Socially responsible mutual fund exit decisions

This paper studies, for the first time, socially responsible (SR) mutual fund exits. We analyse a sample of 534 US SR equity mutual funds in the period 2003–2017, in which 182 exit events occurred (53 liquidations, 109 mergers within the same family, and 20 mergers across different families). The results obtained indicate that both liquidations and mergers are more likely among smaller funds that suffer net money outflows in the previous year to the event. At the family level, mergers are more frequent in outperforming families with a larger number of funds, whereas liquidations occur in families with a lower number of funds. When comparing mergers within the same family with mergers across different families, we observe that the former share more drivers with liquidations than the latter. In addition, we observe that religious and environmental funds are more likely to suffer exit events than other SR fund types. Finally, other interesting findings point out that mergers financially benefit investors in merged SR mutual funds and the financial outcomes of acquiring fund investors are not jeopardized.

1. Introduction

The socially responsible investment (SRI) industry has experienced important growth in recent years. The USSIF (2018) report points out that sustainable, responsible, and impact investing assets now account for $12.0 trillion of the $46.6 trillion total assets under management in the United States. This represents a 38 per cent increase from 2016. Moreover, the ESG assets under management in 780 alternative investment vehicles, including different types of funds, reached $588 billion at the beginning of 2018. This is nearly three times the assets identified in 2016. This important growth of socially responsible (SR) funds has attracted the interest of the financial literature. The papers analysing this kind of funds can be categorized into two broad groups: i) those analysing financial performance and managerial skills and ii) those studying the SR fund investors' behaviour.[1]

Despite the important number of articles on SR mutual funds, some relevant topics remain unexplored. This is the case of SR mutual fund exit decisions, that is, liquidations and mergers. Mutual fund liquidations and mergers have been analysed for conventional funds (Jayaraman, Khorana & Nelling, 2002; Khorana, Tufano & Wegde, 2007; Zhao, 2005), hedge funds (Kolokolova, 2011), exchanged trade funds (ETFs) (Sherrill & Stark, 2018), and pension funds (Alda, 2018), but, as far as we know, no prior studies have dealt with this topic in relation to SR mutual funds. However, these funds also experience failure and merging processes in spite of their radical increase and relative youth.

[1] In the first subset, we could highlight, among many others, the works by Ferruz, Muñoz and Vargas (2010), Gil-Bazo, Ruiz-Verdú and Santos (2010), Humphrey, Warren and Boon (2016), Leite, Cortez, Silva and Adcock (2018), Matallín-Sáez, Soler-Domínguez, Mingo-López and Tortosa-Ausina (2019), Muñoz, Vargas and Marco (2014), or Nofsinger and Varma (2014). In the second subset, among others, the works by Benson and Humphrey (2008), Bollen (2007), Muñoz (2019), and Renneboog, Ter Horst and Zhang (2011) are prominent.

In the case of conventional funds, the previous literature has found that the exit likelihood is greater for funds showing poor financial results and lower net flows (Jayaraman et al., 2002; Khorana et al., 2007; Zhao, 2005). The profits of mutual fund companies depend on the total net assets managed; thus, mutual funds that are not able to attract fund flows represent an unnecessary cost for these firms. For this reason, mutual fund companies decide to eliminate them and gain efficiency. This phenomenon occurs because conventional mutual fund investors are *return chasers* (Friesen & Sapp, 2007); that is, they prefer to invest in funds that have shown good financial outcomes in the past.

SR mutual funds differ from conventional ones in that the former consider both financial and non-financial issues in their investment decisions. Thus, this type of funds is targeted to investors who are sensitive to non-financial issues, such as the environmental and social impacts of economic activity. Several papers in the financial literature have previously found that fund flows in the SR mutual fund industry could display different behavioural patterns (Benson & Humphrey, 2008; Bollen, 2007; Renneboog et al., 2011), being less sensitive to financial matters than conventional fund flows. This could have an impact on the drivers and consequences of exit decisions for this type of funds, which makes it interesting to analyse liquidations and mergers in the specific case of the SR mutual fund industry. Hence, in this paper, we want to answer two main research questions:

i) What are the determinants of SR mutual fund exits?

ii) What are the effects of these exits?

The research questions answered in this article allow us to shed light on this unexplored topic in the SR fund literature. Our results indicate that both liquidations and mergers are more likely for smaller funds that suffer net money outflows in the year prior to the

event. The financial fund performance inversely affects exit decisions, although it is only a significant exit determinant in some of the models employed, reflecting a lower impact on exit decisions than other variables, such as fund flows and fund size.

On the other hand, liquidated funds belong to families managing a lower number of funds; however, mergers occur more frequently in outperforming families that are in charge of a greater number of funds, especially in the case of mergers within the same family. In addition, exit events are more frequent among religious and environmental funds than among other SR fund types. Furthermore, exit events are not significantly related to crisis periods.

When comparing the financial performance of merged and acquiring funds before a merger, we observe that within-family merged funds present worse financial results than acquiring funds for the last three years. In contrast, across-family merged funds do not perform differently from acquiring funds. In the case of money flows, within-family merged funds suffer net money outflows before the event, whereas acquiring funds show net money inflows. In addition, across-family mergers show that merged and acquiring funds do not present significant differences in the year prior to the event.

With regard to the consequences for investors, those of merged funds obtain financial benefits from these events, since acquiring funds achieve better financial performance after merging with regard to the performance of merged funds before the event. This positive difference increases as more time passes following the merger for both within-family and across-family mergers. In general, investors in acquiring funds are not prejudiced by mergers, because their financial performance is not significantly different before and after mergers; in fact, acquiring funds improve their performance two years after a merger.

With regard to mergers' consequences for fund families, mergers within the same family allow mutual fund families to eliminate those funds that are losing money, given that acquiring funds obtain better money flows after the event than merged funds before the event. In addition, acquiring funds show positive net money flows from the second year following the merger. We clarify that these are some of our main findings, which are more deeply developed in the next sections.

Our research contributes to the literature in several ways. First, this is the first paper, to the best of our knowledge, to investigate the exit decisions in the SR mutual fund industry. This is important for investors, mutual fund managers, and regulators considering the large growth experienced by the SR fund industry in recent years. Second, we contribute to the debate about whether SR and conventional mutual funds are similar. Specifically, we try to elucidate whether SR and conventional fund exit decisions share determinants and whether the consequences of such decisions differ between the two types of funds. Third, we establish controls to detect differences among SR funds according to their ethical strategic focus. Specifically, we try to determine whether the exit likelihood is higher for SR funds implementing multiple screens (ESG funds) or for SR funds with a focused ethical strategy (green funds and religious funds). The exit frequency of SR funds with different ethical styles could provide us with an overview of the trends in the SR fund industry from a supply point of view.

The rest of the paper is structured as follows: in section 2, we provide the literature review; section 3 reports the data and methods implemented; section 4 shows the empirical evidence of the SR fund exit determinants; section 5 shows the SR fund exit consequences; and, finally, section 6 ends the paper with the main conclusions.

2. Literature review

2.1. Literature review of mutual fund exits

The mutual fund industry has experienced huge growth in the last decades, which has motivated numerous studies to examine different aspects of the industry. However, at the same time, a considerable number of funds have disappeared. Mutual fund exits may take different forms: liquidation, a merger with another portfolio within the same fund family, or a merger with a portfolio of another fund family. Jayaraman et al. (2002) explained that mergers could constitute a mechanism to correct the possible excess supply caused by the important growth of the mutual fund industry. However, in addition to mergers, a fund family has the option of liquidation to terminate a portfolio.

