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Investor behavior and the demand for conventional and socially responsible mutual funds

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Abstract

This study analyzes the demand for conventional and socially responsible (SR) mutual funds using cash flow data from a large sample of U.S. equity funds. For both types of funds, previous results have a positive impact on inflows. However, redemptions' behavior differs. Outflows correlate negatively with past results in conventional portfolios, whereas this relationship is positive for SR funds: investors are more likely to redeem shares in the best-performing funds while holding funds that performed poorly. This behavior is compatible with a disposition effect in SR funds. These results hold even after controlling for other variables driving mutual fund demand. Hence, inflows and outflows of conventional funds were found to be positively related to past idiosyncratic risk, expenses and turnover, but negatively related to size and age. For SR funds, these relationships are stronger for size and idiosyncratic risk, and take the opposite sign for age, expenses and turnover.

KEYWORDS
investor behavior, mutual fund, socially responsible

JEL CLASSIFICATION
G23; G11; G41

1 | INTRODUCTION

In recent years, the concept of corporate social responsibility (CSR) has become firmly associated with sustainable development in modern business practices. Many companies now embed blended initiatives in their strategies in response to environmental demands and social concerns, while at the same time pursuing economic goals. The huge opportunities sustainable businesses offer to build a better tomorrow are attracting increasing attention from practitioners and scholars. There is now an extensive body of literature addressing the reasons why sustainability engagement is broadly persistent in the business context. According to Fourati and Dammak (2021), CSR has a significant and positive impact on corporate reputation, which in turn, has a significant and positive influence on corporate financial performance. Hejase et al. (2012) explore the multiple benefits of CSR for organizational performance, highlighting enhanced business risk management and improved competitiveness, together with higher operational efficiency and cost saving. Along the same lines, Lu et al. (2021) identify the positive economic aspects of CSR for companies' financial prosperity, including company image, leveraging brand equity, flattening stock volatility and boosting long-term profitability. Barauskaite and Streimikiene (2021) provide an in-depth review of CSR and its links with financial performance.

Therefore, a growing number of organizations are aligning their CSR strategies with the United Nations' sustainable development

goals. Management processes are prioritizing responsibility for long-term sustainable operations and stronger relationships with society while protecting the environment to meet those challenges. There is also an unmistakable connection between the CSR dimension and the long-term sustainable growth of society. More broadly, and by extension, sustainable business operations have become a cornerstone of economic growth and play a central role in the development of the market. Thus, an examination of the real effect of sustainable investments is crucial to our understanding of the dramatic changes that have taken place in the alignment of the financial markets with the idea of sustainable development and CSR.

While previous studies in the literature have largely attributed importance to the relevance of shareholder activism and corporate governance (Chen et al., 2020; Dyck et al., 2019; Jain & Jamali, 2016), a very recent research stream is focusing on the role of mutual funds in CSR outcomes (Li et al., 2020; Muñoz, 2020; Qi et al., 2020; Rankin, 2020). Yet the specific effect of actively managed funds on corporate social performance has received very little research attention, and the debate on the relationship between corporate social performance and management practices is ongoing. Luo et al. (2015) examine the critical role managers play when making recommendations to investors, since they act as mediators between corporate social performance and corporate financial performance. Su et al. (2016) find a positive connection between CSR practices and financial performance. However, Cennamo et al. (2009) point to some negative connotations and agency costs that arise when managers pursue CSR with the aim of furthering their personal interests (such as reputation or good public image) rather than prioritizing shareholders' interests. On the link between CSR and mutual fund management, Li et al. (2020) provide a summary of the literature and give reasons for investigating the influence of actively managed mutual funds on the CSR outcomes of the firms they invest in. First, actively managed funds predominate in the framework of socially responsible assets and this growing tendency is expected to continue in forthcoming years. Second, these funds may give investors a direct right to participate in the policies of the companies held in the portfolio.

Recently, socially responsible (SR) mutual funds have experienced considerable growth in terms of assets under management, becoming a popular alternative to conventional portfolios because they allow investors to align ethical and financial objectives through screening policies based on environmental, social or governance indicators (Benson et al., 2006; Qi et al., 2020). As van Dijk-de Groot and Nijhof (2015) point out, the objective of most studies on SR funds is to analyze their performance in comparison to conventional funds; in general, no substantial performance differences are uncovered between the two fund types (Aslaksen & Synnestvedt, 2003; Renneboog et al., 2008; Statman, 2000). Other studies (e.g., Pereira et al., 2019; Yen et al., 2019) examine the performance of socially responsible portfolios in relation to their corporate social responsibility ratings. Also, Chen and Scholtens (2018) show that actively and passively managed socially responsible funds do not experience statistically significant differences in their risk-adjusted returns.

A large body of literature has examined the demand for mutual funds and investor behavior through the analysis of mutual fund cash flows. Notable early studies in this field include Chevalier and Ellison (1997) and Sirri and Tufano (1998). Both these studies find a positive relationship between cash flows and past fund performance. This flow-performance relationship is more relevant in analyses of the best-performing mutual funds (Sirri & Tufano, 1998). Also, the risk borne in the fund portfolio is shown to have an explanatory effect on investors' subsequent cash flows. In this vein, Andreu et al. (2012) indicate that the funds with the highest risk tend to have lower cash flows and lower outflows. Other studies analyze the influence of fees and expenses as determinants of cash flows, providing varied empirical evidence. Barber et al. (2005) state that the arguments are insufficient to establish a negative relationship between flows and expenses, although they conclude that investors attempt to avoid fees. Huang et al. (2007) state that costs matter to investors when implementing their allocation decisions among funds, as they associate them with different ranges of the fund's performance level.

In this context, it is worth noting that investors' behavior and flow decisions might not be exclusively driven by financial goals. Previous literature suggests that other motivational reasons can influence their reaction to previous returns (Rubaltelli et al., 2015). These non-financial attributes include personal values (Pasewark & Riley, 2010), moral considerations (Hofmann et al., 2007), and environmental and social issues (Jansson & Biel, 2011), among other factors. Jacobs et al. (2020) show how consumer preferences are strongly impacted by sustainability. Related with financial products, several studies have found differences in investor behavior between conventional and SR investments (McLachlan & Gardner, 2004; Webley et al., 2001). Hence, socially responsible investors care not only about the expected financial return and risk that they obtain from their investments, but also about the source of this performance (Cowton, 2018).

Fewer studies have analyzed investors' behavior in SR funds, however. Bollen (2007) shows that SR funds significantly experience lower monthly cash flow volatility than conventional portfolios, and their investors are less sensitive to unfavorable results. This is in line with investors deriving their utility not only from financial returns. Similarly, Benson and Humphrey (2008) and Renneboog et al. (2011) suggest that the flows in SR funds are less sensitive to performance than conventional funds. Recently, El Ghoul and Karoui (2017) have also posited that investors' response is lower when performance is taken into account as the key variable; specifically, for funds with a high SR investment component, investors seem to be more reluctant to change their investment strategy even when the funds perform less well. Taken together, this evidence underscores the importance of SR attributes to mutual fund investors' decisions, suggesting that investors could show a greater propensity to keep their investments in the worst-performing SR funds while reacting more to and realizing gains from best-performing portfolios. van Dooren and Galema (2018) link this result to a behavioral bias known as the disposition effect.

