Internet Search, Fund Flows, and Fund Performance

Hong-Yi Chen

Department of Finance
National Chengchi University, Taiwan
64, Sec. 2, Zhinan Rd., Taipei 11605, Taiwan
Tel: +886-22939-3091
E-mail: fnhchen@nccu.edu.tw

Hsuan-Chi Chen

Anderson School of Management
University of New Mexico
Albuquerque, NM 87131, USA
Tel : +1-505-277-4702
E-mail: chenh@unm.edu

Christine W. Lai

Director, Research Center for Artificial Intelligence in Investment and Asset Management

Department of Business Administration
National Taiwan Normal Univeristy, Taiwan
162, Sec. 1, Heping E. Rd., Taipei 10610, Taiwan
Tel: +886-27734-3304
E-mail: cwlai@ntnu.edu.tw

April, 2021

The authors appreciate helpful comments from Zhan-Hui Chen, Lauren H. Cohen, Chun-Yang Hwang, Cheng-Few Lee, as well as seminar participants at National Taiwan University, National Chengchi University, the 2017 FMA Asia Pacific Conference, 2016 Financial Management Association Annual Meeting, the 10th NCTU International Finance Conference, the 24th SFM Conference 2016, the 11th Biennial Conference Asian Consumer and Family Economics Association, the 23rd Annual Conference on Pacific Basin Finance, Economics, Accounting, and Management, 2016 International Conference of Taiwan Finance Association. Hsuan-Chi Chen gratefully acknowledges support from the Anderson School of Management at the University of New Mexico. Christine W. Lai gratefully acknowledges financial support from National Science Council in Taiwan for awarding the Grant 106-2410-H-003-009 -MY2, 108-2410-H-003-033 -MY2.

Internet Search, Fund Flows, and Fund Performance

Abstract

This study uses the Google search volume index as a direct measure of investor attention to explore the connection between attention-grabbing information and fund flows, future performance, and the survivorship of newly issued funds. We find that investors often engage in attention-driven purchases of new funds that have captured their attention online. However, fund investors who conduct internet searches and make attention-driven purchases are less sophisticated and fail to allocate their capital for earning abnormal returns. We also find that attention-induced inflows can help sustain new funds in competitive fund markets via potential mitigation of mergers and liquidations. Our robustness checks show similar results for old funds, but attention-driven fund flows do not enhance the survival of old funds.

Keywords: Internet search, fund flows, fund performance, Google Trends, search volume index

JEL Classification: G11, G14

1. Introduction

Investors tend to limit their searches to investment alternatives that capture their attention and choose from a significant set of investment alternatives when they make purchases (Odean, 1999). To examine such attention-driven purchase decisions, the literature mainly focuses on the stock market and investigates the association between the proxy used for investor attention and the trading volume (see Bamber, Barron, and Stober, 1997; Busse and Green, 2002). However, Barber and Odean (2008) point out that each trade in the stock market involves both buying and selling. A high-attention stock that has higher trading volume may indicate not only attention-driven purchases but also attention-driven sales. In addition, Da, Engelberg, and Gao, (2011) argue that although in the literature, various measures are used as proxy for investor attention (e.g., past performance, unusual trading volume, media coverage, and marketing efforts), all these types of measures are indirect and based on the critical assumption that investors pay attention to a stock or a fund with salient information or intensive marketing activities.[1] Empiricists, therefore, face a substantial challenge when examining the attention-grabbing purchase hypothesis.

In this study, we focus on the mutual fund market and employ a direct measure of investor attention using the search volume index (SVI) provided by Google Trends to examine the attention-grabbing purchase hypothesis and investigate the role of investor attention in future fund performance and the survivorship of new funds. As Odean (1999) states, attention-driven purchases are made mainly by individual investors; mutual funds transactions are also initiated

[1] In terms of proxies for investor attention to stocks, please see Gervais, Kaniel, and Mingelgrin (2001); Barber and Odean (2008); Hou, Peng, and Xiong (2009); Lou (2014); and Yuan (2015). In terms of proxies for investor attention to mutual funds, please see Goetzmann and Peles (1997); Sirri and Tufano (1998); Khorana and Servaes (1999); Jain and Wu (2000); Mamaysky and Spiegel (2002); Massa (2003); Siggelkow (2003); Huang, Wei, and Yan (2007); Pollet and Wilson (2008); Bergstresser, Chalmers and Tufano (2009); Christoffersen, Evans, and Musto (2013); and Gallaher, Kaniel, and Starks (2015).

by household investors, who hold approximately 89% of the total of mutual fund assets (Investment Company Institute, 2020). Thus, fund flows can better represent the purchase behavior of individual investors. In addition, Google Trends releases the SVI that depicts how often a particular search term (or query) has been entered into the Google search engine. The SVI provides opportunity to measure directly investor attention to a certain fund and avoids strict assumptions or potential problems associated with attendant proxy measures of investor attention (see Bank, Larch, and Peter, 2011; Da, Engelberg, and Gao, 2011; Drake, Roulstone, and Thornock, 2012; Vlastakis and Markellos, 2012). Therefore, using the mutual fund market and employing SVI information as a direct measure of investor attention allow a more powerful test for the attention-grabbing purchase hypothesis. Furthermore, we investigate whether investor attention affects future fund performance and the survivorship of new funds.

We begin by examining the existence of attention-driven purchases in the mutual fund market. Specifically, we posit that when a new fund attracts greater attention from investors, the fund will receive greater net fund flows. To gauge investor attention, we construct a measure of abnormal SVI (ASVI) for each fund by taking the difference between its SVI and its median SVI. The empirical results show that new funds with higher ASVIs attract more fund inflows, supporting the attention-grabbing purchase hypothesis. That is, investors who use the Google search engine to collect information on newly issued funds tend to be net buyers of attention-grabbing funds. We also break down the sources of investor attention into tangible and residual factors. Tangible factors include 12b-1 fees, past fund performance, and several other characteristics of a fund and its fund family. Residual factors are associated with unobserved marketing efforts, unobserved characteristics of a fund and its fund family, and intangible factors like online buzz. We find that investor attention attributed to both tangible and residual factors can induce investors to invest more money in newly issued funds.

The relationship between fund flows and future fund performance remains inconclusive in mutual fund studies. Gruber (1996), Zheng (1999), and Keswani and Stolin (2008) find the existence of a smart money effect in the U.S. and U.K. mutual fund markets; however, Sapp and Tiwari (2004) find no evidence that mutual funds with more inflows subsequently perform better after controlling for the momentum factor. In addition, Friesen and Sapp (2007) and Frazzini and Lamont (2008) find that individual investors have poor timing and fund selection abilities, resulting in poor performance over the next few years. Inspired by the mixed evidence associated with the smart money effect, we examine whether investors who pay attention to some new funds and subsequently buy them exhibit better performance from their fund investments. We find that fund flows from higher ASVIs are not significantly associated with future fund performance. Thus, the fund flows induced by investor attention tend not to be smart money and do not provide a signal for indicating outperforming funds. Instead, attention-driven purchases are more likely to be associated with unsophisticated or overconfident trading.

We then examine whether the sustainability of newly issued funds is positively related to attention-driven purchases. This relationship may hinge on the information cascade or the popularity of new funds. Studies of social learning confirm that an individual's decision to engage in new behavior depends on the choices of other people, leading to an information cascade (Bikchandani, Hirshleifer, and Welch, 1992; Miller, Fabian, and Lin, 2009). In the marketing literature, the Bass model (Bass, 1969; Mahajan, Muller, and Bass, 1990) describes new product diffusion and posits that in the introduction stage of the product life cycle, early adopters of new products are affected by external influences, such as mass media. Analogous to the case of experience products, fund investors may look for extrinsic attributes—such as the popularity of the fund—for their decision-making. We posit that extrinsic cues, such as the popularity of a product as indicated by fund inflows attributed to internet searches, may become more important for investors considering the purchase of newly issued fund shares. Increased attention-driven purchases can lead to greater information cascade for a newly issued fund, which in turn signals the popularity of this fund to investors, thereby improving its sustainability in the fund market. Our empirical results demonstrate that a new fund can endure longer if it can generate more fund flows from investor attention. The finding supports the marketing idea that attention-driven fund flows can lead to an information cascade and increase the popularity of a new fund; therefore, greater fund inflows can be observed in the future, which subsequently enhance the survivorship of the fund.

Besides focusing on new funds, we also include old funds in our sample and investigate the differences in new funds and old funds with regard to the issues of attention-driven purchases, the smart money effect, and fund survivorship. Similar to the results for new funds, the results for old funds support the attention-grabbing purchase hypothesis, but the effect of investor attention attributable to tangible (intangible) factors is more pronounced for new (old) funds. We also find consistent results indicating that old funds with more internet searches tend to experience worse future performance, and that more attention-driven fund flows fail to predict better performance for old funds. Because old funds are more likely to produce less of an information cascade effect, attention-driven fund flows cannot enhance survivorship of old funds.

We further examine several issues regarding the robustness of our empirical results. Specifically, we obtain similar results from the two-stage least squares (2SLS) method, the generalized method of moments with instrumental variables (IV-GMM), the Heckman two-stage model, and the analysis using an alternative measure of fund flows from the N-SAR filings. We also find that the main results hold for the subsamples of incubated and nonincubated funds. Thus, the findings regarding the role of investor attention in explaining fund flows, future performance, and the survivorship of newly issued funds are robust after taking into consideration the measurement and omitted variables, sample selection bias, and fund incubation.

This study makes several contributions to finance literature. First, we use Google search data to examine how individual investor attention affects mutual fund investment decisions. Empirical literature examining the attention-grabbing purchase hypothesis focuses mainly on the stock market and investigates the association between the proxy of investor attention and the trading volume; however, trading in the stock market involves both buying and selling. A high-attention stock that has higher trading volume may indicate not only attention-driven purchases but also attention-driven sales. By contrast, transactions involving mutual funds are the deals between individual investors and investment companies. Households hold approximately 89% of the total of mutual fund assets (Investment Company Institute, 2020); therefore, fund inflows can better represent the trading behavior of individual investors. Thus, finding a positive relation between the ASVI and fund inflows for mutual funds provides direct and concrete evidence in support of the attention-grabbing purchase hypothesis.