Regarding liquidations, prior studies have pointed out that fund liquidations depend on fund returns, risk, assets under management, and managerial incentives (see Ackermann, McEnally & Ravenscraft, 1999; Brown, Goetzmann & Park, 2001). Moreover, we should consider that liquidations are decisions made by fund families. On this line, Kolokolova (2011) studied a sample of hedge funds and suggested that, while independent funds may liquidate funds based on their results, liquidations at the family level may be based on strategic behaviours to attract resources, eliminate funds with lower management fees, or promote certain funds to increase family profits. Lai (2016) also concluded that families transfer performance and resources across their funds to improve the performance of the most valuable funds at the expense of other funds. Alda (2018) obtained similar conclusions for the Spanish pension fund market.

Zhao (2005) conducted a broad analysis of exit decisions. The author compared the determinants of the three mutual fund exit forms and found that liquidations, in general, are negatively related to fund size, inflows, and age. Merged funds seem to be older

than liquidated funds. At the family level, Zhao (2005) discovered that large families are more likely to merge portfolios within the family; however, liquidations and mergers across families are more likely for funds belonging to families with poor performance.

English, Demiralp and Dukes, (2011) focused on the relationship between exit decisions and fees charged by management companies. Their findings indicate that liquidations occur slowly for funds with high 12b-1 and management fees, while funds with minor fees are quickly merged within the same family.

Regarding mergers, the existent research has largely focused on the characteristics of funds that merge into partner funds. It has been widely demonstrated that poor performance increases the fund exit probability and that the fund size may be a determinant of survival (see Brown & Goetzmann, 1995; Elton, Gruber & Blake, 1996). Jayaraman et al. (2002) obtained similar results for fund size and concluded that poor past performance is only a significant determinant for within-family mergers. Another brand of the literature on mergers has focused on the relation between mergers and the board structure (Khorana et al., 2007; Namvar & Phillips, 2013).

2.2. Literature review of articles comparing conventional and SR mutual funds

Although, as far as we know, no previous research has dealt with exit decisions for the specific case of SR mutual funds, several studies have examined topics that could have an impact on the liquidations and mergers of SR funds. In addition, it is difficult to predict a priori the drivers and consequences of SR fund liquidations and mergers due to the mixed prior empirical evidence on these topics. On the one hand, we can find reasons to expect differences between SR and conventional fund exits. The literature comparing conventional and SR mutual funds has demonstrated that the return-chasing

behaviour is not so evident in the case of ethical investors. Bollen (2007) suggested that investors have a multi-attribute utility function that not only includes financial attributes but also incorporates personal and social values. Renneboog, Ter Horst and Zhang, (2008a) argued that this ethical value of the utility function reduces the value of financial issues to SRI investors. Consistent with this reasoning, Benson and Humphrey (2008), Bollen (2007), and Renneboog et al. (2011) found that SR fund flows are significantly less sensitive to past negative returns than conventional fund flows. Benson and Humphrey (2008) explained that SR fund investors could have problems finding alternatives that fulfil their non-financial requests, which may explain why investors remain in the same fund despite its financial results. Recently, additional empirical evidence on the same line has been found by In et al. (2014). Hence, if SR fund flows are not sensitive to past financial performance (or, at least, less sensitive than conventional ones), mutual fund companies might decide to hold SR funds with poor financial results as long as these funds are able to attract money due to the non-financial utility provided to investors.

In contrast, other empirical evidence shows that SR and conventional funds are not especially different. Most studies comparing the financial performance of SR and conventional mutual funds have not found significant differences between them (El Ghoul & Karoui, 2017). Joliet and Titova (2018) concluded that both conventional and SR mutual funds integrate ESG information and financial criteria into their asset allocation decisions. Furthermore, although Bollen (2007) found that SR fund flows are less sensitive to negative past returns, this author also discovered that SR funds are more sensitive to past positive returns than conventional investors. El Ghoul and Karoui (2017) explained that this finding is consistent with SR fund investors presenting a conditional utility function; thus, they invest in SR funds conditional on good

performance. More recently, Bialkowski and Starks (2016) found convergence in the fund flow behaviour between conventional and SR mutual fund investors. Nowadays, SR fund investors seem to be as sensitive to past financial results as conventional investors. Muñoz (2019) observed that US SR fund flows seem to be sensitive to lagged returns. In addition, SR investors have overcome the past constraints to find alternatives fulfilling their non-financial requests with the growth of the SR fund industry. As a result, we could expect mutual fund companies to liquidate SR funds with poor financial results, and the conclusions reached for conventional funds would be extensible to SR mutual funds.

3. Data and methods

3.1. Methods and variable construction

We estimate three models to study the determinants of SR mutual fund exits: i) a logit model for liquidations, in which the dependent variable takes the value one if the fund has been liquidated and zero if the fund survives; ii) a logit model for mergers, in which the dependent variable takes the value one if the fund has been merged with another fund and zero if the fund survives; and iii) a multinomial logistic model to analyse the determinants of the two types of mergers, in which the dependent variable can adopt three possible outcomes: one when the fund survives; two when the fund is merged with a fund of the same family; and three when the fund is merged with a fund of another family.

Thus, following Kolokolova (2011) or Alda (2018), among others, the expression for the first model is as follows:

$$Liquidation_{i,t+1} = \alpha + \sum_{i=1}^{n} \beta_i X_{i,t} + \varepsilon_{i,t+1} \quad (1)$$

where $Liquidation_{i,t+1}$ adopts the value of 1 if fund *i* is liquidated in month *t+1* and 0 otherwise; α is the intercept of the model; $X_{i,t}$ is a vector of independent variables (fund

performance, fund flows, fund size, fund age, expense ratio, family performance, family flows, family size, number of funds in the family, dummies for environmental, religious, and global funds, and a dummy for recession periods); and $\varepsilon_{i,t+1}$ is the error term of the model.

Following Jayaraman et al. (2002), among others, the expression for the second model is the following:

$$Merger_{i,t+1} = \alpha + \sum_{i=1}^{n} \beta_i X_{i,t} + \varepsilon_{i,t+1} \quad (2)$$

where $Merger_{i,t+1}$ adopts the value of one if fund *i* is merged in month *t+1* and zero if the fund survives; α is the intercept of the model; $X_{i,t}$ is a vector of independent variables, as described in equation (1); and $\varepsilon_{i,t+1}$ is the error term of the model.

Third, to analyse the determinants of mergers by distinguishing between across-family and within-family mergers and following Khorana et al. (2007), among others, we estimate the next multinomial logistic regression:

$$Merger\_family_{i,t+1} = \alpha + \sum_{i=1}^{n} \beta_i X_{i,t} + \varepsilon_{i,t+1} \quad (3)$$

where $Merger\_family_{i,t+1}$ can adopt three possible outcomes: i) one if the fund survives; ii) two if the fund is merged with another fund within the same family; and iii) three if the fund is merged with another fund belonging to other family; $X_{i,t}$ is a vector of independent variables, as described in equation (1); and $\varepsilon_{i,t+1}$ is the error term of the model.

We build the dependent variables of these models as follows. First, we identify the exit events and their date. Second, for each exit event and date, we consider all the funds existing at this moment that do not suffer any exit event. We repeat this procedure for all the events in the sample analysed.

Following the mutual fund literature, the probability of an exit event is estimated as a function of three subsets of independent variables: i) mutual fund variables; ii) mutual fund family variables; and iii) dummy variables to control for mutual fund characteristics.