Barberis and Xiong (2012, p. 252) define the disposition effect as 'the greater propensity of individual investors to sell stocks that have risen in value, rather than fallen in value, since purchase'. Realized gains and losses can drive investors' decisions, and selling their assets at higher prices than those they paid for their acquisition would

provide investors with positive investing episodes in their portfolios. The disposition effect is considered to be a bias[1] within the scope of behavioral finance, implying an investor's predisposition to sell winners too early and hold losers too long in their portfolios (Baker & Nofsinger, 2002). In the framework of prospect theory (Kahneman & Tversky, 1979), Shefrin and Statman (1985) propose the following elements as conditioners of the disposition effect: mental accounting, regret aversion, and self-control. However, Barberis and Xiong (2009), Hens and Vlcek (2011), and Meng and Weng (2018), among others, question the universality of prospect theory as an explanatory element, arguing that it can only explain the appearance of the disposition effect in some cases and not in all circumstances.

Previous studies have suggested that the relevance of the disposition effect could depend on the type of investor. Frydman and Camerer (2016), Richards et al. (2018), Duxbury et al. (2020), among others, provide a broad range of insights into investors' performance by linking their financial decisions to a diverse spectrum of motives from psychology and aspects of neuroscience, some of which place emphasis on the role of emotions. Other approaches identify education (Talpsepp & Vaarmets, 2019; Vaarmets et al., 2019) and social interactions (Heimer, 2016; Rau, 2015) as key factors to support the disposition effect. In contrast, research interest in the presence of the disposition effect among fund investors has been less forthcoming. This is particularly the case if the fund participants' individual investment decisions are not observable; thus, investors' behavior and their propensity to the disposition effect can be analyzed on aggregate by examining their cash flows into and out of the fund portfolio (Lee et al., 2013). Also, Andreu et al. (2012) use aggregate cash flows to analyze mutual fund investor behavior.

Therefore, given the previous evidence in the literature, our objective is to compare the demand for a large sample of U.S. conventional and SR mutual funds using investors' cash flows as an analytical tool. This will enable us to examine the behavior of investors in these two types of mutual funds, as well as to assess the bias of the disposition effect in each of them. We have not found many studies that analyze the interaction between the disposition effect and SR investment. One example is the article by van Dooren and Galema (2018), although these authors used a different methodology and considered individual investors' brokerage data instead of mutual fund cash flows, finding that socially responsible investors display a greater disposition effect than conventional investors. We are aware that individual investor reports favor the direct measurement of the disposition effect, but these data are less accessible than mutual fund aggregate cash flows because individual reports are often only available for small samples in some markets and for short periods of time. We think that both types of data can be useful and not exclusive but complementary for analyzing investor behavior. In fact, van Dooren and Galema (2018), who use individual reports, compare their results with Bollen (2007), who uses aggregate mutual fund cash flows.

The study examines the effect of different variables on the demand for mutual funds, analyzing fund inflows and outflows both jointly and separately. As pointed out above, and in line with previous literature, some relevant variables are past returns and past abnormal performance; an analysis of their results will show whether the disposition effect is present. However, we contribute to the literature considering other variables that, as well as acting as control variables, are useful to analyze the differences in the behavior of investors in SR and conventional funds. In addition to common mutual fund variables such as size, age, expenses and turnover, we consider two measures of uncertainty: the total risk and the level of idiosyncratic risk. Both are interesting because the investor's behavior also depends on the characteristics of the fund's risk. Thus, SR funds are characterized by selecting SR assets, which restricts their investment universe (Jin & Han, 2018). This implies a higher level of idiosyncratic risk than that of a broad market portfolio. We explore the possibility that this variable may lead to different investor behavior.

Additionally, this study explores the impact of a significant event affecting the economic and financial context, namely, the recent global financial crisis. Nofsinger and Varma (2014) postulate that SR funds outperform their conventional counterparts in crisis periods, indeed, while in economic growth stages they perform less well. Bialkowski and Starks (2016) find that the cash flows into and out of U.S. SR funds are not necessarily related to significant changes in the financial market or the investment industry, such as the recent global financial crisis, and argue that SR funds have a positive net flow mainly because they receive preferential treatment from investors in difficult times.

In line with the previous literature, our results suggest, first, a positive relationship between past results and future cash inflows in both SR and conventional funds. That is, investors behave and invest similarly in both types of investment vehicles, and are more likely to decide to invest in funds with better past results. Regarding fund disinvestment decisions in conventional funds, results show that fund outflows are negatively correlated with previous fund performance. That is, funds achieving lower returns experience greater levels of redemptions by investors. This is in line with Chang et al. (2016), and consistent with a strategy based on financial goals.

In contrast, for SR funds we find a positive relationship between investors' outflows and the fund's previous results, especially among the previous best-performing portfolios. Hence, investors in socially responsible funds are prone to sell their shares in the best-performing funds while holding their investments in funds that performed less well than their peers. These results are therefore compatible with the disposition effect among socially responsible fund investors. This evidence is in line with previous studies, such as that of van Dooren and Galema (2018), although these authors analyzed direct investment in the stock market, considering firms with different SR levels, rather than investment in conventional or SR mutual funds, as in our case.

Finally, we should note that investors' decisions are not only driven by performance results, but also by other fund characteristics. Nonetheless, and after considering these characteristics in the analysis, the aforementioned flow-performance relationship remains, as does the evidence on the relevance of the disposition effect among investors in socially responsible mutual funds.

In sum, this study contributes to the literature in several ways. First, it shows that socially responsible and conventional funds

experience similar levels of cash inflows in relation to previous results achieved in their portfolios. The inflow-performance relationship is shown to be positive, and stronger among the best-performing funds. Nevertheless, fund investors' redemptions correlate differently with previous performance in SR and conventional portfolios. While worse results in conventional funds mainly imply higher levels of subsequent outflows, we find a positive outflow-performance relationship among SR fund investors. This conclusion remains when different sub-periods are considered, and even after controlling for other fund characteristics that could drive these flow-performance interactions. Therefore, our results evidence the prevalence of the disposition effect among SR fund investors, and imply that investors are prone to disinvest in the previous best SR funds while maintaining their shares in SR funds that performed less well than their peers. Finally, the study also presents novel evidence on the relationship between cash flows and other variables, as well as differences in the demand for SR and conventional funds. Thus, in general, inflows and outflows for conventional funds are positively related to idiosyncratic risk, expenses and turnover, and negatively related to size and age. Moreover outflows are positively related to total risk. In comparison, these relationships for SR funds are stronger for size and idiosyncratic risk and take the opposite sign for age, expenses and turnover.

The remainder of this article is organized as follows. The data and methodology used in the analysis are addressed in Section 2. Section 3 presents the main results of the analyses. Finally, the most relevant conclusions of the study are discussed.