Second, a mutual fund is believed to attract more investor attention if the fund and the fund family put more marketing effort into its advertisement; however, Gallaher, Kaniel, and Starks (2015) show that the full extent of advertising expenditures is not observable through regulatory filings like 12b-1 fees. In this study, internet searches attributed to residual factors that reflect investor attention triggered by unobservable marketing efforts, and intangible factors (including online buzz) provide an opportunity to examine whether residual factors can affect future fund flows, fund performance, and fund survivorship. Our empirical results not only confirm the effectiveness of residual factors in driving future fund flows but also identify a detailed channel through which the unobservable marketing efforts contained in residual factors can increase internet searches for a specific mutual fund and then induce more fund investments in the future.

Third, when the mutual fund industry exerts substantial effort associated with attracting investor attention and increasing fund flows, asking whether the efforts help imperfectly informed investors find outperforming investment more easily is important. Prior researchers examine whether investors are "smart" when selecting mutual funds (Zheng, 1999; Frazzini and Lamont, 2008; Keswani and Stolin, 2008; Singal and Xu, 2011); however, mixed findings from those studies still render the smart money effect inconclusive. We contribute to this stream of research by analyzing whether attention-driven purchases are smart, but we find no positive relation between attention-driven fund flows and future fund performance. This indicates that attention-driven purchases are more likely attributable to investor-associated cognitive dissonance.[2] Furthermore, this study uses big data to advance our understanding of collective investor behavior in the mutual fund industry.

The paper is organized as follows. In Section 2, we describe the measure of investor attention and data used in this study. In Section 3, we empirically test the research questions and discuss how SVI is associated with net fund flows, future fund performance, and the survivorship of newly issued funds. In Section 4, we provide various robustness tests. Section 5 presents the

[2] Although Barber, Huang, and Odean (2016) and Ben-David, Li, Rossi, and Song (2019) demonstrate that retail mutual fund investors are less sophisticated and tend to rely blindly on fund rankings, the absence of the smart money effect in this study does not exclude the possibility of sophisticated investors who wisely allocate capital across mutual funds but are less likely to gather information through internet searches.

study's conclusions.

2. Data and Sample Description

2.1 Investor attention

In this study, we employ the SVI provided by Google Trends and construct an ASVI as a measure of investor attention. We focus our analysis on new equity funds and use the fund name without share information in queries to obtain the SVI of each fund for two reasons. First, fund ticker symbols are more complex than stock ticker symbols, and investors will not find or remember fund ticker symbols easily, especially when such funds are newly issued; therefore, investors plausibly prefer using a fund name as a query term when they are interested in a specific mutual fund. Second, mutual funds are usually named after their fund family and its investment objectives. If an investor inputs only a portion of a fund name into a query, he or she may obtain information on the fund family or a certain investment objective simultaneously. Thus, investors tend to input the full name of the mutual fund into the Google search engine to obtain information on an attractive fund. We also try alternative terms as the keyword for each mutual fund to obtain a valid SVI and make sure the keyword is the most popular term searched by investors.

Google Trends standardizes the search volume for each term based on its highest search volume during a search period. The standardized measure of SVI makes conducting cross-sectional comparisons difficult if two funds have different highest monthly search volumes. Inspired by Da, Engelberg, and Gao (2011) and Drake, Roulstone, and Thornock (2012), we use an ASVI by taking the difference between the SVI and the median SVI for each fund to address the said limitation. The ASVI describes the level of investor attention associated with a fund in a certain month relative to the fund's median SVI over the first 12 months following its issuance. This allows conducting cross-sectional analyses for various newly issued funds.

2.2 Investor attention induced by tangible factors and residual factors

The SVI can serve as an aggregate measure of investor attention that is attributable to both the tangible factors included in a regression model and a residual measure of attention that is, by construction, unrelated to the other observable factors controlled in the model. Mutual funds with larger advertising budgets are more likely to attract investors' attention. Other tangible factors associated with the fund's or the fund family's characteristics, such as number of share classes, fund load, fund performance, fund size, fund family size, and the reputation of the fund family, may also be related to investor attention. For example, after reading a Morningstar article that lists past winners and losers, investors might copy and paste the names of past winners and check the fund information before proceeding to purchase them. Thus, investor attention associated with a certain fund could be attributed to relevant fund and fund family characteristics. However, Gallaher, Kaniel, and Starks (2015) show that 12b-1 fees cannot reflect the differences in marketing efforts across mutual funds or mutual fund families. A survey by the Investment Company Institute shows that less than five percent of 12b-1 fees are used for advertising activities. Consequently, the full extent of advertising expenditures cannot be observed through tangible factors. In addition, investors may also become interested in a fund via suggestions from peers and online chat rooms and subsequently use internet searches to obtain information about it. Hence, the residual from the regression model will capture investor attention arising from either unobservable marketing efforts or intangible factors associated with word of mouth and online buzz or both.

We investigate how these two types of investor attention relate to fund flows, future fund performance, and the survivorship of newly issued funds. For this purpose, we follow Das, Guo, and Zhang (2006), Da, Engelberg, and Gao (2010), and Drake, Roulstone, and Thornock (2012) in decomposing the measure for investor attention into a tangible component that is associated with relevant observable characteristics of funds or fund families, and its residual component that is likely associated with unobservable fund characteristics or online buzz. In addition, previous studies (e.g., Sirri and Tufano, 1998; Huang, Wei, and Yan, 2007; Bergstresser, Chalmers, and Tufano, 2009) show that increases in expenses earmarked for marketing tend to reduce investors' search costs. Because 12b-1 fees, front-end loads, and back-end loads may partly reflect expenditures for marketing or selling efforts, we control for load fees and annual 12b-1 fees in a model to measure investor attention. We also include prior returns, fund size, the number of share classes, and an incubation dummy to capture newly issued fund characteristics and average 12b-1 fee, family size, the longest survival time among funds, and the SVI for the fund family to control for several characteristics associated with the fund family. We therefore develop a regression model by regressing a fund's ASVI on various characteristics of the fund and its fund family as follows.

$$\begin{aligned} ASVI_{i,t} &= \alpha + \beta_1 12b\text{-}1_{i,t-1} + \beta_2 RET_{i,t-1} + \beta_3 \left(RET_{i,t-1}\right)^2 + \beta_4 Load_{i,t-1} + \beta_5 \log\left(Fund\_TNA_{i,t-1}\right) \\ &\quad + \beta_6 Num\_Class_{i,t-1} + \beta_7 Incubation_i + \beta_8 Family\_12b\text{-}1_{i,t-1} + \beta_9 \log\left(Family\_TNA_{i,t-1}\right) \quad , \qquad (1) \\ &\quad + \beta_{10} Max\_age\_Family_{i,t-1} + \beta_{11} SVI\_Family_{i,t} + Year\_dummies + Style\_dummies + \varepsilon_{i,t} \end{aligned}$$

where *ASVI*, *12b-1*, *RET*, *Load*, *Fund_TNA*, *Num_Class*, and *Incubation* represent the fund characteristics, namely, the ASVI, 12b-1 fees, fund returns, load fees, total net assets under management, the number of share classes, and the incubation dummy for funds, respectively. *Family_12-1*, *Family_TNA*, *Max_age_Family*, and *SVI_Family* represent fund family characteristics, namely, the average family 12b-1 fees, total net assets under management, the longest survival time among funds in the family, and the SVI for fund families, respectively. Table 1 shows the regression results on the determinants of ASVI, and we find that ASVI is significantly associated with prior fund performance, the number of classes, the maximum age of the fund family, and the SVI of the fund family. Prior fund performance, as one of the key determinants of ASVI, may be related to the performance-chasing behavior of unsophisticated investors. The other tangible characteristics, such as 12b-1 fees, load fees, fund size, the incubation dummy, the average 12b-1 fee of the fund family, and family size, cannot significantly determine the ASVI of newly issued funds. In addition, the adjusted R-square of these regressions is only about 2.2%, suggesting that existing proxies of attention can explain only a small portion of the variation of ASVI. This indicates that ASVI involves a part of investor attention that cannot be captured by proxies of attention or tangible factors associated with marketing or selling efforts; therefore, decomposing ASVI can help in exploring the role of unobservable investor attention in the inflows and performance of funds. We use Equation (1) to decompose ASVI into the expected abnormal search volume index (EASVI) and the residual abnormal search volume index (RASVI) for each new fund as follows.[3]

<Insert Table 1 about here>

$$\begin{aligned} EASVI_{i,t} = {} & \hat{\beta}_{0,i} + \hat{\beta}_1 12b\text{-}1_{i,t-1} + \hat{\beta}_2 RET_{i,t-1} + \hat{\beta}_3 \left(RET_{i,t-1}\right)^2 + \hat{\beta}_4 Load_{i,t-1} + \hat{\beta}_5 \log\left(Fund\_TNA_{i,t-1}\right) \\ & + \hat{\beta}_6 Num\_Class_{i,t-1} + \hat{\beta}_7 Incubation_i + \hat{\beta}_8 Family\_12b\text{-}1_{i,t-1} + \hat{\beta}_9 \log\left(Family\_TNA_{i,t-1}\right) \\ & + \hat{\beta}_{10} Max\_age\_Family_{i,t-1} + \hat{\beta}_{11} SVI\_Family_{i,t} \end{aligned}, \tag{2}$$

$$RASVI_{i,t} = ASVI_{i,t} - EASVI_{i,t}, \tag{3}$$

in which $\hat{\beta}_{0,i}$ is the sum of the estimated coefficients of the intercept, respective year dummies,

[3] We also use different EASVIs and RASVIs from Model (1) in Table 1 and other models excluding insignificant variables or fixed-effect dummies and obtain empirical results consistent with the current EASVI and RASVI.

and style dummies, and $\hat{\beta}_1$ to $\hat{\beta}_{11}$ are the estimated coefficients from the ordinary least squares regression of Equation (1). Thus, EASVI is the measure of investor attention attributable to observable tangible factors or fund characteristics. The residual obtained from this model, RASVI, is the measure of investor attention orthogonal to the tangible factors. We further divide the sample into five groups based on RASVI and check the characteristics of each group. However, as Appendix Table B1 shows, we could not find a clear trend across RASVI groups; therefore, we define RASVI as the investor attention attributed to unobservable marketing efforts and/or intangible factors associated with word of mouth and online buzz.