At the fund level, we consider the financial performance, the fund flows, the size, the age, and the net expense ratio. We approach the financial performance through the annualized four-factor Carhart alpha[2] of the fund, computed through annual rolling windows with the daily returns of one year (the daily returns are obtained from the daily fund prices). The relative fund flows are obtained with the next expression, following the previous literature (Sirri & Tufano, 1998):

$$F_{i,t} = \left[TNA_{i,t} - TNA_{i,t-1} \times \left(1 + r_{i,t}\right) - MGTNA_{i,t}\right] / TNA_{i,t-1} \quad (4)$$

where $TNA_{i,t}$ is the total net assets of fund i in period t; $r_{i,t}$ represents the monthly return of fund i in period t; and $MGTNA_{i,t}$ is the increase in TNA due to mergers in month t. Then, we compute the annualized average monthly flows in the last twelve months. The fund size is approached through the logarithm of the fund TNA, and the fund age in month t is the difference between month t and the inception date (expressed in years). The net expense ratio is obtained from Morningstar.

At the family level, we consider the financial performance of the fund family, approached through the weighted average of the annualized four-factor Carhart alphas of each SR fund belonging to the same family; the family size is approached through the logarithm of the sum of the TNAs of all the SR funds from the same family; the number of family funds is the number of SR funds belonging to the same family; and the fund

[2] Carhart (1997) factors are obtained from Kenneth French's website. We thank Kenneth French for making this information available on his website: http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/

flows of the family are computed as the weighted average of the annualized fund flows of each SR fund in the same family. To build these variables, we only consider the information on the funds in our sample; thus, the mutual fund family variables refer to the SR equity funds in these families.

Finally, since the majority of fund exits occur in domestic funds, we include a global fund indicator variable to detect differences in the determinants of the exit events between domestic and global funds. In the same way, since we perceive that the majority of fund exits in our sample (see Table 1) occur in SR funds labelled by Morningstar as ESG[3] (environmental, social, and governance), we include two indicator SR style variables (one for environmental funds[4] and the other for religious funds[5]) to identify differences in the determinants of exit events between these types of SR funds. Finally, we include a dummy variable to control for crisis market periods.

3.2.Data

We analyse a broad and updated sample of socially responsible (SR) US equity mutual funds. We select all the funds domiciled in the US market and labelled by Morningstar as "Socially Conscious", existing for at least 24 months in the period January 2003–

[3] ESG focus. This subset is defined by Morningstar in the following way: "Socially responsible investments without a specific environmental, religious, or Shariah focus are grouped into the broader, ESG Focus. Funds tagged with this attribute prioritize investments based on multiple screens for numerous ESG factors such as, but not limited to: tobacco exclusion, community service involvement, affordable housing, fair trade, product integrity, workplace diversity and corporate governance."

[4] Environmental focus. This group of funds is defined by Morningstar as follows: "These funds ascribe to 'green' investing principles and have a strong focus on environmental sustainability. An environmentally focused fund places a priority on environmental sustainability and may invest in companies which follow principles such as, but not limited to: renewable materials, sustainable energy, environmental technology, environmental conservation, reduction of air and water pollution, alternatives to clear cutting of forests and promotion of recycling."

[5] Religious focus funds are defined by Morningstar as follows: "Funds with a religious focus use religious teachings, principles, or values as criteria during investment selection. Funds with this tag have a focus on moral principles when considering investment decisions. There is no specific religious belief which is identified through this attribute; for example, the religious focus subset contains both Catholic and Protestant funds. The purpose of this attribute is to group together all funds which have a Religious Focus."

December 2017. In total, we consider 534 mutual funds[6] (330 with a domestic equity investment aim and 204 with a global equity investment objective), which belong to 84 different mutual fund families.

To identify the SR mutual fund exits in our sample, we use the information provided by Morningstar under the labels "Obsolete type", "Obsolete date", "Merged into Security", and "Merged into Security ID". The first label indicates whether the fund has been liquidated or merged with another fund. The second label indicates the date of the mutual fund exit. Finally, the two last labels indicate the acquiring fund in the mutual fund mergers and allow us to classify mergers into within-family or across-families categories. In total, 352 funds do not suffer any type of exit event during the period considered, 53 funds are liquidated, 109 funds are merged within the same family, and 20 funds are merged across different families[7].

Additionally, we obtain the US recession dummy from the NBER (the National Bureau of Economic Research) to examine the influence of economic periods on exit fund decisions. This variable equals one for months with a crisis and zero otherwise.[8]

Figure 1 shows the distribution of SR mutual fund exit events across the period considered. A higher number of liquidations is observed in 2012 (15 liquidations). The years with more within-family mergers are 2016 (17 events) and 2017 (19 events). In the case of across-family mergers, the highest number of events is observed in 2008, with 7 cases.

Insert Figure 1

[6] More precisely, 534 different share classes. We work at the share-class level because exits can occur for some share classes in a fund but not necessarily for all the share classes in the fund. Besides, variables such as fund flows, age, size, and expense ratio, which could be relevant factors for fund exit decisions, differ among the different share classes in a fund.

7 We detected some funds suffering exit events with missed information, leading us to discard them from the final sample analysed.

[8] Data obtained from the NBER webpage: https://www.nber.org/cycles.html

Table 1 reports the mean value of the variables included in the models for the SR fund subsamples (surviving funds, liquidated funds, within-family merged funds, and across-family merged funds).

In general, across-family merged funds show better financial results and surviving funds display larger flows and are larger and older than the others. Additionally, within-family merged funds present the highest expense ratio. With regard to family variables, across-family merged funds belong to families with higher performance, and surviving funds belong to families managing a greater amount of assets.

We also analyse the correlation between the variables considered to avoid collinearity problems. Table 2 shows the correlation matrix of the variables used in our analyses. In general, the significant correlation coefficients are low; hence, we do not expect collinearity problems to arise in the models employed.

Insert Tables 1 and 2

4. Empirical results

4.1. Determinants of SR mutual fund liquidations

We analyse the determinants of SR mutual fund liquidations by estimating equation (1). We run several models from equation (1) by including different independent variables, both at the fund and at the family level. The results of these models are reported in Table 3. All the models show the estimated coefficients, the z-statistics, indicating the statistical significance of these coefficients, and the odds ratio[9] of each variable.

Model 1 shows the results of equation (1) including only fund variables. We observe a negative and significant relationship between the likelihood of the SR mutual fund

[9] The odds ratio is computed as e^b. For example, the odds ratio of the fund age in model 1 (0.8695) is obtained from $e^{-0.1399}$. The odds ratio indicates that, for each additional year of the fund, the odds of liquidation decrease by 13.06% (e^b-1). The odds of liquidation are the quotient between the likelihood of liquidation and the likelihood of survival.

liquidations and the financial fund performance, flows, size, and age. Specifically, for a 1-unit increase in fund performance, flows, size, and age, the odds of liquidation decrease by 3.07%, 1.32%, 20.39%, and 13.06%, respectively. These results are in line with prior articles analysing conventional mutual fund liquidation drivers (see section 2). Thus, mutual fund characteristics affect the liquidation likelihood of conventional and SR mutual funds in the same way.

Model 2 shows the results with fund and family variables. The results of the fund variables remain, except performance, which becomes non-significant. The family variables show that the liquidation probability of funds belonging to larger families (due to a larger family size or families with a higher number of funds) is lower; that is, families with more resources are less likely to liquidate funds. The non-significant fund and family performance is consistent with Alda (2018), who found that alpha is not the main measure used by families in the liquidation decisions of Spanish pension funds, since fund liquidations are promoted by strategic family decisions rather than by financial results.