2 | DATA AND METHODOLOGY

This study analyzes 17,773 U.S. domestic equity share-class mutual funds, comprising 438 SR and 17,335 conventional share-class funds. The share-class funds identified as having the same investment portfolio are aggregated into one fund, yielding 160 SR funds and 5094 conventional funds. We then remove from the sample all the observations related to funds with less than 15 million dollars under management and funds with less than 2 years since inception in order to avoid upward-biased returns (e.g., Chen et al., 2004; Elton et al., 1996) and potential incubation issues (Evans, 2010). Additionally, and with the aim of ensuring the consistency of our results, we require each fund included in the sample to present data for at least 24 consecutive months. The final sample is free of survivorship bias and comprises 92 SR and 2312 conventional funds.

The sample period analyzed ran from June 1999 to September 2016. To add robustness and detect any time differences, the analysis was repeated for two sub-periods. The first corresponds to the pre-crisis period from 1999 to 2007, and the second covers the post-crisis context between 2008 and 2016. The following information was obtained from the Morningstar Direct database for each fund: net monthly return, cash inflows, cash outflows, net cash flow, net asset value, inception date, expense ratio and turnover ratio. Additionally, data on funds' daily returns were obtained from Morningstar to estimate monthly risk-adjusted returns.

The study variables were developed from this information. The endogenous variables are: the inflow ratio, $Inflow_{i,t}$, defined as the ratio between the cash entries in month t and the net asset value at the end of the previous month $t-1$. Similarly, the variable $Outflow_{i,t}$ is defined for the cash outflows, and the variable $Netflow_{i,t}$ for the net cash flows. Turning to the exogenous variables, the main explanatory factor is the previous financial results of the funds. We use two variables to measure these results. The first is related to the past return of the fund; although past returns are no guarantee of future yields, given the wide range of funds available investors commonly use past returns as a selection criterion. Thus, the variable $Rank_{i,t}$ is defined as the percentile rank of fund i's return for month t. The second variable is the fund's performance or the value added by the fund manager, measured as the constant or *alpha* ($\alpha_{i,t}$) from model (1). This is the abnormal return of fund i estimated in month t through the CAPM model, where $r_{i,t,h}$ is the excess return of the mutual fund over the risk free return during day h; $r_{m,t,h}$ is the excess market return for the same period, and $\varepsilon_{i,t,h}$ is the error term. Market return and the data for the risk free asset, the 1-month Treasury bill rate, are obtained from Kenneth French's website.[2]

$$r_{i,t,h} = \alpha_{i,t} + \beta_{i,t} r_{m,t,h} + \varepsilon_{i,t,h} \quad (1)$$

This performance measure was applied for the first time by Jensen (1968) and has since been widely used in the literature on investment fund evaluation. Subsequent literature has extended this measure by, for example, developing multifactor models. However, the main objective of the present study is not simply to evaluate the results of the funds but to analyze investors' behavior in the relationship between their cash flows and the funds' previous results. In this regard, it should be remembered that information on returns is more direct, familiar and easy for ordinary investors to interpret than performance data. For this reason, rather than over-extending our analysis we adopt just one of the most widely used performance measures: Jensen's alpha. From this data, we define the variable $Alpharank_{i,t}$, as the percentile rank of fund i's alpha for month t within the set of funds.

In what follows, we define the rest of the explanatory variables introduced to control for other factors or characteristics of the funds. First, the variable $Risk_{i,t}$ is the risk of the fund, measured as the standard deviation of the daily returns in month t. The variable $Idiosyncratic_{i,t}$ is the level of the idiosyncratic risk measured as $1 - R^2$ from model (1) in month t also using daily returns. The variable $Size_{i,t-1}$ is the fund's net asset value, in millions of dollars. The age of the fund is measured as the number of months since the fund inception date, $Age_{i,t-1}$. The variable $Expenses_{i,t-1}$ is the percentage of fund expenses of net asset value. The variable $Turnover_{i,t-1}$ measures the turnover of the fund's portfolio.

Table 1 presents some descriptive statistics of the sample. Specifically, Panel A displays the mean, the median and the standard deviation for each variable related to the average SR and conventional funds during the whole sample period. Similarly, Panel B and Panel C present the same statistics for each fund characteristic during the first (1999–2007) and the second (2008–2016) sub-periods, respectively.

TABLE 1 Descriptive statistics of the sample

	SR funds			Conventional funds		
	Mean	Median	*SD*	Mean	Median	*SD*
Panel A. Period 1999–2016						
Inflow (%)	3.914	3.411	2.169	4.660	3.887	2.306
Outflow (%)	2.849	2.341	1.875	4.887	3.461	5.188
Netflow (%)	1.065	0.958	2.002	−0.227	0.358	3.997
Return (%, annualized)	6.889	10.296	15.752	7.723	12.985	16.000
Alpha (%, annualized)	−0.752	−1.473	0.506	−0.128	−0.043	0.653
Risk (%, annualized)	17.955	15.635	2.507	18.673	15.988	2.579
Expenses (%)	1.244	1.209	0.162	1.208	1.216	0.075
Turnover (%)	57.843	60.200	8.108	76.972	77.112	10.004
Size ($million)	1649.555	1659.913	460.389	1883.027	1765.501	476.172
Age (months)	151.633	145.841	17.723	167.535	159.319	25.704
Panel B. Period 1999–2007						
Inflow (%)	3.951	3.606	1.446	5.005	4.938	1.592
Outflow (%)	2.694	2.291	1.323	4.363	3.634	4.684
Netflow (%)	1.258	1.219	1.430	0.642	1.029	3.851
Return (%, annualized)	6.261	9.946	14.486	7.768	12.985	14.676
Alpha (%, annualized)	0.478	0.201	0.574	1.946	1.993	0.748
Risk (%, annualized)	16.996	15.836	1.764	17.880	15.973	1.861
Expenses (%)	1.376	1.363	0.120	1.272	1.278	0.028
Turnover (%)	60.949	61.106	6.092	82.383	81.775	6.440
Size ($million)	2008.989	2035.929	286.632	1802.170	1737.524	344.770
Age (months)	140.876	141.415	7.389	145.570	142.862	6.037
Panel C. Period 2008–2016						
Inflow (%)	3.879	3.129	2.689	4.330	3.377	2.793
Outflow (%)	2.998	2.394	2.278	5.386	3.382	5.604
Netflow (%)	0.881	0.678	2.419	−1.055	−0.201	3.974
Return (%, annualized)	7.488	12.817	16.938	7.680	13.591	17.237
Alpha (%, annualized)	−1.925	−2.017	0.419	−2.107	−1.759	0.522
Risk (%, annualized)	18.860	15.324	3.038	19.378	16.071	3.081
Expenses (%)	1.118	1.137	0.070	1.148	1.150	0.050
Turnover (%)	54.880	54.660	8.688	71.813	67.574	10.091
Size ($million)	1306.761	1277.633	307.740	1960.141	1767.094	565.151
Age (months)	161.891	161.562	18.622	188.483	188.104	18.831

Regarding the main period, SR funds experienced lower percentages of inflows (3.914%) and outflows (2.849%) than conventional funds (4.660% and 4.887%, respectively). However, net cash flows in SR funds were, on aggregate, slightly greater (1.065%) than in their conventional counterparts (−0.227%). Also note that the median is lower than the mean in most of the cases, indicating that the distribution of flows is biased to the right; that is, the mean is driven by some SR and conventional funds that have monopolized important cash flows related to their net asset value.