2.3 Data and summary statistics

Since data from Google Trends are not available until 2004, our study focuses on newly issued equity funds from January 2004 to April 2012. We use the earliest offering date as the inception date if the fund has different inception dates for its multiple share classes. To investigate the effects of internet searches on newly issued funds, we include fund months of equity funds for the first year following their inception or the length of the fund's existence if it does not survive for one year. The information on newly issued equity funds is collected from the Center for Research in Security Price (CRSP) Survivor-Bias Free U.S. Mutual Fund Database and includes monthly returns, turnover ratios, 12b-1 fees, fund expense ratios, fund loads, total net assets under management by the fund, and investment objectives. Following Sirri and Tufano (1998), Jain and Wu (2000), Barber, Odean, and Zheng (2005), and Agarwal and Ma (2012), we calculate the net fund flows as the change in total net assets adjusted for returns. For funds with multiple share classes in the CRSP mutual fund database, we compute the sum of total net assets in each share class for the total net assets in the fund and the value-weighted average across the share classes for the fund's monthly return, 12b-1 fees, net expense ratios, fund loads, turnover ratios, and monthly fund flows. We obtain the survival time for each fund by tracking the period from the first month of each newly issued fund to the most recent month with available fund return data. The survival time is censored at 24 months or April 2012. We follow Nanda, Wang, and Zheng (2004) to define star funds as the top five percent of funds among domestic equity funds with the highest monthly average three-factor adjusted return over the previous 12 months. Family variables, such as the number of star funds in a fund family and the total net assets under management by a family, are also collected. For fund performance measures, we employ 12-month holding period return, market-adjusted return, objective-adjusted return, risk-adjusted return, and value-added performance from Berk and van Binsbergen (2015). As a result, we have a sample of newly issued equity funds with their respective SVIs, monthly returns, 12b-1 fees, net expense ratios, fund loads, turnover ratios, number of share classes, total net assets under management, monthly fund flows, survival times, number of star funds in the fund family, total net assets under management by the family, and fund performance measures. Detailed variable definitions are relegated to Appendix A.

Table 2 presents the distribution of newly issued funds and summary statistics for the various variables associated with newly issued funds. Panel A shows that the sample includes 2,721 newly issued equity funds during the sample period. Among them 296 newly issued funds and 3,450 fund months have SVIs. Panel B shows that the averages of the ASVIs, EASVIs, and RASVIs are 0.0026, -0.1730, and 0.0486, respectively. Furthermore, new funds can attract an average net flow of \$7.51 million each month, and the newly issued funds in our sample have a mean monthly return of 0.36% and a median of 0.77%. The annual averages for 12b-1 fees, fund expenses, and fund loads are 0.14%, 0.95%, and 3.18%, respectively. The average of total net assets under management is \$119.24 million, and the average annual turnover ratio is 69.83%. In terms of subsequent 12-month performance, Fama–French three-factor alpha, Fama–French four-factor alpha, the value-added performance measure based on Vanguard indexes, and the value-added performance measure based on Fama–French four-factor model are, on average, -0.0672, -0.1097, -0.3672, and 0.3688, respectively.[4]

Compared with new funds without SVI, new funds with SVIs have more net fund flows, higher expense ratios and loads, higher incubation rate, larger fund size and fund family, and lower turnover. In terms of subsequent 12-month performance, however, no consistent results are found among risk-adjusted and value-added performance measures. Panel C presents the correlations among variables. A positive correlation coefficient of 0.07 between ASVI and net fund flows indicates the existence of attention-driven purchases among fund investors. In addition, to examine the persistence of investor attention, we divide the sample funds into two groups based on their average SVIs at the end of each year. We then investigate the percentage of high-attention (low-attention) funds that will be assigned to high-attention (low-attention) groups in the following year. Table B2 of Appendix B shows very strong attention persistence, especially for the investor attention attributed to tangible factors. Therefore, investor attention in terms of the SVI may extend beyond the focus on past winners, given the known lack of evidence on performance persistence.

<Insert Table 2 about here>

[4] Because of the requirement of the estimation period, the number of observations for risk-adjusted alphas and value-added performance measures are 18,837, 2,189, and 16,648 for all new funds, new funds with SVIs, and new funds without SVIs, respectively.

3. Empirical Results

3.1 Fund flows of newly issued funds

To test the attention-grabbing purchase hypothesis, we propose a regression model to examine whether investor attention can affect the fund flows of newly issued funds. Specifically, the dependent variable is the net fund flows of the newly issued fund, and the independent variable of interest is the ASVI. We also control for the prior net fund flows, 12b-1 fees, monthly fund return, the square of the monthly fund return, fund loads, expense ratios, fund total net assets, family total net assets, a dummy for star funds in the family, yearly fixed effects, and style fixed effects. Model (1) in Panel A of Table 3 shows a significant coefficient of 0.0278 on the ASVI. In terms of economic significance, this suggests that a one standard deviation increase in the ASVI will result in an additional fund flow of $0.5 million in the following month, which represents a five percent increase in the average monthly fund flow for newly issued funds. Thus, investor attention can help newly issued funds attract more fund inflows. In addition, we find that prior-month performance, 12b-1 fees, and expense ratios are also key determinants, which is consistent with the findings of Sirri and Tufano (1998) and Barber, Odean, and Zheng (2005). The positive relation between net fund flows and fund size supports the existence of the momentum effect on fund flows, which causes larger funds to continue attracting fund flows.

<Insert Table 3 about here>

We further decompose the ASVI into the EASVI and RASVI and examine whether investor attention will have different effects on net fund flows when it is induced by tangible attention factors versus residual attention factors. Models (2) to (4) show that the EASVI and RASVI are positively related to net fund flows. The significant coefficient for EASVI supports the argument of Sirri and Tufano (1998), Khorana and Servaes (1999), and Barber, Odean, and Zheng (2005) that advertisements and sales promotions can help mutual funds generate more inflows; however, this study provides a further channel—internet searches—to describe how advertisements can affect fund flows. In addition, given that prior fund performance is a key determinant of EASVI, the finding indicates that unsophisticated investors tend to search for past winners' names before purchasing fund shares.

The positive relation between RASVI and net fund flows suggests that investor attention attributed to residual factors can increase net fund flows as well. RASVI includes not only investor attention from marketing efforts that cannot be captured by tangible factors but also investor attention attributed to word of mouth or online buzz. Indeed, unsophisticated investors may learn a fund name from their relatives, friends, or online chat rooms in addition to receiving marketing information from a fund family or a financial advisor; however, they may need more information about the fund prior to making an investment decision. The online search engine is a key tool for these unsophisticated investors to obtain relevant fund-related information. Increased online searches thus motivate more attention-driven purchases from these unsophisticated investors. In addition, Model (4) shows that investor attention induced by residual factors still triggers more fund flows after controlling for tangible factors. The significantly positive coefficients for both EASVI and RASVI thus support the notion of attention-driven purchases: investors tend to buy a mutual fund after they obtain relevant fund information via the Internet. Model (5) includes an SVI dummy equal to one if a fund has nonmissing SVIs. This allows singling out the sample with internet searches within the full population of new funds. The significantly positive coefficient for the SVI dummy indicates that new funds can obtain more fund flows if their internet search records pass through a certain threshold that Google Trend sets.

Chevalier and Ellison (1997) and Sirri and Tufano (1998) document evidence showing that flow–performance sensitivity is not linear. As Table 1 shows, the SVI is driven mainly by prior fund performance. The relationship between ASVIs and net fund flows may also be nonlinear. We, therefore, apply piecewise regression models inspired by Sirri and Tufano (1998) to examine flow–performance sensitivity and attention-driven purchases. Panel B of Table 3 confirms the nonlinear flow–performance sensitivity: investors disproportionally purchase more high-performing funds. In addition, we find that the positive relation between ASVIs and net fund flows occurs only among funds with high ASVIs, indicating that investors tend to purchase funds that highly attract their attention but do not redeem funds that draw less attention.

We also examine attention-driven purchases during the crisis and noncrisis periods. Table B3 of Appendix B shows that attention-driven purchases exist in both crisis and noncrisis periods; however, investor attention attributed to unobservable marketing efforts or intangible factors is not significantly related to fund flows during a crisis period. This may suggest that investors tend to be more conservative in their investment decisions during a crisis period; therefore, they rely more on tangible factors, such as prior fund performance and fund expenses, when making fund investment decisions.

3.2 Are attention-driven purchases smart money that earns better fund returns?

Because online investor attention via internet searches can enhance the fund flows of newly issued funds, we are interested in exploring whether attention-driven fund flows are associated with informed predictions of future fund performance. We adopt Das, Guo, and Zhang's (2006) regression method to regress net fund flows on prior fund ASVIs for each fund and obtain expected fund flows as the proxy of fund flows driven by investor attention. We then include the attention-driven fund flows in the fixed-effects models as an independent variable of interest, and employ 12-month holding period returns, market-adjusted returns, and objective-adjusted returns as the dependent variables in Panel A of Table 4 and use risk-adjusted returns as the dependent variables in Panel B. The results in Panel A show significantly negative coefficients for all of the attention-driven fund flows. As for risk-adjusted returns, Panel B shows either negative or insignificant coefficients for the attention-driven fund flows.[5] This indicates that attention-driven purchases do not predict better future performance.

<Insert Table 4 about here>

The rapid growth of fund flows associated with investor attention may plausibly hinder fund performance because fund managers cannot efficiently build optimal portfolios in the short term. Poor performance in the near future will thus be observed when mutual funds obtain large cash inflows; however, in terms of the coefficients of ASVI, EASVI, and RASVI, we find that internet search has a larger negative effect on the 12-month holding period return than on the six-month holding period return (see Table 1 of the online Appendix). This indicates that the poor performance of high-attention funds may not result from the inefficient allocation of increasing fund flows.

Gruber (1996), Zheng (1999), and Keswani and Stolin (2008) show the existence of a smart money effect that investors can identify and use to guide their investment in funds that will outperform in the future. By contrast, we find no evidence that the future performance of new funds is positively related to the fund flows induced by internet search behaviors. Although some

[5] We also include CAPM alpha and Fama–French five-factor alpha as the dependent variable and obtain consistent results. We report these empirical results in Table 1 of the online Appendix.

fund flows may possibly be smart enough to attain good performance, the associated attention-driven flows may not be as smart as the fund flows produced by investors who have undertaken significant amounts of work before making prudent fund investment decisions. Specifically, investors cannot generate superior fund-related future returns when they exclusively follow online buzz and associated suggestions. Furthermore, Festinger (1957), Barber and Odean (2002), and Peng and Xiong (2006) argue that investors tend to exaggerate their information-processing abilities and overweight the accuracy of their forecasts; indeed, this may even lead to future return reversals. Our findings tend to suggest that more online searches induce more cognitive dissonance and thus more attention-driven purchases. Because unsophisticated investors are likely to overweight the accuracy of their predictions, the future performance of investments motivated by attention are less likely to be superior to that of the market or of other funds with the same objectives. In addition, fund flows driven by RASVI can represent the herding behavior of unsophisticated investors who search for information about the fund discussed in chat rooms and subsequently purchase the fund. The absence of the smart money effect of fund flows driven by RASVI may, therefore, result from the herding behavior of attention-driven purchases.