Model 3 also includes the control dummies for SR fund styles (environmental and religious), global funds, and crises. These findings show that the results of model 2 are sustained, and the environmental-dummy and religious-dummy coefficients are positive and significant, indicating that the liquidation likelihood of environmental and religious funds is greater. These findings suggest that mutual fund companies tend to eliminate SR funds with a focused non-financial strategy (environmental and religious), and they hold SR funds that apply multiple screens, which cover a broader range of non-financial issues (ESG). This pattern could describe a trend in the SR fund supply. The impressive growth experienced by the SR fund industry reflects that more and more investors are concerned about non-financial issues. Supplying SR mutual funds with a broad ethical

strategy could allow mutual fund companies to attract a greater number of investors. In this regard, In et al. (2014) explained that, although SR funds can mainly differentiate themselves from other SR funds through the range of screens implemented, management companies experience growing difficulties in achieving this differentiation (p. 162): "with only a finite number of screening types available, the majority of SR funds employ more than five screens to appeal to a wider range of investors".

Additionally, the economic situation is not significant in liquidation decisions (non-significant crisis dummy). This result could indicate that SR mutual funds are less affected by crisis periods than conventional funds. Nofsinger and Varma (2014) documented that conventional/SR funds outperform SR/conventional funds in non-crisis/crisis periods. According to these authors, the non-financial attributes of companies held by SR funds make them less risky in crisis periods. On the same line, Matallín et al. (2019) obtained empirical evidence supporting the findings of Nofsinger and Varma (2014). In addition, SR mutual fund investors could be more loyal during market downturns. In this regard, Renneboog, Ter Horst and Zhang (2008b) highlighted an interesting finding of the SIF (Social Investment Forum) 2001 report, which indicates that, "during the stock market downturn over the first 9 months of 2001, there was 94% drop in the money inflows into all US mutual funds, whereas the fall in net investments in socially screened funds amounted to merely 54%".

Insert Table 3

4.2.Determinants of SR mutual fund mergers

We analyse the determinants of SR mutual fund mergers by estimating equation (2). We run several models from equation (2) by including different independent variables, both at the fund and at the family level. Table 4 reports the results of these models. Model 1 only includes the fund variables. The results show, like liquidations, that the likelihood

of SR mutual fund mergers is negative and significantly related to fund flows and size. Specifically, the odds of a merger decrease by 0.99% and 15.29% for a one-unit increase in fund flows and size, respectively. Again, funds with larger resources are less likely to experience exit events. Unlike SR fund liquidations, the likelihood of mergers is not affected by fund performance and fund age.

Models 2 and 3 incorporate family variables (columns 3-6). The results sustain the fund variable results (negative flows and size coefficients), and the family variables show, unlike the liquidation results, that the family performance is a relevant variable in mergers (the odds of a merger increase by around 5% for a one-unit increase in performance). Additionally, families use mergers as a tool to restructure corporate structures, building larger families with a smaller number of funds (the odds of mergers decrease/increase by around 19%/5% for a one-unit increase in the family size/number of family funds). This strategy was also observed by Alda (2018) but for the fund liquidation case. Hence, the latter results show that families reshape their SR fund supply with fewer funds and a larger size to gain efficiency.

Model 3 also shows non-significant environmental and crisis dummies. In addition, the likelihood of merging is greater for religious funds, consistent with our prior argument that families eliminate/merge SR funds that are less focused on specific non-financial strategies (religious), holding SR funds with broader non-financial issues (i.e. ESG funds). Thus, although religious issues were among the first drivers for SR funds at the origin of this industry (Ferruz, Muñoz & Vargas 2012), nowadays mutual fund companies prefer to offer SR funds implementing a broader range of screens to appeal to more investors. Religious funds mainly implement negative screens as an ethical strategy, avoiding investing in companies from "sin" sectors (tobacco, alcohol, gambling, guns, etc.; Ferruz et al., 2012). Nonetheless, SR funds that implement

multiple screens also include negative screens among their strategies, which may fulfil the non-financial requirements of religious investors. Finally, the merging probability is lower for global funds.

Insert Table 4

4.3.Within-family versus across-family mergers

In this section, we analyse the determinants of mergers by distinguishing between across-family and within-family mergers by estimating equation (3). In our sample, most mergers are within-family mergers (109 of 129 mergers) and only 20 are across-family mergers; thus, it is necessary to be cautious about the empirical evidence obtained in this section.

The first two columns of table 5 show the results of comparing within-family merged funds with surviving funds. The likelihood of a merger is significantly negatively related to the fund flows, fund size, family size, and global fund type. However, it is significantly positively related to the number of family funds and religious funds. That is, funds from families that have fewer resources and manage a greater number of funds suffer a higher likelihood of within-family mergers. This could be a strategy to gain efficiency.

Regarding across-family and within-family mergers (columns 3–4 of table 5), the results indicate that mergers across families are more likely than mergers within the same family when funds receive more flows, have higher expense ratios, belong to families with better performance, receive lesser flows, and possess a lower number of funds. Some of these results are in line with those obtained by Zhao (2005) for conventional funds. The last columns compare across-family mergers with surviving funds, and we detect some differences with regard to the within-family merger

determinants. The fund variables are not significant (except the expense ratio), and the likelihood of across-family mergers is positively related to family performance and the expense ratio and negatively related to the family flows and the number of family funds. Considering this evidence, SR fund mergers, both within and across families, share drivers with conventional fund mergers, although the drivers for each type of merger are different. In this regard, mergers within the same family are more similar to liquidations than mergers across families. This result is not surprising if we consider that mergers within the same family could constitute a mechanism to liquidate funds.

Insert Table 5

5. Consequences of SR mutual fund exits

In this section, we investigate how mergers affect acquiring funds and the investors in acquiring and merged funds. We compare the financial performance and the fund flows in the previous and subsequent 12, 24, and 36 months to the merger event. Table 6 shows the results for the pre-merger periods to assess the impact of mergers on acquiring funds' shareholders. All the panels of Table 6 report the mean difference between merged and acquiring funds, the t-statistic of the mean difference, and the median Wilcoxon test.

Insert Table 6

Panels A, B, and C show the mean annualized 4-factor alpha in the 12, 24, and 36 months prior to the merger event for merged and acquiring funds, respectively. The results indicate that acquiring funds significantly outperform merged funds in the 12, 24, and 36 months prior to the merger event when considering the full merger sample and the subsample of within-family mergers. These results are similar to those found for conventional funds in the mutual fund literature and consistent with our results in the

previous section. However, across-family mergers show non-significant outperformance of merged funds in the 12, 24, and 36 months prior to the merger. These results show that, while families that are merging their own funds try to eliminate funds with poorer performance, families that are acquiring other family funds chase funds with at least non-significant performance differences. Our results are consistent with Jayaraman et al. (2002), who found that this result is justified by the financial underperformance of merged funds in the year prior to a merger. On the other hand, panels D, E, and F show the mean annualized flows for 12, 24, and 36 months before mergers for merged and acquiring funds, respectively. These panels show that the fund flows of merged funds are significantly lower than the acquiring fund flows for all the periods considered in the full sample and within-family mergers. However, across-family mergers display non-significant differences in the 12 and 36 months prior to the event (panels D and F) and significantly lower flows of merged funds in the previous 24-month period (panel E).

Table 7 reports the performance and flow results for the post-merger periods (12, 24, and 36 months) to highlight the financial consequences for investors in merged and acquiring funds. Panels A, B, and C show that, in general, the performance of the resulting funds after mergers (acquiring funds) is higher than the financial performance of merged funds before mergers. Thus, mergers benefit investors in acquired SR funds in financial terms. Nevertheless, the performance of acquiring funds in across-family mergers is only significantly higher after 24 months; hence, the acquiring funds of other family funds need some time to adapt and absorb the resources of non-family funds, probably due to issues related to corporate policies. These results are very similar to those found previously by Jayaraman et al. (2002) for conventional funds. These

authors explain that the superior performance of resulting funds after mergers could have its origin in the superiority of the managers and assets of acquiring funds.