Separating the sample into two sub-periods leads to some interesting conclusions. First, net cash flows in the pre-crisis stage were markedly higher than in the post-crisis period. In relation to the demand for SR funds, the overall net cash flows fell from 1.258% during the sub-period 1999–2007 (Panel B) to 0.881% during the sub-period 2008–2016 (Panel C). More notable, however, was the reduction in the conventional funds' net flows, decreasing from 0.642% to −1.055%. This decrease could be related to the lower mutual fund performances in the latter sub-period. That is, while the average alpha obtained by SR funds fell from 0.478% in the first sub-period to −1.925% after the recent financial crisis, conventional funds experienced an overall worsening of 4.053% over the sample period (from 1.946% to −2.107%), in terms of risk-adjusted returns.

3 | RESULTS

3.1 | Initial analysis of fund cash flows

This section provides a preliminary analysis of the relationship between the flows of the funds and some of their characteristics.[3] We first examine whether investors' flows are related to the past results of the funds. In practice, the most widely disseminated information about a fund's performance is its past return. This information is used to produce rankings that investors can consult easily. In addition to past returns, the financial media increasingly disseminates information about funds' performance, which can therefore also be a determining factor in fund selection. For each fund, we estimated the monthly alpha using daily fund returns in model (1).

To analyze the relationship between flows and past performance, we group the funds in deciles for each period according to their performance in the previous month. Thus, decile 1 (10) groups the funds with the worst (best) previous return or alpha in each period. The values of the variables $Inflow_{i,t}$, $Outflow_{i,t}$, and $Netflow_{i,t}$, are then calculated for each fund i in each month t; that is, in each case the cash flow is computed relative to the net asset value, $t-1$, of the previous period. The average of these variables is then calculated for each month and for each decile of funds. Finally, the mean of these averages is estimated throughout the sample period. The results for the relation between investors' flows and previous fund returns and alphas are presented in Figure 1a,b.

Figure 1a provides relevant information on the relationship between cash flows and the past return of funds. In relation to net cash flows of SR and conventional funds, first, their average values are positive in most of the cases, indicating that in general terms cash inflows were greater than outflows. This is consistent with the significant growth of the mutual fund industry during the last decades. Second, funds' net cash flows increase, on average, from the worst to the best past return. For instance, for conventional funds, those portfolios with the worst returns in the previous period (funds in decile 1) experience the lowest percentage of subsequent net cash flows (−2.61%). Conversely, the previous best funds attract the greatest ratio of investors' net flows in the following period (1.74% for decile 10). This evidence is also found in regarding the relationship between cash flows and previous fund alphas (Figure 1b). Therefore, the greater the previous performance of the fund, the greater its capacity to attract investors' money, in net and aggregate terms.

A similar trend in the behavior of net cash flows is observed for SR funds. However, it should be noted that the net balance for the worst SR funds is not negative; that is, investors in SR funds seem not to be as sensitive when disinvesting or not investing in the funds with the worst results, compared to investors in conventional funds. From a theoretical perspective, one could expect differentiated investor behavior in response to the performance of the fund, in that they would invest in the best-performing funds and disinvest in those with worse results. However, this behavior is not observed in socially responsible portfolios; although there is some asymmetry because a SR fund that performs better also attracts more money, it does not experience negative average net cash flows when it achieves worse results.

Figure 1 also shows the relation between previous performance and subsequent inflows and outflows in SR and conventional funds. In general, inflows are greater than outflows, producing, as mentioned above, a positive overall balance in the net flow. Money inflows are observed to increase as previous performance increases, especially among the funds with the previous highest returns. For instance, and regarding Figure 1a, the average percentage of investors' inflows in SR funds increases from 3.49% (decile 8) to 6.52% (decile 10). Despite following a similar trend, the increase in the percentage of inflows in relation to the same deciles of conventional funds is much smaller (from 4.06% to 5.65%, respectively). Hence, as the funds' results improve they attract a greater inflow of money, and this sensitivity is especially relevant for the best funds. At the other end of the scale, despite their poor results, funds located in the last deciles still attract investors' money. In addition, the certain convexity observed is motivated by the fact that even in the worst decile of funds money inflows are slightly higher than those in adjacent deciles, especially in the case of SR funds. This result may be driven by investors who do not assume that past returns imply future returns (which would in some way imply a randomly uniform distribution of money among the wide range of investment funds) or who even follow a contrarian strategy, assuming that loser funds can be future winners.

Finally, Figure 1 also shows the behavior of cash outflows based on the previous results of the fund. If we theoretically admit investor behavior dependent on the fund's past returns, we would rationally expect those funds with worse (better) results to show higher (lower) outflows. Accordingly, Figure 1 shows that the previous worst funds experience the greatest levels of outflows, both in SR (3.95%, in regarding Figure 1a) and conventional (7.17%) portfolios. Nevertheless, the expected pattern is not found among funds achieving the highest performance in the past. In fact, the average ratio of investors' outflows among the previous best funds, instead of falling actually rises as higher deciles are considered. This behavior, compatible with the disposition effect, is more evident in the sample of SR funds (the second highest ratio of outflows, 3.65%, relates to the funds belonging to decile 10 in Figure 1a).

3.2 | Regression analysis of fund cash flows

We now apply a multivariate regression model to analyze the relationship between cash flows and the past results and other mutual fund variables. To save space, we only show the most complete and robust results. We propose a model that: (i) includes interaction variables in order to analyze the differences between conventional and SR mutual funds in the same regression, and (ii) includes control variables with explanatory power on the cash flows.[4]

3.2.1 | Past returns and cash flows

As in the previous sections, the cash flows studied correspond to the inflows, $Inflow_{i,t}$, outflows or redemptions, $Outflow_{i,t}$ and the net flow,