3.3 Relationship between fund survivorship and attention-driven purchases

Jayaraman, Khorana, and Nelling (2002), Zhao (2005), and Cogneau and Hubner (2015) show that fund performance and fund flows can affect the survivorship of a fund. Indeed, a fund family is more likely to discontinue a fund via a merger or liquidation if the fund has experienced poor performance or failed to attract fund flows from its sales. In addition, the previous section demonstrated that investor attention is one of the key factors determining the fund flows of newly issued funds, suggesting that new funds can bring in net inflows if they can attract investor attention via internet searches. We thus investigate whether attention-driven purchases can affect the survivorship of new funds.

Among 296 newly issued funds with SVIs in our sample, approximately 80% of them (238 funds) remain in the market two years after their issuance while 20% of the funds (58 funds) issued during the sample period did not survive for two years; indeed, the average survival is 18 months.[6] Compared with nonsurviving funds, surviving funds have better fund performance in terms of prior monthly returns, larger net fund flows, higher 12b-1 fees, higher fund loads, higher turnover ratios, and larger fund families in terms of assets under management. As for the internet search volume, no statistical difference in SVIs was shown between surviving funds and nonsurviving funds (see Appendix Table B4).

We then use a logistic regression model to investigate whether fund flows driven by investor attention can determine the survivorship of newly issued funds. Specifically, the dependent variable of a logistic regression model is a termination dummy equal to one if a newly issued fund is terminated within two years and zero otherwise. The independent variables are expected fund flows driven by ASVIs and the control variables, including the first-quarter average of 12b-1 fees, fund performance, fund loads, net expense ratios, net flows, logarithm of fund size, logarithm of fund family size, and number of star funds in the family.

Table 5 reports the effect of attention-driven purchases on fund survivorship. We find that the coefficients of expected funds flows driven by investor attention are significantly negative, and *p*-values are less than one percent. We also obtain consistent results based on a quarterly

[6] The rationales underlying the two-year window are as follows. First, Zhao (2005) provides evidence that many fund families make “to be or not to be” decisions for newly launched funds that have not yet reached expectations in their early stages to avoid poor Morningstar ratings because Morningstar ratings are available only for funds with a minimum three-year history. Second, as we mentioned, newly launched funds with short track records can account for a large amount of global fund flows.

frequency (see Appendix Table B5). The results suggest that newly issued funds can survive for longer periods if those funds can generate more fund flows attributed to investor attention. In addition, the coefficients of net fund flows are relatively small and not as significant as that of the expected fund flows driven by investor attention. This suggests that the fund family does not focus mainly on net fund flows when mutual funds are newly issued. Instead, the fund family of a newly issued fund may focus on augmented fund flows per unit of investor attention. If a newly issued fund can effectively convert internet searches to fund flows, the fund can survive in the market longer.

<Insert Table 5 about here>

Attention-driven purchases may enhance survivorship of new funds through two possible channels. One is better future performance; the other is the popularity of new funds. Combined with the finding of no smart money effect in the previous section, the enhanced survivorship of new funds is more likely attributable to the popularity of new funds than to their future performance. Based on the information cascade in new product adoption (as documented in the marketing literature), increased attention-driven purchases signal a new product's popularity to investors, thereby enhancing the success of new funds. In addition, the herding behavior of unsophisticated investors, which can be captured by fund flows from RASVI, may strengthen the information cascade. Therefore, increased attention-driven flows can lead to greater information cascade and help new funds remain longer in the fund market, even though better performance is not guaranteed.

3.4 Old funds vs. new funds

Although restricting the sample to newly issued funds can mitigate a potential problem that investors may use the Google search engine to track funds they bought, investigating whether investor attention leads to a buy decision, even in old funds, is informative. We, therefore, include 6,092 old funds (332,118 fund months) that have been issued for more than one year. Among them, 738 funds have SVIs and 5,354 funds have no SVI during the sample period. Similar to new funds, old funds with SVIs have more fund flows, higher expense ratios and loads, larger fund size and fund family, and lower turnover than old funds without SVIs (see Appendix Table B6). In addition, old funds with SVIs exhibit better risk-adjusted and value-added performance in the subsequent 12 months. We then try to investigate whether the online search of fund information is a phenomenon mostly prevalent in the case of new funds or whether it is also a characteristic of old funds. Table 6 shows the proportions of high internet searches among new funds and old funds. Specifically, a high internet search fund month is defined as a fund month with ASVI above its median ASVI over the sample period. We find that old funds have higher search volume from tangible factors (EASVI) than new funds by 26.07%, whereas new funds have higher search volume from intangible factors (RASVI) than old funds by 6.48%. This may indicate that investors, even fully rational ones, tend to obtain information from unobservable factors for new funds even though these informative variables about future performance would be less precise for new funds.

<Insert Table 6 about here>

Panel A of Table 7 supports the existence of attention-driven purchases among old funds. Similar to new funds, old funds with more internet searches can attract more fund flows in the future. We also find a strong disproportionate effect on the flow–attention sensitivity among old funds and, therefore, can conclude that attention-driven purchases exist in the mutual fund market. Investors who use the Google search engine to obtain information related to mutual funds are likely to invest in mutual funds in the near future.

<Insert Table 7 about here>

We further compare investor attention to new funds and old funds by introducing an interaction term between ASVIs and a dummy variable equal to one if the fund is newly issued within one year. Panel B of Table 7 shows that in terms of ASVI, the effect of attention-driven purchases is not significantly different for new funds and old funds. The effect of EASVI is more pronounced for new funds, suggesting that our measure of investor attention attributable to observable factors or fund characteristics has a larger effect in predicting future fund flows in the sample of newly issued funds than in the group of old funds. Combining the results in Table 6, we find that even though rational investors may search information from unobservable factors for new funds, such rational investors may not give them more weight in their decision making process for new funds. The purchase decisions based on internet searches from unobservable factors are, therefore, more likely made by irrational investors.

Table 8 presents the results of the smart money effect for old funds. Consistent with the results for new funds, we find that attention-driven fund flows do not predict better future performance of old funds. Furthermore, when we include an interaction variable with new funds, new funds exhibit no significant difference or even worse future performance in terms of the smart money effect. Overall, the evidence suggests no smart money effect induced by internet searches to earn better future fund returns.

<Insert Table 8 about here>

In terms of survivorship, 102 out of 738 old funds are terminated during the sample period. Surviving funds have higher ASVIs and EASVIs, but there is no statistical difference in RASVIs between the surviving and nonsurviving funds. In addition, surviving funds exhibit better fund performance in terms of prior monthly returns; attract more net fund flows; have lower 12b-1 fees, fund loads, and turnover ratios; and have larger fund families in terms of assets under management (see Appendix Table B7). Different from new funds, Table 9 shows that the attention-driven fund flows of old funds are not related to fund survivorship. Prior results for new funds in Table 6 indicate that the enhanced survivorship of new funds may result from the information cascade or the popularity of new funds. Investors can nevertheless obtain more relevant information for old funds such as fund performance and annual reports. Thus, old funds tend to exhibit lower information cascade effect arising from internet search activities. Fund popularity as measured by attention-driven purchases may not indicate greater future fund flows for old funds nor does it have a significant effect on old fund survivorship. That is, when fund families decide for old funds to exit, they do not need to focus on factors applied to new funds, such as the effectiveness of online advertisements or the popularity of the funds. Instead, fund families may focus on the real contribution of their affiliated old funds, such as the total net assets that the old funds can obtain, in their exit decision.

<Insert Table 9 about here>

4. Robustness Check

4.1 Causal effect and omitted variable bias

One may argue that a positive relation between fund flows and the SVI may be subject to the problem of causal effect. Although investors tend to buy funds that attract their attention, higher search volumes can also be induced by previous buying. Investors may use the Google search engine to track their holdings or analyze funds that they have bought; thus, a positive relation between fund flows and ASVIs can be observed. The potential causal problem could be mitigated by focusing on newly issued funds. Relative to existing mutual funds, the search volume of newly issued funds is less likely created by existing fund holders who tend to check their investment performances intermittently.[7]

In addition to the causal effect, the existence of an unobserved variable that determines both investor attention and inflows for a fund may raise an omitted variable bias. We introduce a 2SLS model and an IV-GMM to address the omitted variable problem. In the 2SLS model, we introduce two exogenous instrumental variables to examine whether concern over the endogeneity problem will affect our findings. We use the number of letters in the fund name and the SVI of the keyword "mutual fund" as exogenous independent variables in the first stage of the model. If a fund name is too long to be memorized by investors, it may affect their search behaviors; thus, the SVI is likely to be affected by the length of a fund name. By contrast, fund-related investment decisions are presumably not related to the length of the fund name; if they were related, we would have observed a pattern of fund names growing shorter (or longer) year by year. Thus, the number of letters in the fund name suffices for the SVI instrument variable.

The number of letters in a fund name can explain only the cross-sectional variation in ASVIs. Therefore, we introduce an additional instrumental variable, the SVI of the keyword "mutual fund," to explain time-series variation in the abnormal search volume. People may type the keyword "mutual fund" into the Google search engine without any intention to buy. For example, business school students take investment classes and use the Google search engine to analyze a certain mutual fund even though they do not intend to buy it. The most common step

[7] However, we still cannot rule out the potential endogeneity that fund flows may be associated with online searches from existing fund holders who are sophisticated.

for these students is to put the keyword "mutual fund" into the Google search engine before analyzing a specific mutual fund. The SVI of that keyword may be associated with the SVI of the specific fund; however, the SVI of the keyword may not directly affect the fund flows of that fund. Thus, the SVI of the keyword "mutual fund" might be a candidate for the instrument variable to clarify the time-series variation in the abnormal search volume.