Panels D, E, and F show the fund flows for 12, 24, and 36 months after mergers, respectively. Acquiring funds experience significantly positive flow differences after mergers when we analyse the full sample and within-family mergers. Additionally, despite the outflows of acquiring funds during the first year, these become positive after 24 and 36 months, indicating that mergers are effective after an adapting period of 12 months due to the incorporation of funds suffering outflows (merged funds). On the other hand, the flow differences are not significant for across-family mergers. These results indicate that, in the case of SR funds, the absorption of funds with negative flows does not deteriorate the fund flows of acquiring funds.

Insert Table 7

In Table 8, we compare the performance and flow results of acquiring funds for 12, 24, and 36 months before and after mergers. Panel A shows non-significant positive performance differences for 1 year around mergers. However, the performance improves significantly for 2 years around mergers (panel B), confirming that acquiring funds need some adaptation time to absorb the merged funds. Additionally, this effect disappears 36 months later (panel C), and we observe non-significant results in the full sample and within-family mergers and underperformance for across-family mergers. The result for across-family mergers is consistent with the findings of Jayaraman et al. (2002) and Khorana et al. (2007), who report that the post-merger performance of acquiring funds worsens. On the other hand, the fund flows deteriorate 1 and 3 years after the merger for acquiring funds when we analyse the total sample and within-family mergers (panels D and F); nonetheless, this difference is only significant with the

Wilcoxon test. In contrast, across-family acquiring funds do not significantly improve their flows 1 year after the merger (positive and non-significant difference in panel D) and experience flow deterioration when considering longer periods.

These results show that mergers across families may be more complex processes than mergers within families, negatively affecting acquiring-fund flows, although these events do not harm participants' performance in acquiring funds.

Insert Table 8

6. Conclusions

This paper analyses, for the first time as far as we are aware, the liquidation and merger decisions in the SR mutual fund industry. In particular, we examine US SR equity mutual funds with domestic and global investment aims. Although SR funds are differentiated from conventional ones in diverse managerial processes, such as the priority of non-financial principles, we find that the determinants of fund exit decisions are similar to those for conventional funds. The similarities may be due to the fact that these decisions are taken by fund families and families apply the same decision criteria to all their funds, independently of the SR character. Alternatively, this finding reinforces the idea that SR and conventional funds might not be so different.

Our results show that smaller funds, funds with lower fund flows, and younger funds are more likely to be liquidated, indicating that less powerful funds are eliminated. Nonetheless, family variables are also significant in liquidation decisions. Funds from families with a smaller size and a lower number of funds are more likely to be liquidated, showing that families aim to improve their efficiency. With regard to the SR component, religious and environmental funds are more likely to be liquidated, revealing that families eliminate funds with focused ethical investment strategies in

favour of SR funds that implement multiple screens (ESG funds) covering a broader range of non-financial concerns. Thus, mutual fund companies would be appealing to more investors to maximize the entry of money flows.

On the other hand, mergers share determinants with liquidations. Families merge funds with the purpose of gaining efficiency. Nonetheless, we find several differences in the determinants of within-family and across-family mergers. Specifically, the latter are more likely to occur than the former when funds belong to families that have better financial performance and poorer flows and own a lower number of funds. Besides, we find that crisis periods do not significantly affect SR mutual fund exit events in the sample analysed. This finding is in line with the literature showing that SR funds could be less sensitive to crises than conventional funds.

In the last part of our study, we analyse the consequences of mergers for acquiring funds and investors. We find that acquiring funds are better performers and receive more resources (flows). Therefore, acquiring funds aim to build more efficient SR funds without deteriorating the performance of investors. Additionally, investors in merged and acquiring funds are not punished by mergers, because, first, investors in merged funds benefit from better performance and, second, investors in acquiring funds do not significantly vary their performance and operate with more efficient funds.

Finally, we want to stress that our study provides interesting information offering a better understanding of the fund exit decisions in the SR mutual fund industry. Thus, regulators will be able to identify funds with higher probabilities of exiting on behalf of market efficiency. In further research, it would be interesting to assess the impact of exit decisions on the competitiveness of the SR mutual fund industry. In et al. (2014) pointed out that, in spite of its impressive growth, this industry still displays features of

a non-competitive market. In addition, it could be interesting to provide empirical evidence for markets other than the US one. The study of fund closures in other markets could be relevant, since other markets can present different institutional characteristics affecting financial decisions (Muñoz, 2019). This could be especially relevant for SR funds, since, as Revelli and Viviani (2015) pointed out, SR funds outside the US market could implement different strategies attracting other investor profiles, which could have an impact on SR fund exit decisions.

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Figure 1: SR mutual fund exits by year

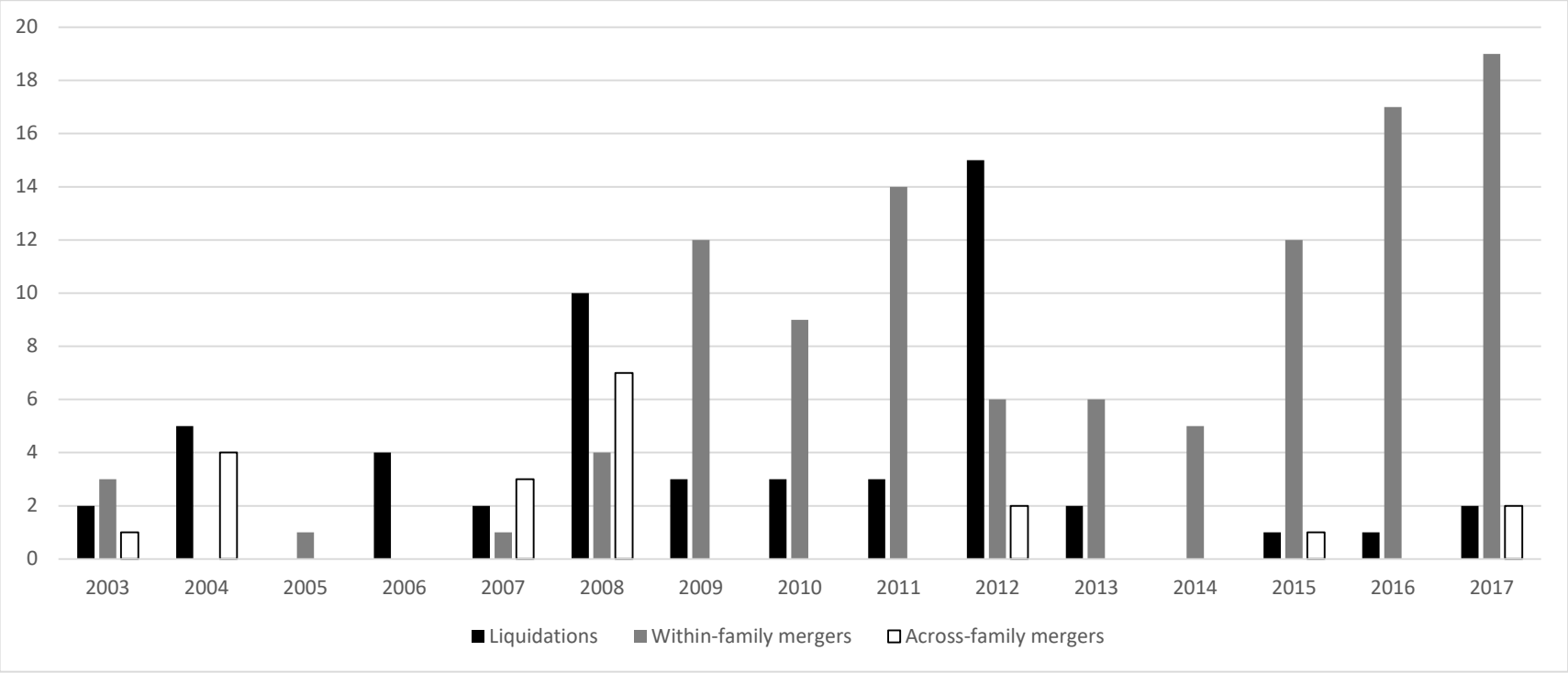

Figure 1 reports the distribution of SR mutual fund exit events across the period analysed. The sample spans from January 2003 to December 2017. Information is provided for the different types of exit events, that is, liquidations, mergers within the same family, and mergers across different families.