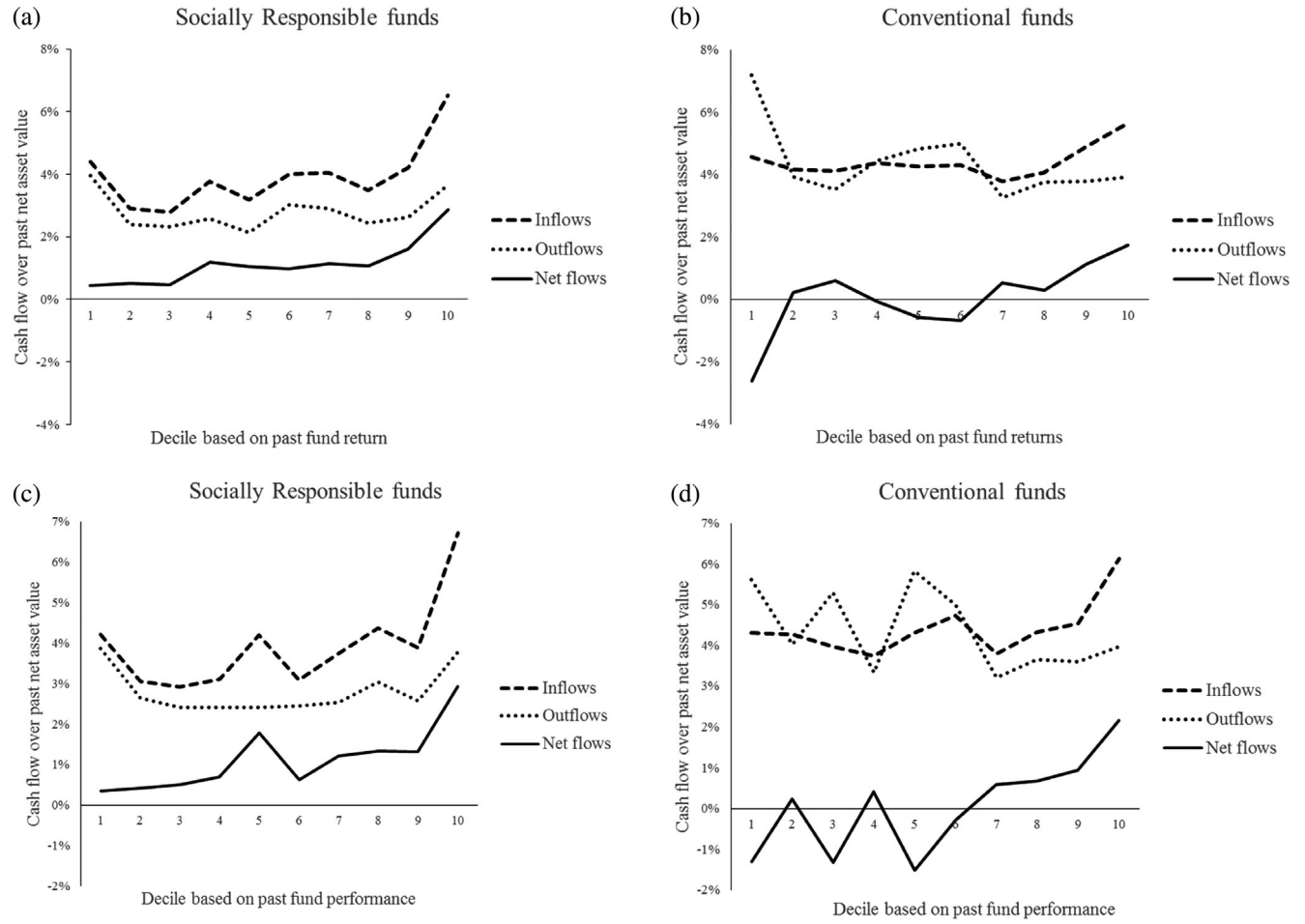

FIGURE 1 Cash flows and previous returns. This figure shows the relationship between cash flows and past performance during the period 1999–2016. The funds are grouped in deciles for each period according to their return (a) or performance (b) in the previous month. Thus, decile 1 (10) groups the funds with the previous worst (best) performance. For each fund and month, we calculate cash inflows ($Inflow_{i,t}$), cash outflows ($Outflow_{i,t}$), and net flows ($Netflow_{i,t}$), in relation to the fund's net asset value in the previous period. The average of these variables is calculated for each decile of funds and for each month. The vertical axis represents the average of these means over the sample period

$Netflow_{i,t}$ for each fund i in each month t, computed in relative terms as the ratio of the cash flow to the fund's net asset value in the previous period, $t - 1$. Following Cashman et al.'s (2012) recommendation, we eliminated from the sample observations exceeding 70% of the fund's net asset value in order to avoid potential data errors. Explanatory variables refer to several measures describing the previous fund performance and other fund characteristics. More specifically, we include the percentile (from 0 to 1) each fund belongs to, sorting on previous net returns, $Rank_{i,t-1}$. We also include a dummy variable, *SR fund*$_i$, that equals 1 if the observation relates to a SR fund (0, otherwise). These two variables are interacted in order to observe any difference between the sensitivity of cash flows to the previous return in SR and conventional portfolios. Other control variables are also considered in the model to avoid biased results. Those variables are the natural logarithm of the net asset value, $Logsize_{i,t-1}$; the natural logarithm of the fund's age, $Logage_{i,t-1}$; the annualized risk measured through the standard deviation of daily returns, $Risk_{i,t-1}$; the level of the idiosyncratic risk measured as $1 - R^2$ from Model (1), $Idiosyncratic_{i,t}$; the net expense ratio, $Expenses_{i,t-1}$; and the natural logarithm of portfolio turnover, $Logturnover_{i,t-1}$. The coefficients of this regression are estimated cross-sectionally for each month. The main results of this analysis (mean coefficients and their significance) are shown in Table 2.

Table 2 shows some interesting results. First, regarding the whole period, the intercept of the model analyzing variability in the fund inflows is positive (0.0743) and statistically significant. Given that the levels of outflows seem to be smaller (as shown in the intercept reported in the third column, 0.0242), the overall net cash flows experienced in the funds' portfolios were positive during the period analyzed.

Second, the dummy variable related to socially responsible funds, *SR fund*, is not statistically significant in the third column, indicating that there are no differences in the levels of cash outflows experienced by SR and conventional funds. Nonetheless, in the second and fourth columns, the inflows and netflows in SR fund portfolios are significantly higher than those in non-SR portfolios (coefficients of SR fund of 0.0320 and 0.0379, respectively, for the whole sample period). This is in line with the