We also incorporate the IV-GMM to examine the attention-grabbing purchase hypothesis. Hansen (1982) states that the 2SLS model is a special case of the generalized method of moments with the assumption of homoscedasticity and may be inefficient in the general overidentified case with heteroscedasticity. We therefore apply IV-GMM to control for unobserved heterogeneity in panel data (Blundell and Bond, 1998) and obtain more efficient estimations.

Panel A of Table 10 presents the results of the 2SLS regressions. In Models (1)–(3), the first-stage regressions show that the SVI of "mutual fund" can explain the ASVI, EASVI, and RASVI; this suggests that people who use the Google search engine to search for "mutual fund" tend to search for a specific mutual fund at the same time. In Model (2), the first-stage regression shows a significantly negative relation between the number of letters in the fund name and the EASVI and a significantly positive relation between the SVI of "mutual fund" and the EASVI, indicating that both instrumental variables can capture variation in the investor attention attributed to tangible factors. In addition, we perform an F-test to examine whether including additional instrumental variables increases the significant explanatory power of the first-stage regression. We find that p-values for the F-test are less than 0.5%, indicating that the instrumental variables enhance the explanatory power for estimating the endogenous variables. In the second stage of 2SLS regressions, consistent with the attention-grabbing purchase hypothesis, we still find a significantly positive relation between the ASVIs and net fund flows. Panel B of Table 10 shows the robust results from the IV-GMM, indicating that the positive relation between the ASVIs and net fund flows still holds.

<Insert Table 10 about here>

4.2 Sample selection bias

Google Trends does not return any value if all query search frequencies are at a relatively low level during the search period. As a result, the sample in this study covers only approximately 11% of newly issued equity funds during the sample period. This may induce a sample selection bias if we include only new funds with nonmissing SVIs as the sample to investigate the effects of internet searches. To address the small sample problem, we include an SVI dummy variable equal to one if the fund has nonmissing SVIs and zero otherwise. As shown in Tables 3 and 4, the SVI dummy provides consistent results that funds with more internet searches can obtain more fund flows but fails to predict better fund performance.

In addition, we apply the Heckman two-stage model to address the potential selection bias problem. In the first stage, we include all new funds and set the dependent variable equal to one if a nonmissing SVI exists for the fund month and to zero if the SVI for the fund month is missing. We also include the number of letters in the fund name and the SVI of the keyword "mutual fund" as the exogenous independent variables in the first stage of the Heckman model. Table 11 presents the results of the Heckman model for net fund flows. In the first stage, the significantly negative relation between the number of letters in the fund name and the SVI dummy indicates that a longer fund name may lead Google Trends not to return the value of the SVI. As a result, the missing value will deter investors from obtaining useful information contained in the SVI. We include the inverse Mills ratio in the second stage of the Heckman model and still find an effect of attention-driven purchases on net fund flows. The consistent results obtained from the Heckman model suggest that the limited sample, which includes only funds with nonmissing SVIs, will not lead to a sample selection bias.

<Insert Table 11 about here>

4.3 Alternative measure of fund flows

This study follows most mutual fund literature in which the flow is assumed to occur at the end of each month; therefore, we can obtain the implied net fund flows from the monthly return and total net assets of a fund. One of the limitations of the implied net fund flows is that the actual fund inflows cannot be observed. One reason we focus on new funds in this study is that the net fund flows may be driven mainly by fund outflows from redemptions rather than by fund inflows from sales. More recent studies obtain detailed information on fund flows, including inflows from sales, inflows from reinvestments, and outflows from redemptions, through N-SAR semiannual reports (e.g., Edelen, 1999; Christoffersen, Evans, and Musto, 2013; Ha and Ko, 2017; Rohleder, Schulte, and Wilkens, 2017; and Ha and Ko, 2019). Using fund inflows from sales may allow examining the association between internet search behavior and fund purchase decisions for all funds in a less biased manner. Thus, we download N-SAR semi-annual reports from SEC EDGAR filings and collect monthly fund inflows from sales for each mutual fund with SVIs in the corresponding month. We then obtain 41,302 monthly inflows from sales for 705 funds with SVIs and reexamine the attention-grabbing purchase hypothesis. Panel A of Table 12 shows consistent results supporting the attention-grabbing purchase hypothesis—that higher ASVIs lead to significant fund inflows from sales. In addition, we apply piecewise regressions to examine the nonlinear flow–attention relationship. Panel B also shows consistent results that the attention-driven purchase behavior is more pronounced when funds attract more attention from investors; therefore, empirical results obtained by using fund inflows from sales further confirm that unsophisticated investors tend to purchase mutual funds to which they pay attention via internet searches.

<Insert Table 12 about here>

4.4 Effect of incubation

A mutual fund family may use a strategy in which multiple new funds are simultaneously incubated, and then a few successful funds are introduced to the public. Evans (2010) shows that a new fund sample with incubated funds may overstate the relation between fund flows and performance. To examine whether fund incubation affects our empirical results, we perform a robustness check by separating our sample into incubated funds and nonincubated funds.

We follow Evans' (2010) and Chen and Lai's (2010) method to clarify whether the sample fund is incubated and obtain 155 (1,857) incubated funds (fund months) and 141 (1,593) nonincubated funds (fund months). Unreported results show that consistent with the attention-grabbing purchase hypothesis, both incubated and nonincubated funds can obtain more fund flows from internet searches induced by marketing efforts, but only nonincubated funds can obtain more fund flows from online buzz. In addition, we confirm that attention-driven purchases are consistent with the explanation of investor overconfidence. Indeed, similar to Evans' (2010) findings, the effect of overconfidence is more pronounced for incubated fund investors. As a result, worse performance from attention-driven purchases is observed for incubated funds. We also find that fund families of both incubated and nonincubated funds will first review whether their marketing efforts can attract additional attention and generate greater fund flows from investors and then will subsequently decide whether to continue (or stop) running their new funds. Thus, the main findings of this study are not restricted to either incubated or nonincubated funds.

5. Conclusions

This study uses the Google SVI as a direct measure of investor attention and examines the role that investor attention plays in the fund flows, future performance, and survivorship of newly issued funds. Consistent with the attention-grabbing purchase hypothesis, we find that investor attention enhances fund inflows for new funds. Further decomposition of the ASVI provides evidence that investor attention, whether attributed to tangible or residual factors, can generate significant fund inflows into new funds.

Moreover, there is a long-standing debate on the existence of the smart money effect in mutual fund investments. When we use the SVI as a proxy for investor attention, we do not find evidence supporting the smart money effect. This finding suggests that increases in internet searches are not associated with any mechanisms that could hinder overestimation of the future performance of new funds. The aggregate effort spent on searching for information (as measured by internet search volume) does not prevent poorly performing funds from capturing market share. Thus, substantial noise associated with the identification of well-performing funds still exists in the new fund market.

The results of the survivorship analysis show that new funds with increased attention-driven fund flows are likely to endure longer in the fund market. This finding suggests that internet searches induce attention-driven purchases for new funds, leading to an information cascade effect and greater fund inflows in the future. To leverage investor attention on marketing and product distribution, the fund family, therefore, tends to keep a popular new fund trading in the market, even though better fund performance is not guaranteed.

Similar to the results for new funds, we find that the results for old funds support the attention-grabbing purchases hypothesis. We also find similar results that old funds with greater attention-driven fund flows fail to predict better performance; however, partly because of the lower information cascade effect, attention-driven fund flows cannot enhance the survivorship of old funds.

Overall, we provide empirical evidence supporting the notion that in the mutual fund industry, online search can induce attention-driven purchases for both newly launched and old funds. When the U.S. mutual fund industry managed a total of $16.7 trillion of investor assets at year-end 2019, on average, the industry generated fee revenues of $100 billion. Historically, about one third of this revenue has been designated as expenditures associated with marketing, largely consisting of sales loads and distribution costs known as 12b-1 fees. Our findings suggest that the coordination of advertising activities across sale and distribution channels and search media is different for both newly launched funds and old funds. The Internet enables mutual fund investors to access extensive online information when making investment decisions. The increase in the use of internet searches has altered the fund investment activities of investors. Such changes suggest that fund families should put more resources online and focus on the online visibility of their mutual funds to attract fund flows; however, extensive online information does not yield more precise signals about future fund performance for those investors who conduct diligent internet searches.

References

Agarwal, V., and L. Ma, 2012. Managerial multitasking in the mutual fund industry. Working paper. Georgia State University.

Bamber, L. S., O. E. Barron, and T. L. Stober, 1997. Trading volume and different aspects of disagreement coincident with earnings announcements. Accounting Review 72, 575-597.

Bank, M., M. Larch, and G. Peter, 2011. Google search volume and its influence on liquidity and returns of German stocks. Finance Markets and Portfolio Management 25, 239-264.

Barber, B. M., S. Huang, and T. Odean, 2016. Which factors matter to investors? Evidence from mutual fund flows. Review of Financial Studies 29, 2600-2642.

Barber, B. M., and T. Odean, 2002. Online investors: Do the slow die first? Review of Financial Studies 15, 455-488.

Barber, B. M., and T. Odean, 2008. All that glitters: The effect of attention and news on the buying behavior of individual and institutional investors. Review of Financial Studies 21, 758-818.

Barber, B. M., T. Odean, and L. Zheng, 2005. Out of sight, out of mind: The effects of expenses on mutual fund flows. Journal of Business 78, 2095-2119.

Bass, F.M., 1969. A new product growth model for consumer durables. Management Science 15, 215-227.

Ben-David, I., J. Li, A. Rossi, and Y. Song, 2019. What do mutual fund investors really care about? Working paper, The Ohio State University.

Bergstresser, D., J. M. R. Chalmers, and P. Tufano, 2009. Assessing the costs and benefits of brokers in the mutual fund industry. Review of Financial Studies 22, 4129-4156.

Berk, J. B., and J. van Binsbergen, 2015. Measuring skill in the mutual fund industry. Journal of Financial Economics 118, 1-20.

Bikhchandani, S., D. Hirshleifer, and I. Welch, 1992. Theory of fads, fashion, custom, and cultural change as informational cascades. Journal of Political Economy 100, 992-1026.

Blundell, R., and S. Bond, 1998. Initial conditions and moment restrictions in dynamic panel data models. Journal of Econometrics 87, 115-143.

Busse, J. A., and T. C. Green, 2002. Market efficiency in real time. Journal of Financial Economics 65, 415-437.