Table 1: Descriptive statistics of the SR US equity mutual fund sample

	Surviving funds	Liquidated funds	Within-family merged funds	Across-family merged funds
Annualized 4-factor Carhart alpha (%)	-5.09	-7.86	-6.55	-2.38
TNA (million $)	497.92	10.47	40.54	80.26
Age (years)	10.73	6.16	9.47	9.9
Annualized flows (%)	12.76	-28.41	-23.46	-4.28
Net expense ratio (%)	1.29	1.31	1.51	1.39
Annualized 4-factor Carhart alpha (%) by family	-5.47	-6.91	-5.85	-1.93
TNA (million $) by family	6267.52	980.93	5630.27	268.79
Annualized family flows (%)	4.23	-5.69	1.84	-8.36
Number of funds by family	15.54	6.15	24.97	4.65
Number of families	58	25	26	8
Number of domestic funds	202	36	76	16
Number of global funds	150	17	33	4
Environmental funds (number)	20	11	4	2
Religious funds (number)	23	12	17	2
ESG funds (number)	309	25	84	16
Unlabelled funds (number)	0	5	4	0

Table 1 reports the mean values of different mutual fund characteristics of the SR funds in our sample, distinguishing between surviving funds, liquidated funds, within-family merged funds, and across-family merged funds.

Table 2: Correlation matrix

	Fund perf	Fund flows	Fund size	Fund age	Expense ratio	Fam Perf	Fam Flows	Fam Size	Nº Fam funds	Env_dummy	Rel_dummy	Global_dummy
Fund flows	0.1604***	1										
Fund size	-0.0557***	-0.1077***	1									
Fund age	-0.0727***	-0.2293***	0.3897***	1								
Expense ratio	0.0024	-0.0233**	-0.3444***	-0.0609***	1							
Fam Perf	0.6591***	0.0979***	-0.006	-0.0341***	-0.0076	1						
Fam Flows	0.07***	0.2496***	-0.0367***	-0.1225***	0.0009	0.1789***	1					
Fam Size	-0.0251***	-0.0308***	0.3108***	0.1144***	-0.0745***	-0.1627***	-0.1847***	1				
Nº Fam funds	0.0127*	0.0088	-0.1177***	-0.0227***	0.2142***	-0.1605***	-0.0545***	0.5582***	1			
Env_dummy	-0.0106	0.0313***	-0.028***	-0.0569***	0.0132*	0.0126**	0.0986***	-0.2345***	-0.0782***	1		
Rel_dummy	-0.0716***	-0.0212***	0.178***	-0.0165**	-0.1307***	-0.0449***	-0.0118*	0.0334***	-0.1325***	-0.0654***	1	
Global_dummy	0.0534***	0.0346***	-0.158***	-0.0493***	0.1544***	0.007	-0.0149**	-0.0261***	0.1625***	0.2339***	-0.0885***	1
Crisis_dummy	0.0199***	0.026***	-0.0271***	-0.0858***	0.0138**	-0.0084	0.0138**	-0.0279***	-0.0199***	-0.0001	0.0024	-0.0004

Table 2 reports the correlation coefficients between each pair of independent variables considered in the models employed.

*** Significant at 1%; ** significant at 5%; * significant at 10%.

Table 3: Determinants of SR mutual fund liquidations

	Model 1		Model 2		Model 3	
	Coef	**OR**	**Coef**	**OR**	**Coef**	**OR**
Fund perf	-0.0312***	0.9693	-0.0673	0.9349	-0.0446	0.9564
	-3.37		-0.97		-0.75	
Fund flows	-0.0133***	0.9868	-0.0113***	0.9888	-0.0120***	0.9880
	-5.34		-4.34		-4.82	
Fund size	-0.2280***	0.7961	-0.2884***	0.7494	-0.4109***	0.6631
	-4.01		-5.12		-5.75	
Fund age	-0.1399***	0.8695	-0.1284***	0.8795	-0.1178**	0.8889
	-3.07		-2.77		-2.21	
Expense ratio	-0.3835	0.6814	-0.5038	0.6042	-0.5781	0.5609
	-0.91		-1.02		-1.07	
Fam Perf			0.0386	1.0393	0.0301	1.0306
			0.47		0.42	
Fam Flows			-0.0097	0.9904	-0.0089	0.9912
			-1.26		-1.05	
Fam Size			-0.3782***	0.6851	-0.3158**	0.7292
			-2.71		-2.23	
Nº Fam funds			-0.0586***	0.9431	-0.0543*	0.9471
			-2.2		-1.78	
Env_dummy					2.1086**	8.2366
					2.24	
Rel_dummy					2.0945**	8.1211
					1.99	
Global_dummy					-0.6139	0.5412
					-0.82	
Crisis_dummy					0.2176	1.2431
					0.4	
Intercept	-2.7882***	0.0620	0.2261	1.2538	-0.1813	0.8342
	-4.22		0.23		-0.16	
Number of Obs	6064		6064		6064	
Pseudo-R2	0.1498		0.2922		0.3473	
Wald χ2	86.71		88.79		133.61	
VIF	1.17		1.57		1.44	

This table reports the results of a logit regression that analyses the determinants of SR mutual-fund liquidations. Model 1 only includes independent variables at the fund level, model 2 considers fund and family variables, and model 3 adds several control dummies to model 2. The fund performance is measured as the annualized four-factor Carhart alpha, in percentage, of the fund in the previous year, computed through a rolling window with daily data. Fund flows are measured as percentages, as the annualized average of the monthly flows in the last twelve months. The size of the fund is approached through the logarithm of the total net assets of the fund in million dollars. The fund age in month t is the difference between month t and the inception date (expressed in years). The net expense ratio is obtained from Morningstar (in percentage). The family performance is the weighted average of the annualized four-factor Carhart alphas of each SR fund that belongs to the same family. The fund family size is approached through the logarithm of the TNA sum (expressed in millions of dollars) of all the SR funds belonging to the same family; the number of family funds considers only those funds in our sample belonging to the same family; the family fund flows are computed as the weighted average of the annualized fund flows of each fund belonging to the same family; Env, Rel and Global are dummy variables that take the value one when the fund is labelled as Environmental, Religious or categorized as Global by Morningstar, respectively, and zero otherwise; Crisis is a dummy variable that takes the value one if the event occurs in the period from January 2008 to June 2009 and zero otherwise. For each model, the table provides the estimated coefficient, the z-statistic (below the coefficient), and the odds ratio (OR). All standard errors are clustered at the family level. Finally, we provide the number of observations, the pseudo-R^2, the χ^2 statistic from the Wald test, and the variance inflation factor (VIF) for all the models. *** Significant at 1%; ** significant at 5%; * significant at 10%.

