. It serves as the foundation for the name-based sustainable fund classification used in the main empirical analysis and robustness checks.

Table B.1: Keyword Dictionary for ESG and Impact Funds

Category	Language	Keywords
ESG	English	solidarity, responsible, Islam, Lutheran, mission, moral, peace, philosophy, religion, human rights, faith, ethical, community, Christian, Catholic, Baptist, blue, biodiversity, circular, net zero, cleantech, decarbonisation, decarbonization, CO2, inclusive, ecology, education, planet, global warming, SDG, wellbeing, values, save earth, transition, improve, progress, evolution, transformation, green, environmental, climate, ESG, SRI, social, equality, governance, controversies, sustain
ESG	French	solidarité, responsable, islam, luthérien, mission, morale, paix, philosophie, religion, droits humains, foi, éthique, communauté, chrétien, catholique, baptiste, bleu, biodiversité, circulaire, zéro net, cleantech, décarbonisation, décarbonisation, CO_2, inclusif, écologie, éducation, planète, réchauffement climatique, ODD, bien-être, valeurs, sauver la terre, transition, améliorer, progrè s, évolution, transformation, vert, environnemental, climat, ESG, ISR, social, égalité, gouvernance, controverses, durable
ESG	German	Solidarität, verantwortlich, Islam, lutherisch, Mission, Moral, Frieden, Philosophie, Religion, Menschenrechte, Glaube, ethisch, Gemeinschaft, christlich, katholisch, Baptist, blau, Biodiversität, zirkulär, Netto-Null, Cleantech, Dekarbonisierung, Dekarbonisierung, CO, inklusiv, Ökologie, Bildung, Planet, globale Erwärmung, SDG, Wohlbefinden, Werte, Erde retten, Übergang, Verbesserung, Fortschritt, Evolution, Transformation, grün, umweltbezogen, Klima, ESG, SRI, sozial, Gleichheit, Governance, Kontroversen, nachhaltig
ESG	Spanish	solidaridad, responsable, islam, luterano, misión, moral, paz, filosofía, religión, derechos humanos, fe, ético, comunidad, cristiano, católico, bautista, azul, biodiversidad, circular, cero neto, cleantech, descarbonización, descarbonización, CO_2, inclusivo, ecología, educació n, planeta, calentamiento global, ODS, bienestar, valores, salvar la tierra, transición, mejorar, progreso, evolución, transformación, verde, ambiental, clima, ESG, SRI, social, igualdad, gobernanza, controversias, sostenible
ESG	Italian	solidarietà, responsabile, islam, luterano, missione, morale, pace, filosofia, religione, diritti umani, fede, etico, comunità, cristiano, cattolico, battista, blu, biodiversità, circolare, zero netto, cleantech, decarbonizzazione, decarbonizzazione, CO_2, inclusivo, ecologia, educazione, pianeta, riscaldamento globale, SDG, benessere, valori, salvare la terra, transizione, migliorare, progresso, evoluzione, trasformazione, verde, ambientale, clima, ESG, SRI, sociale, uguaglianza, governance, controversie, sostenibile
ESG	Dutch	solidariteit, verantwoordelijk, islam, luthers, missie, moraal, vrede, filosofie, religie, mensenrechten, geloof, ethisch, gemeenschap, christen, katholiek, baptist, blauw, biodiversiteit, circulair, netto nul, cleantech, decarbonisatie, decarbonisatie, CO_2, inclusief, ecologie, onderwijs, planeet, wereldwijde opwarming, SDG, welzijn, waarden, red de aarde, transitie, verbeteren, vooruitgang, evolutie, transformatie, groen, milieu, klimaat, ESG, SRI, sociaal, gelijkheid, governance, controverses, duurzaam
ESG	Swedish	solidaritet, ansvarstagande, islam, luthersk, mission, moral, fred, filosofi, religion, mänskliga rättigheter, tro, etisk, gemenskap, kristen, katolsk, baptist, blå, biologisk mångfald, cirkulär, nettonoll, cleantech, dekarbonisering, dekarbonisering, CO_2, inkluderande, ekologi, utbildning, planet, global uppvärmning, SDG, välbefinnande, värderingar, rädda jorden, återg, föbättra, framsteg, evolution, transformation, grön, miljö, klimat, ESG, SRI, social, jämlikhet, styrning, kontroverser, hållbar
ESG	Danish	solidaritet, ansvarlig, islam, luthersk, mission, moral, fred, filosofi, religion, menneskerettigheder, tro, etisk, fællesskab, kristen, katolsk, baptist, blå, biodiversitet, cirkulær, netto nul, cleantech, dekarbonisering, dekarbonisering, CO_2, inkluderende, økologi, uddannelse, planet, global opvarmning, SDG, velv, værdier, red jorden, overgang, forbedre, fremskridt, evolution, transformation, grøn, miljø, klima, ESG, SRI, social, lighed, governance, kontroverser, bæredygtig
ESG	Norwegian	solidaritet, ansvarlig, islam, luthersk, misjon, moral, fred, filosofi, religion, menneskerettigheter, tro, etisk, fellesskap, kristen, katolsk, baptist, blå, biologisk mangfold, sirkulær, netto null, cleantech, avkarbonisering, avkarbonisering, CO_2, inkluderende, økologi, utdanning, planet, global oppvarming, SDG, velvære, verdier, redde jorden, overgang, forbedre, fremgang, evolusjon, transformasjon, grøn, miljø, klima, ESG, SRI, sosial, likhet, styring, kontroverser, bærekraftig
ESG	Portuguese	solidariedade, responsável, islão, luterano, missão, moral, paz, filosofia, religião, direitos humanos, fé, ético, comunidade, cristão, católico, batista, azul, biodiversidade, circular, carbono neutro, cleantech, descarbonização, descarbonização, CO_2, inclusivo, ecologia, educação, planeta, aquecimento global, ODS, bem-estar, valores, salvar a terra, transição, melhorar, progresso, evolução, transformação, verde, ambiental, clima, ESG, SRI, social, igualdade, governança, controvérsias, sustentável
Impact	All languages	impact; (also common variants: impacto [ES, PT], impatto [IT])