Carhart, M. M., 1997. On persistence in mutual fund performance. Journal of Finance 52, 57-82.

Chevalier, J., and G. Ellison, 1997. Risk taking by mutual funds as a response to incentives. Journal of Political Economy 105, 1167-1200.

Chen, H. and C. Lai, 2010. Reputation stretching in mutual fund starts. Journal of Banking and Finance 34, 193-207.

Christoffersen, S. E. K., R. Evans, and D. K. Musto, 2013. What do consumers' fund flows maximize? Evidence from their brokers' incentives. Journal of Finance 68, 201-235.

Cogneau, P. and G. Hubner, 2015. The prediction of fund failure through performance diagnostics. Journal of Banking & Finance 50, 224-241.

Da, Z., J. Engelberg, and P. Gao, 2010. Internet search and momentum. Working paper. University of Notre Dame.

Da, Z., J. Engelberg, and P. Gao, 2011. In search of attention. Journal of Finance 66, 1461-1499.

Das, S., R. Guo, and H. Zhang, 2006. Analysts' selective coverage and subsequent performance of newly public firms. Journal of Finance 61, 1159-1185.

Drake, M. S., D. T. Roulstone, and J. R. Thornock, 2012. Investor information demand: Evidence from Google Searches around earnings announcements. Journal of Accounting Research 50, 1001-1040.

Edelen, R. M., 1999. Investor flows and the assessed performance of open-end mutual funds. Journal of Financial Economics 53, 439-466.

Evans, R. B., 2010. Mutual fund incubation. Journal of Finance 65, 1581-1611.

Festinger, L., 1957. A theory of cognitive dissonance. Stanford University Press, Stanford CA.

Frazzini, A., and O. Lamont, 2008. Dumb money: Mutual fund flows and the cross-section of stock returns. Journal of Financial Economics 88, 299-322.

Friesen, G. C. and T. R. A. Sapp, 2007. Mutual fund flows and investor returns: An empirical examination of fund investor timing ability. Journal of Banking & Finance 31, 2796-2816.

Gallaher S., R. Kaniel, and L. T. Starks, 2015. Advertising and mutual funds: Fro families to individual funds, CEPR Discussion Paper No. 10329.

Gervais, S., R. Kaniel, and D. H. Mingelgrin, 2001. The high-volume return premium. Journal of Finance 56, 877-919.

Goetzmann, W. N., and N. Peles, 1997. Cognitive dissonance and mutual fund investors. Journal of Financial Research 20, 145-158.

Gruber, M. J., 1996. Another puzzle: The growth in actively managed mutual funds. Journal of Finance 51, 783-810.

Ha, Y., and K. Ko, 2017. Why do fund managers increase risk? Journal of Banking & Finance 78, 108-116.

Ha, Y., and K. Ko. 2019. Misspecifications in the fund flow-performance relationship. Journal of Financial Intermediation 38, 69-81.

Hansen, L. P., 1982. Large sample properties of generalized method of moments estimators. Econometrica 50, 1029-1054.

Hou, K., L. Peng, and W. Xiong, 2009. A tale of two anomalies: The implications of investor attention for price and earnings momentum. Working paper. Princeton University.

Huang J., K. D. Wei, and H. Yan, 2007. Participation costs and the sensitivity of fund flow to past performance. Journal of Finance 62, 1273-1311.

Investment Company Institute, 2020. 2020 Investment company fact book, a review of trends and activities in the U.S. Investment company industry.

Jain P. C., and J. S. Wu, 2000. Truth in mutual fund advertising: Evidence on future performance and fund flows. Journal of Finance 55, 937-958.

Jayaraman, N., A. Khorana, and E. Nelling, 2002. An analysis of the determinants and shareholder wealth effects of mutual fund mergers. Journal of Finance 57, 1521-1551.

Keswani A., and D. Stolin, 2008. Which money is smart? Mutual fund buys and sells of individual and institutional investors. Journal of Finance 63, 85-118.

Khorana A., and H. Servaes, 1999. The determinants of mutual fund starts. Review of Financial Studies 12, 1043-1074.

Lou, D., 2014. Attracting investor attention through advertising. Review of Financial Studies 27, 1797-1829.

Mahajan, V., E. Muller, and F.M. Bass, 1990. New product diffusion models in marketing: A review and directions for research. Journal of Marketing 54, 1-26.

Mamaysky H., and M. Spiegel, 2002. A theory of mutual funds: Optimal fund objectives and industry organization. Working paper. Yale University.

Massa, M., 2003. How do family strategies affect fund performance? When performance-maximization is not the only game in town. Journal of Financial Economics 67, 249-304.

Miller, K. D., F. Fabian, and S. J. Lin, 2009. Strategies for online communities. Strategic Management Journal 30, 305-322.

Nanda, V., Z. J. Wang, and L. Zheng, 2004. Family values and the star phenomenon: Strategies of mutual fund families. Review of Financial Studies 17, 667-698.

Odean, T., 1999. Do investors trade too much? American Economic Review 89, 1279-1298.

Peng, L., and W. Xiong, 2006. Investor attention, overconfidence and category learning. Journal of Financial Economics 80, 563-602.

Pollet, J. M., and M. Wilson, 2008. How does size affect mutual fund behavior? Journal of Finance 63, 2941-2969.

Rohleder, M., D. Schulte, and M. Wikens, 2017. Management of flow risk in mutual funds. Review of Quantitative Finance and Accounting 48, 31-56.

Sapp, T., and A. Tiwari, 2004. Does stock return momentum explain the “smart money” effect? Journal of Finance 59, 2605-2622.

Siggelkow, N., 2003. Why focus? A study of intra-industry focus effects. Journal of Industrial Economics 51, 121-150.

Singal, V. and Z. Xu, 2011. Selling winners, holding losers: Effect on fund flows and survival of disposition-prone mutual funds. Journal of Banking & Finance 35, 2704-2718.

Sirri, E. R., and P. Tufano, 1998. Costly search and mutual fund flows. Journal of Finance 53, 1589-1622.

Vlastakis N., and R. N. Markellos, 2012. Information demand and stock market volatility. Journal of Banking & Finance 36, 1808-1821.

Yuan, Y., 2015. Market-wide attention, trading, and stock returns. Journal of Financial Economics 116, 548-564.

Zhao X. G., 2005. Exit decisions in the U.S. mutual fund industry. Journal of Business 78, 1365-1402.

Zheng, L., 1999. Is money smart? A study of mutual fund investors' fund selection ability. Journal of Finance 54, 901-933.

Table 1. Determinants of Abnormal Search Volume Index

This table presents estimated coefficients for the regression model to determine abnormal search volume index. The dependent variable is ASVI. Independent variables related to fund characteristics are 12b-1 fees, monthly fund return, fund loads, logarithm of fund total net assets, number of share classes, incubation dummy; and independent variables related to fund family are family 12b-1 fees, logarithm of fund family total net assets, max survival time of the fund in the fund family, and the search volume index for the fund family. Fixed effects are controlled by year dummies and style dummies. Detailed definitions of these variables are reported in Appendix A. The associated *t*-statistics are in parentheses. *, **, and *** denote statistical significance at 10%, 5%, and 1%, respectively.

	Dependent: $ASVI_t$	
	Model (1)	Model (2)
$12b\text{–}1_{t\text{-}1}$	1.6899	1.5957
	(0.65)	(0.61)
$RET_{t\text{-}1}$	0.2758^{***}	0.2704^{***}
	(5.08)	(4.96)
$(RET_{t\text{-}1})^2$		-0.0032
		(-1.24)
$Load_{t\text{-}1}$	-0.3472	-0.3327
	(-0.95)	(-0.91)
$\log(Fund\_TNA_{t\text{-}1})$	0.0800	0.1667
	(0.54)	(0.77)
NUM_Class_t	-0.4560^{**}	-0.4594^{**}
	(-2.04)	(-2.06)
$Incubation_t$	-0.2483	-0.2296
	(-0.23)	(-0.21)
$Family\_12b\text{–}1_{t\text{-}1}$	-4.4665	-4.5567
	(-1.17)	(-1.19)
$\log(Family\_TNA_{t\text{-}1})$	0.0807	0.0731
	(0.52)	(0.49)
$Max\_age\_Family_{t\text{-}1}$	0.2894^{*}	0.2921^{*}
	(1.92)	(1.94)
SVI_Family_t	0.0314^{**}	0.0306^{*}
	(1.97).	(1.93)
Intercept	13.7289^{***}	13.8433^{***}
	(2.73)	(2.75)
Year dummies	Yes	Yes
Style dummies	Yes	Yes
N	3,279	3,279
AdjustedR^2	0.0219	0.0220

Table 2. Summary statistics

This table presents the distribution and summary statistics for newly issued funds. Panel A presents the distribution of new fund issuances, Panel B presents the summary statistics for major variables, and Panel C presents correlations among variables. Variables include abnormal search volume index (ASVI), expected abnormal search volume index (EASVI), residual abnormal search volume index (RASVI), dummy of search volume index (D_SVI), net fund flows, 12b-1 fees, monthly fund return, fund loads, net expense ratio, number of multiple class shares, turnover ratio, fund total net assets, total net assets under management by the family, a dummy variable of star funds in the family, number of star funds in the family, survival months, a dummy variable for incubation funds, and the number of letters in the fund name. Detailed definitions of these variables are reported in Appendix A.