Table 4: Determinants of SR mutual fund mergers

	Model 1		Model 2		Model 3	
	Coef	**OR**	**Coef**	**OR**	**Coef**	**OR**
Fund perf	-0.0137	0.9864	-0.0328*	0.9677	-0.0260	0.9743
	-0.99		-1.88		-1.3	
Fund flows	-0.0100***	0.9901	-0.0098***	0.9902	-0.0101***	0.9900
	-5.62		-4.32		-4.14	
Fund size	-0.1660***	0.8471	-0.1230***	0.8843	-0.1927***	0.8247
	-3.58		-2.76		-3.03	
Fund age	-0.0266	0.9738	-0.0338*	0.9668	-0.0292	0.9712
	-1.48		-1.80		-0.98	
Expense ratio	0.0566	1.0582	0.0029	1.0029	0.0307	1.0312
	0.92		0.04		0.48	
Fam Perf			0.0471**	1.0483	0.0566**	1.0582
			2.22		2.27	
Fam Flows			-0.0021	0.9979	-0.0023	0.9978
			-0.33		-0.36	
Fam Size			-0.2070*	0.8130	-0.2180**	0.8041
			-1.88		-2.01	
Nº Fam funds			0.0416*	1.0425	0.0550**	1.0566
			1.82		2.08	
Env_dummy					0.4569	1.5792
					0.48	
Rel_dummy					1.7174***	5.5700
					3.15	
Global_dummy					-0.9227*	0.3975
					-1.79	
Crisis_dummy					0.0100	1.0100
					0.01	
Intercept	-4.0025***	0.0183	-3.1456***	0.0430	-3.0280***	0.0484
	-14.95		-5.42		-4.31	
Number of Obs	13133		13133		13133	
Pseudo-R2	0.0586		0.079		0.1111	
Wald χ2	58.18		66.22		100.11	
VIF	1.17		1.54		1.42	

This table reports the results of a logit regression that analyses the determinants of SR mutual fund mergers. Model 1 only includes fund variables, model 2 considers fund and family variables, and model 3 adds several control dummies to model 2. The fund performance is measured as the annualized four-factor Carhart alpha, in percentage, of the fund in the previous year, computed through a rolling window with daily data. Fund flows are measured as percentages, as the annualized average of the monthly flows in the last twelve months. The size of the fund is approached through the logarithm of the total net assets of the fund in million dollars. The fund age in month t is the difference between month t and the inception date (expressed in years). The net expense ratio is obtained from Morningstar (in percentage). The family performance is the weighted average of the annualized four-factor Carhart alphas of each SR fund that belongs to the same family. The fund family size is approached through the logarithm of the TNA sum (expressed in millions of dollars) of all the SR funds belonging to the same family; the number of family funds considers only those funds in our sample belonging to the same family; the family fund flows are computed as the weighted average of the annualized fund flows of each fund belonging to the same family; Env, Rel and Global are dummy variables that take the value one when the fund is labelled as Environmental, Religious or categorized as Global by Morningstar, respectively, and zero otherwise; Crisis is a dummy variable that takes the value one if the event occurs in the period from January 2008 to June 2009 and zero otherwise. For each model, the table provides the estimated coefficient, the z-statistic (below the coefficient), and the odds ratio (OR). All standard errors are clustered at family level. Finally, we provide the number of observations, the pseudo-R^2, the χ^2 statistic from the Wald test, and the variance inflation factor (VIF) for all the models.

*** Significant at 1%; ** significant at 5%; * significant at 10%.

Table 5: Determinants of SR mutual fund mergers: A multinomial logit approach

	Merged-Within vs Surviving funds		Merged-Across vs Merged-Within		Merged-Across vs Surviving funds	
	Coef	**OR**	**Coef**	**OR**	**Coef**	**OR**
Fund perf	-0.0285	0.9719	0.0137	1.0138	-0.0148	0.9853
	-1.395		0.42		-0.535	
Fund flows	-0.0110***	0.9890	0.0098***	1.0098	-0.0013	0.9987
	-4.204		3.088		-0.594	
Fund size	-0.2085***	0.8118	0.1017	1.1070	-0.1068	0.8987
	-2.964		0.682		-0.718	
Fund age	-0.0416	0.9593	0.0342	1.0347	-0.0074	0.9926
	-1.23		0.869		-0.286	
Expense ratio	0.0184	1.0185	0.4306**	1.5382	0.4490**	1.5667
	0.291		2.091		2.172	
Fam Perf	0.0404	1.0413	0.0815**	1.0849	0.1219***	1.1297
	1.61		2.268		4.331	
Fam Flows	0.0007	1.0007	-0.0241**	0.9762	-0.0235***	0.9768
	0.092		-2.593		-3.040	
Fam Size	-0.2128*	0.8083	0.3047	1.3562	0.0919	1.0962
	-1.751		1.284		0.426	
Nº Fam funds	0.0690**	1.0715	-0.3405***	0.7114	-0.2715***	0.7622
	2.385		-3.089		-2.594	
Env_dummy	0.0349	1.0355	0.8183	2.2667	0.8533	2.3473
	0.034		0.37		0.435	
Rel_dummy	2.0703***	7.9275	-2.1502	0.1165	-0.0799	0.9540
	3.699		-1.566		-0.058	
Global_dummy	-0.9431*	0.3894	0.0346	1.0352	-0.9085	0.4031
	-1.717		0.029		-0.848	
Crisis_dummy	-0.3381	0.7132	1.6465	5.1890	1.3085	3.7005
	-0.482		1.229		1.134	
Number of Obs	13133		13133		13133	
Pseudo-R2	0.1482		0.1482		0.1482	
Wald $\chi 2$	488.26		488.26		488.26	
VIF	1.42		1.42		1.42	

This table reports the results of a multinomial logit regression that analyses the determinants of the two SR mutual fund merger types. First, it provides a comparison between the estimated coefficients and the odds ratio for funds suffering mergers within the family with surviving funds. Second, it provides a comparison between SR funds suffering mergers across families with funds suffering mergers within the same family. Finally, it reports a comparison between SR funds suffering mergers across families with surviving funds. The fund performance is measured as the annualized four-factor Carhart alpha, in percentage, of the fund in the previous year computed through a rolling window with daily data. Fund flows are measured as percentages as the annualized average of monthly flows in the last twelve months. The size of the fund is approached through the logarithm of the total net assets of the fund in millions of dollars. The age of the fund in month t is computed as the difference between month t and the inception date (expressed in years). The net expense ratio is obtained directly from Morningstar, expressed as a percentage. The financial performance of a family is computed as the weighted average of the annualized four-factor Carhart alphas of each SR fund belonging to the same family; the size of the fund family is approached through the logarithm of the sum of the TNAs (expressed in millions of dollars) of all the SR funds belonging to the same family; the number of family funds considers only those funds in our sample belonging to the same family; the fund flows of the family are computed as the weighted average of the annualized fund flows of each fund belonging to the same family; Env, Rel and Global are dummy variables that take the value one when the fund is labelled as Environmental, Religious or categorized as Global by Morningstar, respectively, and zero otherwise; Crisis is a dummy variable that takes the value one if the event occurs in the period from January 2008 to June 2009 and zero otherwise.