TABLE 2 Flows and previous returns, controlling for other characteristics

	1999–2016			1999–2007			2008–2016		
	Inflows	Outflows	Netflows	Inflows	Outflows	Netflows	Inflows	Outflows	Netflows
Constant	0.0743***	0.0242***	0.0545***	0.1043***	0.0370***	0.0738***	0.0455***	0.0118***	0.0358***
t-stat	24.601	12.352	19.004	29.166	13.172	18.124	16.991	5.565	11.565
SR fund	0.0320**	0.0085	0.0379***	0.0548**	−0.0001	0.0487**	0.0101	0.0169	0.0275*
t-stat	2.102	0.758	3.004	2.001	−0.008	2.311	0.725	1.254	1.931
Rank	0.0123***	−0.0045***	0.0174***	0.0175***	−0.0052***	0.0239***	0.0072***	−0.0039***	0.0112***
t-stat	11.799	−8.401	13.397	9.567	−5.480	10.396	9.478	−7.360	11.881
Rank * SR fund	0.0056	0.0088***	−0.0020	0.0136	0.0125**	−0.0009	−0.0021	0.0052*	−0.0031
t-stat	1.141	3.122	−0.502	1.441	2.536	−0.122	−0.712	1.856	−1.106
Logsize	−0.0005***	−0.0010***	0.0003***	−0.0018***	−0.0018***	−0.0003*	0.0008***	−0.0002*	0.0008***
t-stat	−3.325	−9.427	2.936	−9.620	−12.331	−1.770	9.551	−1.869	9.931
Logsize * SR fund	−0.0022**	−0.0008	−0.0018***	−0.0059***	−0.0022**	−0.0034***	0.0014***	0.0005	−0.0003
t-stat	−2.412	−1.406	−2.640	−3.512	−2.185	−2.717	2.949	1.020	−0.500
Logage	−0.0111***	−0.0014***	−0.0096***	−0.0117***	−0.0002	−0.0116***	−0.0105***	−0.0026***	−0.0077***
t-stat	−37.427	−6.309	−31.911	−22.290	−0.495	−27.099	−37.692	−11.012	−23.034
Logage * SR fund	0.0078***	0.0037***	0.0037**	0.0195***	0.0090***	0.0107***	−0.0034**	−0.0013	−0.0031**
t-stat	3.267	3.186	1.973	4.437	4.311	3.117	−2.437	−1.560	−2.302
Risk	−0.0019	0.0724***	−0.0747***	0.0019	0.0873***	−0.0833***	−0.0057	0.0581***	−0.0665***
t-stat	−0.250	14.899	−7.911	0.155	13.254	−5.752	−0.588	8.456	−5.433
Risk * SR fund	−0.0303	−0.0316	−0.0172	0.0716	0.0384	0.0278	−0.1283*	−0.0988**	−0.0606
t-stat	−0.631	−0.983	−0.444	1.028	0.837	0.443	−1.975	−2.233	−1.307
Idiosyncratic	0.0297***	0.0142***	0.0156***	0.0337***	0.0160***	0.0191***	0.0258***	0.0124***	0.0123***
t-stat	11.962	6.205	5.994	8.832	5.441	5.487	8.147	3.566	3.187
Idiosyncratic * SR fund	0.1116***	0.0534***	0.0627***	0.0675***	0.0515***	0.0160	0.1541***	0.0553***	0.1076***
t-stat	6.894	6.209	3.750	3.276	4.374	0.730	6.366	4.397	4.401
Expenses	0.0028***	0.0039***	−0.0011**	0.0024***	0.0017***	0.0006	0.0031***	0.0059***	−0.0027***
t-stat	7.877	11.633	−2.404	3.896	3.812	0.871	9.037	15.020	−5.554
Expenses * SR fund	−0.0164***	−0.0049**	−0.0129***	−0.0304***	−0.0069*	−0.0245***	−0.0030	−0.0029	−0.0018
t-stat	−5.018	−2.185	−4.565	−5.039	−1.724	−4.863	−1.449	−1.402	−0.807
Logturnover	0.0021***	0.0042***	−0.0022***	0.0018***	0.0039***	−0.0023***	0.0024***	0.0046***	−0.0020***
t-stat	12.169	28.306	−11.154	6.358	17.883	−7.460	12.258	22.675	−8.564
Logturnover * SR fund	−0.0037***	−0.0049***	0.0013	−0.0039**	−0.0049***	0.0013	−0.0035***	−0.0049***	0.0013
t-stat	−3.668	−6.261	1.395	−2.091	−4.241	0.842	−4.245	−4.600	1.261

TABLE 2 (Continued)

	1999–2016			1999–2007			2008–2016		
	Inflows	Outflows	Netflows	Inflows	Outflows	Netflows	Inflows	Outflows	Netflows
R^2	0.0655	0.0454	0.0560	0.0836	0.0515	0.0758	0.0482	0.0396	0.0369
Adj. R^2	0.0524	0.0319	0.0427	0.0667	0.0339	0.0588	0.0386	0.0300	0.0272

Note: This table shows the results of applying a multivariate regression model to analyze the relationship between cash flows and the funds' past net returns. The dependent variables correspond to the inflows ($Inflow_{i,t}$), outflows ($Outflow_{i,t}$), and net flows ($Netflow_{i,t}$) for each fund i in each month *t*, and are estimated in percentage of the fund's net assets in the previous period, $t-1$. The range (from 0 to 1) derived from the return of the fund in the previous period, $Rank_{i,t-1}$, and a dummy variable, $SR\ fund_i$, which equals 1 if the observation relates to a SR fund (0, otherwise), are considered as explanatory variables, as well as their interaction in each period. We also include the following control variables, also from the previous period: the natural logarithm of the net asset value, $Logsize_{i,t-1}$, the natural logarithm of the age of the fund, $Logage_{i,t-1}$, the annualized risk measured through the standard deviation of the daily returns, $Risk_{i,t-1}$, the level of the idiosyncratic risk measured as $1-R^2$ from Model (1), $Idiosyncratic_{i,t-1}$, the percentage of expenses of the net asset value, $Expenses_{i,t-1}$, the natural logarithm of portfolio turnover, $Logturnover_{i,t-1}$. The coefficients of this regression are estimated cross-sectionally for each of the months. The mean and significance (*t*-stat) of each coefficient is calculated with these data.

*Significance at the 10% level.

**Significance at the 5% level.

***Significance at the 1% level.

evidence reported in Table 1, where the mean of the relative netflows is higher for SR funds than conventional funds.

As for the effect of funds' previous results, the coefficient of the variable *Rank* on fund inflows is positive (0.0123 for the main period) and statistically significant. In other words, in general, funds with better (worse) results have higher (lower) subsequent levels of inflows. In contrast, investors' outflows are affected negatively (coefficient − 0.0045) by previous fund returns, implying that the worse the results a fund obtains during a period, the greater the redemptions by their investors. This evidence remains very similar when considering both sub-periods, and leads to positive and statistically significant slopes of funds' previous returns on the subsequent net cash flows. Although past returns are no guarantee of future returns, given the wide variety of funds available investors logically need some criteria in selecting which funds to invest in. And past return appears to be a relevant criterion for investors.

Nonetheless, there are interesting differences between the effect of past returns on investors' decisions in SR and conventional portfolios. Despite finding no statistically significant differences in the attraction of inflows in any of the periods considered, we observe a positive and statistically significant effect on the outflows in response to SR funds' previous results. For the whole sample period, the coefficient of the variable *Rank * SR fund* is 0.0088. Therefore, the aggregate value of the coefficients associated with the previous returns of SR funds is positive and greater than that in conventional funds, specifically 0.0043 (−0.0045 + 0.0088). With different levels of significance, this result holds for both sub-periods. Accordingly, investors in SR funds seem to disinvest from funds that experience higher performances relative to their peers. Thus, and similarly to Figure 1, these results provide evidence compatible with the disposition effect among investors of SR mutual funds.

Regarding the effect of the fund size and the fund age, these variables present small but negative and statistically significant coefficients in most of the cases explaining the behavior of inflows and outflows. This indicates that money flow ratios are inversely proportional to the size of the fund. This relationship is stronger for SR funds since the interaction variable *Logsize * SR fund* takes negative values. These results are to some extent logical, given that the dependent variables are measured in percentage terms of the fund's previous net assets. The variable *Logage * SR fund* takes significant and positive (negative) values for the first (second) subsample period. From these results we can infer that the more mature the fund industry, the fewer the cash flows in the older funds. The effect of *Risk* variable is not statistically significant on fund inflows, but it is significantly positive on fund outflows. Therefore, riskier funds experience more outflows and, consequently, negative net flows.