Panel A. Distribution of fund IPOs

Year	Number of Fund IPOs with SVIs	Number of Fund IPOs
2004	15	120
2005	34	264
2006	46	380
2007	49	486
2008	44	470
2009	27	271
2010	42	410
2011	39	314
2012	0	6
Total	296	2,721

Panel B. Summary statistics for major variables

	All New Funds			New Funds with SVIs			New Funds without SVIs			Diff.	
	Mean	Std.	Median	Mean	Std.	Median	Mean	Std.	Median	Mean	*p*-value
Investor attention											
ASVI				0.0026	17.9494	0.0000					
EASVI				-0.1730	2.4080	0.0497					
RASVI				0.0486	17.1356	-0.4439					
D_SVI	0.1095	0.3123	0.0000								
Fund characteristics											
Net_Flow ($mil)	3.9279	7.9550	0.3185	7.5140	10.8002	1.6135	3.4868	7.4125	0.2529	4.0272	<0.0001
12*b*–1 (%)	0.1277	0.1750	0.0125	0.1401	0.1843	0.0176	0.1262	0.1738	0.0118	0.0139	<0.0001
RET (%)	0.0889	5.3192	0.5241	0.3630	5.2992	0.7704	0.0552	5.3208	0.4945	0.3078	0.0013
FF3_alpha (%)	-0.0672	0.9931	-0.0195	-0.0625	1.1869	0.0170	-0.0679	0.9647	-0.0239	0.0054	0.8386
FF4_alpha (%)	-0.1097	0.9946	-0.0275	-0.1364	1.1919	-0.0070	-0.1063	0.9657	-0.0305	-0.0301	0.2569
VA_Vanguard ($mil.)	-0.3672	16.8565	0.0144	-2.5331	35.9860	0.0618	-0.0824	12.2719	0.0114	-2.4507	0.0016
VA_FF4 ($mil.)	0.3688	15.1119	0.0358	1.2316	27.2701	0.1097	0.2554	12.6707	0.0331	0.9762	0.0988
Load (%)	3.0872	1.0174	3	3.1763	1.1249	3.0408	3.0763	1.0029	2.9919	0.1000	<0.0001
Exp_Ratio (%)	0.9157	0.5228	0.9500	0.9541	0.5148	0.9900	0.9110	0.5236	0.9500	0.0431	<0.0001
Num_Class	2.4168	1.7736	2	2.6183	2.0707	2	2.3920	1.7320	2	0.2263	<0.0001
Turnover (%)	77.0286	83.0935	47.0000	69.8261	79.7757	38.0000	77.9146	83.4510	47.0000	-8.0885	<0.0001
Fund_TNA ($mil.)	63.6098	131.9034	13.4500	119.2362	189.8088	29.5000	56.7670	121.1637	12.2000	62.4692	<0.0001
Family_TNA ($mil.)	90007	181341	16316	152816	245243	42283	82281	170260	14761	70535	<0.0001
Star_ Family	0.6725	0.4693	1	0.7130	0.4524	1	0.6675	0.4711	1	0.0455	<0.0001
#_Star_Fund_in_Family	12.3966	17.9972	5	16.4838	21.0594	8	11.8938	17.5184	5	4.5900	<0.0001
Survival_Time (months)	21.7409	4.1911	24	21.9835	4.0436	24	21.7110	4.2080	24	0.2724	0.0002
Incubation	0.3933	0.4885	0	0.5383	0.4986	1	0.3754	0.4842	0	0.1628	<0.0001
#_Letters_in_Name	59.0951	14.2868	58	53.1461	13.5196	54	58.6622	14.1934	58	-5.5161	<0.0001
# of funds	2,721			296			2,425				
# of fund months	31,496	18,837		3,450	2,189		28,046	16,648			

Panel C. Correlation among variables

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
(1) *ASVI*	1.0000															
(2) *EASVI*	0.1345	1.0000														
(3) *RASVI*	0.9903	-0.0048	1.0000													
(4) *Net_Flow*	0.0691	0.0030	0.0458	1.0000												
(5) $12b-1$	0.0032	0.0546	-0.0037	-0.0392	1.0000											
(6) *RET*	0.0192	0.0968	0.0134	0.0392	0.0347	1.0000										
(7) *Load*	-0.0010	-0.0035	-0.0026	0.0448	0.5409	0.0607	1.0000									
(8) *Exp_Ratio*	0.0002	-0.0342	0.0125	-0.2204	0.1520	0.0005	-0.0591	1.0000								
(9) *Num_Class*	-0.0005	0.0028	-0.0019	0.1381	0.5094	0.0458	0.3470	-0.0382	1.0000							
(10) *Turnover*	0.0039	-0.0239	0.0029	-0.0749	0.0665	-0.0133	-0.1267	0.3269	0.0318	1.0000						
(11) *Fund_TNA*	0.0070	-0.1057	0.0146	0.6673	-0.1246	0.0394	-0.0192	-0.1690	0.1507	-0.0870	1.0000					
(12) *Family_TNA*	0.0007	0.1131	-0.0036	0.1770	0.0779	0.0448	0.1967	-0.3827	0.2223	-0.1997	0.1088	1.0000				
(13) *Star_Family*	-0.0058	-0.0012	-0.0027	0.1208	0.1872	0.0428	0.2592	-0.2713	0.1845	-0.0602	0.0921	0.2413	1.0000			
(14) *#_Star_Fund_in_Family*	-0.0027	0.0374	0.0009	0.0388	0.1809	0.0664	0.1979	-0.1867	0.2904	-0.0518	0.1235	0.3034	0.4923	1.0000		
(15) *Survival_Time*	-0.0017	-0.1137	0.0107	0.0892	0.2084	0.0398	0.2364	-0.0158	0.0488	0.0378	0.0459	0.0495	0.5055	0.2913	1.0000	
(16) *Incubation*	-0.0023	-0.0488	-0.0037	0.1839	0.0871	0.0236	0.1656	-0.0909	0.0118	-0.0312	0.1903	0.0536	0.3058	0.1782	0.5131	1.0000
(17) *#_Letters_in_Name*	0.0011	-0.0253	-0.0037	-0.0492	0.1003	0.0091	0.0828	-0.2492	0.0800	-0.1269	-0.0786	0.2539	0.1773	0.0895	0.0153	0.0711

Table 3. The effect of the online search on fund flows

This table presents the effect of the abnormal search volume index on the fund flow for newly issued funds. Estimated coefficients for the regression are shown in each model. The dependent variable is the net fund flow. Independent variables are abnormal search volume index, dummy of search volume index, 12b-1 fees, monthly fund return, fund loads, net expense ratio, logarithm of fund total net assets, a dummy variable of star funds in the family, and interaction terms between abnormal search volume index and monthly fund return. Fixed effects are controlled by year dummies and style dummies. Panel A presents results for the linear regression. Panel B presents results of the piecewise regression in accordance with Sirri and Tufano (1998). Detailed definitions of variables are reported in Appendix A. The associated *t*-statistics are in parentheses. *, **, and *** denote statistical significance at 10%, 5%, and 1%, respectively.

Panel A. Linear regression

	Dependent: Net_Flow_t				
	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)
$ASVI_{t-1}$	0.0278***				
	(3.56)				
$EASVI_{t-1}$		0.3368***		0.3397***	
		(4.31)		(4.35)	
$RASVI_{t-1}$			0.0160*	0.0167**	
			(1.93)	(2.02)	
D_SVI_{t-1}					2.0201***
					(15.97)
Net_Flow_{t-1}	0.0466***	0.0853***	0.0850***	0.0848***	0.0428***
	(15.69)	(20.05)	(19.91)	(19.94)	(46.26)
$12b\text{–}1_{t-1}$	2.8062**	2.4654**	2.6619**	2.4870**	2.9368***
	(2.54)	(2.20)	(2.37)	(2.22)	(10.50)
RET_{t-1}	0.1884***	0.1543***	0.1590***	0.1535***	0.0729***
	(5.91)	(4.75)	(4.89)	(4.73)	(8.34)
$(RET_{t-1})^2$	-0.0024	0.0021	-0.0014	0.0022	0.0020*
	(-0.56)	(0.49)	(-0.32)	(0.51)	(1.75)
$Load_{t-1}$	0.2335	0.3055	0.2289	0.3024	-0.1517***
	(1.21)	(1.57)	(1.18)	(1.55)	(-2.98)
Exp_Ratio_{t-1}	-2.1673***	-2.2171***	-2.1585***	-2.2292***	-1.7489***
	(-5.35)	(-5.36)	(-5.21)	(-5.39)	(-17.02)
$\log(Fund\_TNA_{t-1})$	2.6888***	2.4815***	2.4559***	2.4870***	1.8158***
	(29.62)	(25.39)	(25.12)	(25.45)	(74.84)
$\log(Family\_TNA_{t-1})$	-0.1665**	-0.2241***	-0.1771***	-0.2249***	-0.0031
	(-2.49)	(-3.29)	(-2.63)	(-3.30)	(-0.18)
$Star\_Family_{t-1}$	1.3239***	1.2983***	1.3737***	1.3073***	0.3678***
	(2.97)	(2.89)	(3.05)	(2.91)	(3.48)
Intercept	-6.6013***	-4.3302*	-5.6649**	-4.3107*	0.0443
	(-2.96)	(-1.92)	(-2.52)	(-1.91)	(0.08)
Year dummies	Yes	Yes	Yes	Yes	Yes
Style dummies	Yes	Yes	Yes	Yes	Yes
N	3,063	2,697	2,697	2,697	27,820
Adjusted R^2	0.4851	0.5332	0.5306	0.5338	0.3473

Panel B. Piecewise regression

	Dependent: Net_Flow_t		
	Model (1)	Model (2)	Model (3)
$High\_Rank\_ASVI_{t-1}$	8.9180***		
	(2.56)		
$Mid\_Rank\_ASVI_{t-1}$	-0.8250		
	(-0.82)		
$Low\_Rank\_ASVI_{t-1}$	4.2049		
	(0.90)		
$High\_Rank\_EASVI_{t-1}$		8.0198**	
		(2.24)	
$Mid\_Rank\_EASVI_{t-1}$		2.8128***	
		(3.06)	
$Low\_Rank\_EASVI_{t-1}$		2.9973	
		(0.62)	
$High\_Rank\_RASVI_{t-1}$			6.2093*
			(1.70)
$Mid\_Rank\_RASVI_{t-1}$			-2.2832**
			(-2.12)
$Low\_Rank\_RASVI_{t-1}$			3.6145
			(1.53)
$High\_Rank\_RET_{t-1}$	6.1922**	5.6262*	5.5847*
	(2.06)	(1.86)	(1.84)
$Mid\_Rank\_RET_{t-1}$	1.3085	1.0336	1.2199
	(1.52)	(1.18)	(1.39)
$Low\_Rank\_RET_{t-1}$	-1.0456	-0.8450	-0.8512
	(-0.27)	(-0.21)	(-0.21)
Net_Flow_{t-1}	0.0467***	0.0859***	0.0860***
	(15.62)	(20.18)	(20.09)
$12b{-}1_{t-1}$	2.9566***	2.5894**	2.6892**
	(2.67)	(2.31)	(2.39)
$Load_{t-1}$	0.2301	0.3589*	0.2496
	(1.19)	(1.83)	(1.28)
Exp_Ratio_{t-1}	-2.0758***	-2.1368***	-2.1223***
	(-5.08)	(-5.16)	(-5.10)
$\log(Fund\_TNA_{t-1})$	2.7170***	2.5707***	2.4664***
	(29.58)	(25.85)	(25.17)
$\log(Family\_TNA_{t-1})$	-0.1689**	-0.2988***	-0.1898***
	(-2.51)	(-4.22)	(-2.79)
$Star\_Family_{t-1}$	1.5973***	1.5058***	1.5188***
	(3.58)	(3.37)	(3.38)
Intercept	-7.7852***	-5.6823**	-6.3525***
	(-3.28)	(-2.42)	(-2.67)
Year dummies	Yes	Yes	Yes
Style dummies	Yes	Yes	Yes
N	3,063	2,697	2,697
Adjusted R^2	0.4809	0.5333	0.5286