*** Significant at 1%; ** significant at 5%; * significant at 10%.

Table 6: Characteristics of merged and acquiring funds in pre-merger periods

	Merged funds	Acquiring funds	Difference	Number of Obs.	t-ratio	Wilcoxon test
	Panel A: Annualized 4-factor Carhart alpha (%) in previous 12 months to merger					
Mergers full sample	-6.584	-5.507	-1.078	102	-2.377***	-3.483***
Mergers within-family	-7.128	-5.806	-1.322	90	-2.757***	-4.295***
Mergers across-families	-2.507	-3.259	0.751	12	0.566	0.706
	Panel B: Annualized 4-factor Carhart alpha (%) in previous 24 months to merger					
Mergers full sample	-7.270	-5.915	-1.354	97	-3.649***	-3.852***
Mergers within-family	-7.614	-6.123	-1.491	89	-3.939***	-4.22***
Mergers across-families	-3.438	-3.603	0.166	8	0.105	-0.14
	Panel C: Annualized 4-factor Carhart alpha (%) in previous 36 months to merger					
Mergers full sample	-7.030	-6.669	-0.361	97	-2.267**	-3.528***
Mergers within-family	-7.405	-6.983	-0.423	89	-2.549**	-4.163***
Mergers across-families	-2.853	-3.179	0.325	8	0.598	0.98
	Panel D: Annualized net fund flows (%) in previous 12 months to merger					
Mergers full sample	-19.940	7.116	-27.056	102	-3.2497***	-3.123***
Mergers within-family	-22.434	8.804	-31.237	90	-3.4142***	-3.024***
Mergers across-families	-1.242	-5.547	4.304	12	0.2845	-1.098
	Panel E: Annualized net fund flows (%) in previous 24 months to merger					
Mergers full sample	-15.711	4.113	-19.824	97	-3.829***	-3.161***
Mergers within-family	-16.704	2.957	-19.661	89	-3.5021***	-2.768***
Mergers across-families	-4.658	16.973	-21.631	8	-3.1065**	-2.1**
	Panel F: Annualized net fund flows (%) in previous 36 months to merger					
Mergers full sample	-7.114	4.023	-11.137	97	-2.3382**	-1.851*
Mergers within-family	-7.488	3.160	-10.648	89	-2.0997**	-1.594
Mergers across-families	-2.951	13.630	-16.582	8	-1.267	-1.26

This table presents the comparison between merged and acquiring funds in the 12 (panels A and D), 24 (panels B and E), and 36 (panels C and F) months prior to the merger event for the annualized 4-factor Carhart alpha and the annualized net fund flows (both characteristics are expressed as percentages). For each mutual fund characteristic and period considered, the table provides the mean value for both merged and acquiring funds, the mean difference, the t-test, and the median Wilcoxon test. It also provides the number of observations used to establish each comparison. The number of events considered is conditioned for data availability reasons.

*** Significant at 1%; ** significant at 5%; * significant at 10%.

Table 7: Characteristics of merged and acquiring funds in post-merger periods

	Panel A: Annualized 4-factor Carhart alpha (%) around merger date (12 months)					
	Acquiring funds	**Merged funds**	**Difference**	**Number of Obs.**	**t-ratio**	**Wilcoxon test**
Mergers full sample	-5.074	-6.449	1.375	108	1.249	2.918***
Mergers within-family	-5.490	-7.011	1.521	94	1.221	2.906***
Mergers across-families	-2.276	-2.671	0.395	14	0.258	0.282
	Panel B: Annualized 4-factor Carhart alpha (%) around merger date (24 months)					
Mergers full sample	-3.852	-7.224	3.373	80	5.039***	4.211***
Mergers within-family	-4.081	-7.667	3.586	68	4.806***	3.978***
Mergers across-families	-2.553	-4.719	2.166	12	1.502	1.647*
	Panel C: Annualized 4-factor Carhart alpha (%) around merger date (36 months)					
Mergers full sample	-0.777	-6.256	5.479	70	9.258***	7.008***
Mergers within-family	-0.837	-6.684	5.847	58	8.734***	6.438***
Mergers across-families	-0.490	-4.190	3.700	12	3.316***	2.510**
	Panel D: Annualized net fund flows (%) around merger date (12 months)					
Mergers full sample	-1.865	-21.030	19.166	108	2.736***	2.391**
Mergers within-family	-3.318	-23.303	19.986	94	2.530**	2.106**
Mergers across-families	7.892	-5.767	13.659	14	1.276	1.475
	Panel E: Annualized net fund flows (%) around merger date (24 months)					
Mergers full sample	0.673	-21.650	22.323	80	3.956***	3.741***
Mergers within-family	1.732	-24.409	26.141	68	4.016***	3.856***
Mergers across-families	-5.328	-6.016	0.688	12	0.199	0
	Panel F: Annualized net fund flows (%) around merger date (36 months)					
Mergers full sample	1.553	-13.965	15.518	70	2.774***	3.485***
Mergers within-family	2.597	-16.345	18.942	58	2.876***	3.759***
Mergers across-families	-3.489	-2.461	-1.028	12	-0.192	-0.471

This table compares the annualized 4-factor Carhart alpha and the annualized net fund flows (both characteristics are expressed as percentages) of merged funds with acquiring funds in the subsequent 12 (panels A and D), 24 (panels B and E), and 36 (panels C and F) months to the merger. For each of the mutual fund characteristics, the table provides the mean value for both merged and acquiring funds, the mean difference, the t-test, and the median Wilcoxon test. It also provides the number of observations used for establishing each comparison. The number of events considered is conditioned for data availability reasons.

*** Significant at 1%; ** significant at 5%; * significant at 10%.

Table 8: Characteristics of acquiring funds in previous and subsequent periods to a merger

	Panel A: Annualized 4-factor Carhart alpha (%) around merger date (12 months)					
	Acquiring funds after merger	**Acquiring funds before merger**	**Difference**	**Number of Obs.**	**t-ratio**	**Wilcoxon test**
Mergers full sample	-5.365	-5.507	0.141	102	0.1255	1.567
Mergers within-family	-5.675	-5.806	0.132	90	0.1044	1.398
Mergers across-families	-3.045	-3.259	0.214	12	0.1351	1.256
	Panel B: Annualized 4-factor Carhart alpha (%) around merger date (24 months)					
Mergers full sample	-5.022	-5.952	0.930	69	2.272**	2.167**
Mergers within-family	-5.123	-6.034	0.911	63	2.036**	1.862*
Mergers across-families	-3.963	-5.084	1.122	6	3.691**	2.201**
	Panel C: Annualized 4-factor Carhart alpha (%) around merger date (36 months)					
Mergers full sample	-4.143	-4.789	0.646	59	1.23	0.891
Mergers within-family	-4.107	-5.047	0.940	53	1.67	1.377
Mergers across-families	-4.456	-2.511	-1.945	6	-2.022*	-1.782*
	Panel D: Annualized net fund flows (%) around merger date (12 months)					
Mergers full sample	-1.442	7.116	-8.557	102	-1.198	-2.559**
Mergers within-family	-3.236	8.804	-12.040	90	-1.559	-2.714***
Mergers across-families	12.015	-5.547	17.562	12	1.031	-0.079
	Panel E: Annualized net fund flows (%) around merger date (24 months)					
Mergers full sample	1.350	1.329	0.020	69	0.004	-1.253
Mergers within-family	1.852	-0.663	2.515	63	0.490	-0.616
Mergers across-families	-3.921	22.253	-26.174	6	-4.603***	-2.201**
	Panel F: Annualized net fund flows (%) around merger date (36 months)					
Mergers full sample	2.982	5.262	-2.280	59	-1.088	-2.521**
Mergers within-family	0.371	2.453	-2.083	53	-0.894	-2.076**
Mergers across-families	26.050	30.068	-4.018	6	-2.954**	-1.782*

This table compares the annualized 4-factor Carhart alpha and the annualized net fund flows (both characteristics expressed as percentages) of acquiring funds in the previous and subsequent 12 (panels A and D), 24 (panels B and E), and 36 (panels C and F) months to the merger. For each of the mutual fund characteristics, it provides the mean value, the mean difference, the t-test, and the median Wilcoxon test. It also provides the number of observations used for establishing each comparison. The number of events considered is conditioned for data availability reasons. *** Significant at 1%; ** significant at 5%; * significant at 10%.