The coefficient for the *Idiosyncratic* risk variable is significant and positive in all cases (inflows, outflows and subsample periods), that is, there is a direct relationship between the level of idiosyncratic risk and the volume of fund flows. This relationship is stronger for SR funds, because the variable *Idiosyncratic * SR fund* is also positive and significant in all cases. For instance, in the second column, for inflows in the whole period, the value for the SR funds is 0.1413 (0.0297 + 0.1116), that is, 4.76 times higher than for conventional funds (0.0297). This evidence is

TABLE 3 Flows and previous performance, controlling for other characteristics

	1999–2016			1999–2007			2008–2016		
	Inflows	Outflows	Netflows	Inflows	Outflows	Netflows	Inflows	Outflows	Netflows
Constant	0.0735***	0.0237***	0.0542***	0.1034***	0.0369***	0.0735***	0.0448***	0.0110***	0.0356***
t-stat	24.568	12.288	19.168	29.195	13.327	18.227	17.144	5.407	11.803
SR fund	0.0362**	0.0156	0.0346***	0.0638***	0.0105	0.0467**	0.0097	0.0205	0.0230
t-stat	2.582	1.645	2.911	2.637	0.804	2.471	0.675	1.488	1.573
Alpharank	0.0118***	−0.0045***	0.0167***	0.0167***	−0.0053***	0.0227***	0.0071***	−0.0037***	0.0110***
t-stat	11.937	−8.671	13.414	9.601	−5.763	10.216	9.592	−7.512	12.365
Alpharank * SR fund	0.0017	0.0045*	−0.0015	0.0051	0.0038	−0.0005	−0.0015	0.0051*	−0.0024
t-stat	0.409	1.712	−0.403	0.628	0.865	−0.077	−0.491	1.771	−0.862
Logsize	−0.0005***	−0.0010***	0.0003***	−0.0018***	−0.0018***	−0.0003*	0.0008***	−0.0002*	0.0008***
t-stat	−3.279	−9.400	2.994	−9.551	−12.277	−1.688	9.559	−1.860	9.943
Logsize * SR fund	−0.0024***	−0.0010*	−0.0018***	−0.0064***	−0.0026***	−0.0035***	0.0015***	0.0006	−0.0002
t-stat	−2.656	−1.854	−2.743	−3.821	−2.847	−2.881	3.004	1.049	−0.428
Logage	−0.0111***	−0.0014***	−0.0096***	−0.0117***	−0.0002	−0.0116***	−0.0105***	−0.0026***	−0.0077***
t-stat	−37.380	−6.345	−31.893	−22.280	−0.509	−27.152	−37.618	−11.051	−22.970
Logage * SR fund	0.0082***	0.0041***	0.0038**	0.0204***	0.0099***	0.0107***	−0.0034**	−0.0015*	−0.0030**
t-stat	3.367	3.618	1.973	4.546	5.077	3.072	−2.494	−1.747	−2.232
Risk	0.0097	0.0719***	−0.0621***	0.0140	0.0850***	−0.0699***	0.0055	0.0593***	−0.0546***
t-stat	1.268	15.562	−7.002	1.163	12.955	−5.209	0.579	9.420	−4.673
Risk * SR fund	−0.0210	−0.0334	−0.0052	0.0902	0.0487	0.0364	−0.1280*	−0.1124**	−0.0452
t-stat	−0.427	−1.017	−0.130	1.246	1.180	0.556	−1.953	−2.259	−0.974
Idiosyncratic	0.0281***	0.0141***	0.0141***	0.0317***	0.0160***	0.0169***	0.0247***	0.0123***	0.0113***
t-stat	11.394	6.264	5.399	8.308	5.503	4.726	7.858	3.586	3.002
Idiosyncratic * SR fund	0.1100***	0.0512***	0.0630***	0.0646***	0.0449***	0.0196	0.1536***	0.0573***	0.1046***
t-stat	6.813	6.116	3.816	3.205	4.306	0.937	6.300	4.396	4.227
Expenses	0.0028***	0.0039***	−0.0010**	0.0025***	0.0017***	0.0007	0.0031***	0.0059***	−0.0027***
t-stat	7.911	11.610	−2.343	3.925	3.795	0.917	9.056	15.005	−5.489
Expenses * SR fund	−0.0168***	−0.0052**	−0.0129***	−0.0313***	−0.0077**	−0.0245***	−0.0028	−0.0028	−0.0017
t-stat	−5.019	−2.574	−4.787	−5.077	−2.184	−5.233	−1.365	−1.368	−0.740
Logturnover	0.0021***	0.0042***	−0.0021***	0.0019***	0.0039***	−0.0023***	0.0024***	0.0046***	−0.0020***
t-stat	12.214	28.409	−11.044	6.428	17.965	−7.350	12.242	22.724	−8.531
Logturnover * SR fund	−0.0037***	−0.0050***	0.0014	−0.0039**	−0.0052***	0.0016	−0.0035***	−0.0049***	0.0011
t-stat	−3.686	−6.047	1.428	−2.093	−4.093	0.976	−4.274	−4.476	1.127

TABLE 3 (Continued)

	1999–2016			1999–2007			2008–2016		
	Inflows	Outflows	Netflows	Inflows	Outflows	Netflows	Inflows	Outflows	Netflows
R^2	0.0655	0.0455	0.0560	0.0835	0.0516	0.0757	0.0482	0.0397	0.0371
Adj. R^2	0.0523	0.0320	0.0427	0.0666	0.0340	0.0587	0.0386	0.0300	0.0273

Note: This table shows the results of applying a multivariate regression model to analyze the relationship between cash flows and the past performance of funds measured by the intercept in the model (1). The dependent variables correspond to the inflows ($Inflow_{i,t}$), outflows ($Outflow_{i,t}$), and net flows ($Netflow_{i,t}$) for each fund i in each month t, and are estimated in percentage of the fund's net assets in the previous period, $t-1$. The range (from 0 to 1) derived from the fund performance (or alpha) in the previous period, $Alpharank_{i,t-1}$, and a dummy variable, *SR fund*, which equals 1 if the observation relates to a SR fund (0, otherwise), are considered as explanatory variables, as well as their interaction in each period. We also include the following control variables, also from the previous period: the natural logarithm of the net asset value, $Logsize_{i,t-1}$, the natural logarithm of the age of the fund, $Logage_{i,t-1}$, the annualized risk measured through the standard deviation of the daily returns, $Risk_{i,t-1}$, the level of the idiosyncratic risk measured as $1-R^2$ from Model (1), $Idiosyncratic_{i,t-1}$, the percentage of expenses of the net asset value, $Expenses_{i,t-1}$, the natural logarithm of portfolio turnover, $Logturnover_{i,t-1}$. The coefficients of this regression are estimated cross-sectionally for each of the months. The mean and significance (*t*-stat) of each coefficient is calculated with these data.

*Significance at the 10% level.

**Significance at the 5% level.

***Significance at the 1% level.

similar for the case of outflows. Hence, investors in SR funds show higher sensitivity to the idiosyncratic risk of the SR investment.

Regarding the net expense ratio, we should take into account that portfolio expenses could also affect mutual fund flows. Fund managers wishing to attract investors will spend more on advertising, for instance. In this vein, Table 2 shows that an increase in expenses significantly attracts future inflows to the fund portfolio. However, greater expenses may deteriorate their performance. Accordingly, Table 2 shows that higher fund expenses also involve higher levels of investors' redemptions (coefficient of 0.0039). Within the case of SR funds, the variable *Expenses * SR fund* takes significant and negative values for the whole period and the first subsample. For inflows and net flows, this result implies that SR funds with lower (higher) expenses obtain, in relative terms, more (less) money. For outflows and the whole sample, the coefficient for SR funds lies close to zero, indicating lower sensitivity of investors' redemptions to portfolio expenses.

Lastly, the same results for mutual fund turnover are found for the two sub-periods: both coefficients for inflows and outflows are positive and significant. Mutual funds with higher turnover experience higher inflows and outflows. But the outflows are twice the magnitude of the inflows, so the effect on net flows is negative and statistically significant. In the case of SR funds, the variable *Logturnover * SR fund* in general takes significant values with the opposite sign. Considering the value and sign, we could conclude that the turnover of SR funds is not a relevant variable for the determination of cash flows.

3.2.2 | Past performance and cash flows

As in the previous section, Table 3 shows the results of the analysis of the relationship between past performance $Alpharank_{i,t-1}$ and cash flows. In this variable, the range between 0 and 1 measures the relative position of the fund as a function of its performance in the previous period. The monthly performance is estimated using model (1).

Regarding the estimates of the intercept and the *SR fund* variable, results are quite similar to those found in Table 2. The impact of other variables affecting subsequent fund flows is also very similar to the evidence shown in Table 2. All the variables show, in general, the same sign and similar significance and values of the coefficients as their respective variables in Table 2.

Regarding the differences between conventional and SR funds, the results in Table 3 for the variables multiplied by the dummy variable *SR fund* are quite similar to those shown in Table 2. The description provided above can therefore be extrapolated here. The only difference is the lack of significance for the coefficients of the *Alpharank * SR fund* variable for outflows in the first subsample period. However, the significance is maintained for the second sample period and the whole sample. In these cases, as in Table 2, this variable takes a positive value and somewhat wider than the coefficient for conventional funds. This implies that in SR funds the sensitivity of cash outflows to previous results is lower than in the case of conventional funds.

The implication is, therefore, that funds achieving greater alphas attract higher levels of investors' inflows in both SR and conventional portfolios, which is consistent with the idea of investors wishing to invest in the previous best portfolios. In contrast, and regarding fund outflows, the effect of the previous performance on the redemptions from conventional funds is significantly negative. This implies that investors make fewer redemptions as the fund achieves better alphas in relation to its peers. In contrast, SR fund investors are more likely to disinvest from funds obtaining better financial results, which is in line with the aforementioned disposition effect in the SR fund industry.

4 | CONCLUSIONS

In this paper we have compared the demand for mutual funds differentiating between conventional and SR in the U.S. market and for the period 1999–2016. To this end, we assessed the mutual funds' cash flows and the relation to past results. To add robustness to the study, we propose a model that includes a set of control variables and integrates the estimation of the differences between conventional and SR funds. Moreover, the sample period was divided into two sub-periods coinciding with pre-crisis (1999–2007) and post-crisis (2008–2016) periods.

Descriptive statistics and figures showed that SR funds experienced higher growth than conventional funds, underscoring investor interest in SR funds. We were therefore interested in analyzing the factors that could explain the demand for the funds. We found a positive relationship between the net cash flow of the funds and their past results, measured by return and performance, evidencing investor sensitivity to the funds' past results. However, we observed that both the worst and the best funds experience high levels of inflows and outflows, the former being higher (lower) than the latter in the case of the best (worst) funds, which in aggregate is consistent with the aforementioned positive relationship regarding net flows.

When investor behavior is compared in relation to their inflows and outflows, we find that their sensitivity to the past return of the fund is between two and three times higher (in absolute terms) when investing than disinvesting. On the other hand, it is interesting to note that given the greater inflow of money into SR funds, even the worst funds have a positive balance in net cash flow. This result is different for the case of conventional funds, in which the worst funds do experience a net outflow of money. In fact, for conventional funds there is a negative relationship between the outflows and the past results of the funds, while for SR funds this relationship disappears or is positive. Consequently, SR funds with better (worse) results experience higher (lower) outflows. This result is compatible with a disposition effect in SR investors, that is, the bias or tendency among investors to hold (sell) their investments in a loss (gain) situation. When subperiods are compared, investors' sensitivity to the previous results of the funds is more intensely evidenced in the pre-crisis than in the post-crisis period. We are aware that if individual investors' cash flow data had been available, a more in-depth analysis of the disposition effect could have been performed. Nonetheless, our evidence using aggregate cash flows data is in line with this effect.

In addition to the effect of past results, we also considered the impact of other variables on the demand for funds. In general, inflows and outflows of conventional funds are positively related to idiosyncratic risk, expenses and turnover, but negatively related to size and age. Furthermore, the outflows show a positive relationship with respect to the risk of the fund. The overall effect on net flows is a positive relationship with idiosyncratic risk and size, while it is negative for age, risk, expenses and turnover. Comparing SR funds across the whole sample period, for inflows and flows these relationships are stronger for size and idiosyncratic risk and take the opposite sign for age, expenses and turnover. Finally, for net flows these relationships are stronger for idiosyncratic risk and expenses, lower for age and take the opposite sign for size.

In sum, this study shows a different pattern in the demand for conventional and SR mutual funds. This result is in line with current evidence on how sustainability is changing consumer preferences (Jacobs et al., 2020). These findings are of interest to the development of the SR mutual fund industry and for CSR. The demand for SR funds implies a multiplier effect on society's involvement in CSR. At a retail level, it provides a clear signal of investor attitude toward sustainable investing. At the level of financial intermediation, the mutual funds industry has considerable weight in the financial markets. Thus, if the SR fund industry demands companies with best CSR practices, their market value will rise. Given that increasing market value is a classic company manager objective, it would be aligned with further development of the company's CSR strategy. This relationship would be framed within the literature highlighting the benefits of CSR for companies (Barauskaite & Streimikiene, 2021; Fourati & Dammak, 2021; Hejase et al., 2012 and Lu et al., 2021; among others).

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ENDNOTES

[1] Some contributions providing exhaustive literature reviews on the disposition effect and other behavioral biases in investment decisions include Kumar and Goyal (2015) and Pleßner (2017).

[2] See http://www.mba.tuck.dartmouth.edu/pages/faculty/ken.french/datalibrary.html.

[3] Only the results for the variables that refer to return and performance are shown, as they are the most relevant. For reasons of space, results related other fund characteristics are not shown but are available from the authors upon request.

[4] Other results, such as those corresponding to the models with fewer variables and the separate results for conventional and SR funds, showed similar evidence and are not provided here, but are available from the authors upon request.

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