Table 4. Smart money effect of attention-driven purchases

This table presents results of the examination of the smart money effect. The dependent variables are fund performance measures for the subsequent 12-month period. Independent variables are net fund flows driven by abnormal search volume index, search volume index dummy, 12b-1 fees, monthly fund return, fund loads, net expense ratio, turnover ratio, logarithm of fund total net assets, logarithm of total net assets managed by the fund family, and a dummy variable of star funds in the family for each fund. Panel A presents results with independent variables of 12-month holding period returns, 12-month market adjusted return, and 12-month objective adjusted return. Panel B uses risk adjusted returns as independent variables, including Fama-French 3-factor alpha and Fama-French 4-factor alpha. Detailed definitions of these variables are reported in Appendix A. Year dummies and style dummies are also included in the models. The associated *t*-statistics are in parentheses. *, **, and *** denote statistical significance at 10%, 5%, and 1%, respectively.

Panel A. Holding period returns

	12-*month Holding Period Return*			12-*month Market-adjusted Return*			12-*month Objective-adjusted Return*		
	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)	Model (6)	Model (7)	Model (8)	Model (9)
$Net\_Flow(ASVI)_{t\text{-}1}$	-4.0135***			-0.0116***			-1.2783***		
	(-5.93)			(-2.54)			(-3.76)		
$Net\_Flow(EASVI)_{t\text{-}1}$		-8.8888***			-0.0228***			-2.7397***	
		(-9.97)			(-3.79)			(-6.12)	
$Net\_Flow(RASVI)_{t\text{-}1}$			-7.0225***			-0.0216***			-2.1814***
			(-7.52)			(-3.47)			(-4.70)
$12b\text{–}1_{t\text{-}1}$	-1.7842	-0.7538	-0.9479	0.0007	0.0082	0.0078	-4.5002***	-4.7909***	-4.8501***
	(-0.56)	(-0.22)	(-0.28)	(0.03)	(0.36)	(0.34)	(-2.79)	(-2.81)	(-2.83)
$RET_{t\text{-}1}$	-1.4336***	-1.5317***	-1.4429***	-0.0025***	-0.0027***	-0.0025***	-0.2000***	-0.2156***	-0.1881***
	(-13.89)	(-13.84)	(-12.82)	(-3.66)	(-3.64)	(-3.29)	(-3.86)	(-3.88)	(-3.36)
$Load_{t\text{-}1}$	1.2333**	0.7458	1.0106	0.0042	0.0018	0.0025	0.4103	0.3512	0.4331
	(2.03)	(1.15)	(1.54)	(1.04)	(0.41)	(0.58)	(1.34)	(1.08)	(1.33)
$Exp\_Ratio_{t\text{-}1}$	2.6102**	3.1024**	2.9617**	0.0316***	0.0346***	0.0344***	0.8676	1.5367**	1.4939**
	(2.00)	(2.15)	(2.03)	(3.60)	(3.56)	(3.53)	(1.32)	(2.12)	(2.05)
$Turnover_{t\text{-}1}$	-0.0139*	-0.0119	-0.0143*	-0.0002***	-0.0002***	-0.0002***	-0.0061	-0.0032	-0.0040
	(-1.84)	(-1.45)	(-1.73)	(-3.66)	(-3.00)	(-3.11)	(-1.61)	(-0.79)	(-0.97)
$\log(Fund\_TNA_{t\text{-}1})$	-1.1660***	-1.2296***	-1.0167***	-0.0042**	-0.0030	-0.0024	-0.4787***	-0.3812**	-0.3152**
	(-4.21)	(-4.10)	(-3.33)	(-2.23)	(-1.47)	(-1.16)	(-3.45)	(-2.53)	(-2.08)
$\log(Family\_TNA_{t\text{-}1})$	0.3933	0.4395*	0.1526	0.0073***	0.0066***	0.0059***	0.3411***	0.3334**	0.2451*
	(1.60)	(1.64)	(0.56)	(4.42)	(3.67)	(3.29)	(2.76)	(2.48)	(1.82)
$Star\_Family_{t\text{-}1}$	-0.0952	0.8461	1.5250	-0.0279**	-0.0227*	-0.0210*	-1.8102**	-1.6419*	-1.4329
	(-0.06)	(0.48)	(0.85)	(-2.49)	(-1.89)	(-1.75)	(-2.17)	(-1.84)	(-1.60)
Intercept	-3.1335	0.4710	-0.8547	-0.1159	-0.1403	-0.1409	-0.1241	-0.0278	-0.4231
	(-0.29)	(0.04)	(-0.07)	(-1.61)	(-1.62)	(-1.63)	(-0.02)	(>-0.01)	(-0.07)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Style dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	1,714	1,446	1,446	1,714	1,446	1,446	1,714	1,446	1,446
Adjusted R^2	0.5181	0.5453	0.5320	0.3621	0.3899	0.3889	0.2138	0.2504	0.2423

Panel B. Risk adjusted returns

	FF3_alpha			*FF4_alpha*		
	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)	Model (6)
$Net\_Flow(ASVI)_{t\text{-}1}$	-0.0335			-0.0015		
	(-0.89)			(-0.04)		
$Net\_Flow(EASVI)_{t\text{-}1}$		-0.0854*			-0.0276	
		(-1.74)			(-0.57)	
$Net\_Flow(RASVI)_{t\text{-}1}$			-0.1400***			-0.0871*
			(-2.77)			(-1.73)
$12b\text{–}1_{t\text{-}1}$	-0.0543	-0.0501	-0.0494	-0.0354	-0.0069	-0.0051
	(-0.30)	(-0.27)	(-0.27)	(-0.20)	(-0.04)	(-0.03)
$RET_{t\text{-}1}$	-0.0207***	-0.0223***	-0.0208***	-0.0297***	-0.0313***	-0.0305***
	(-3.59)	(-3.67)	(-3.42)	(-5.16)	(-5.17)	(-5.02)
$Load_{t\text{-}1}$	0.0377	0.0107	0.0145	0.0537	0.0205	0.0225
	(1.11)	(0.30)	(0.41)	(1.58)	(0.58)	(0.64)
$Exp\_Ratio_{t\text{-}1}$	0.1706***	0.2308***	0.2320***	0.0393	0.1241	0.1260
	(2.34)	(2.91)	(2.93)	(0.54)	(1.57)	(1.60)
$Turnover_{t\text{-}1}$	-0.0021***	-0.0018***	-0.0018***	-0.0017***	-0.0017***	-0.0017***
	(-4.99)	(-4.04)	(-4.09)	(-4.08)	(-3.81)	(-3.82)
$\log(Fund\_TNA_{t\text{-}1})$	-0.0096	0.0034	0.0070	-0.0098	0.0095	0.0115
	(-0.62)	(0.21)	(0.42)	(-0.64)	(0.58)	(0.70)
$\log(Family\_TNA_{t\text{-}1})$	0.0141	-0.0022	-0.0046	0.0067	-0.0099	-0.0104
	(1.03)	(-0.15)	(-0.31)	(0.49)	(-0.67)	(-0.71)
$Star\_Family_{t\text{-}1}$	-0.2095**	-0.1136	-0.1081	-0.1493	-0.0575	-0.0564
	(-2.26)	(-1.17)	(-1.11)	(-1.61)	(-0.59)	(-0.58)
Intercept	-0.8621	-1.0829	-1.0388	-0.9307	-1.1108	-1.0638
	(-1.44)	(-1.54)	(-1.48)	(-1.56)	(-1.59)	(-1.52)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Style dummies	Yes	Yes	Yes	Yes	Yes	Yes
N	1,714	1,446	1,446	1,714	1,446	1,446
Adjusted R^2	0.3283	0.3662	0.3683	0.3301	0.3711	0.3723

Panel C. Value-added performance

	VA_Vanguard			*VA_FF4*		
	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)	Model (6)
$Net\_Flow(ASVI)_{t\text{-}1}$	1.6594			0.2812		
	(1.46)			(0.31)		
$Net\_Flow(EASVI)_{t\text{-}1}$		-0.2889			1.0086	
		(-0.20)			(0.80)	
$Net\_Flow(RASVI)_{t\text{-}1}$			0.9647			-0.1207
			(0.63)			(-0.09)
$12b\text{–}1_{t\text{-}1}$	-10.1044**	-9.4691*	-9.5182*	1.3717	0.9212	0.9762
	(-1.87)	(-1.68)	(-1.69)	(0.32)	(0.19)	(0.20)
$RET_{t\text{-}1}$	-0.0466	-0.0960	-0.1036	-0.3193**	-0.3814**	-0.3834**
	(-0.27)	(-0.52)	(-0.56)	(-2.30)	(-2.44)	(-2.45)
$Load_{t\text{-}1}$	2.2282***	2.1857***	2.1738***	-1.0619	-1.2847	-1.2990
	(2.18)	(2.04)	(2.03)	(-1.30)	(-1.41)	(-1.43)
$Exp\_Ratio_{t\text{-}1}$	-1.2190	-1.2986	-1.3462	1.9673	3.0637	3.1128
	(-0.55)	(-0.54)	(-0.56)	(1.12)	(1.51)	(1.53)
$Turnover_{t\text{-}1}$	0.0502***	0.0518***	0.0516***	-0.0275***	-0.0309***	-0.0305***
	(3.94)	(3.82)	(3.81)	(-2.70)	(-2.68)	(-2.65)
$\log(Fund\_TNA_{t\text{-}1})$	-1.0592**	-0.9526*	-0.9710*	1.4762***	1.7951***	1.7904***
	(-2.27)	(-1.91)	(-1.95)	(3.97)	(4.24)	(4.22)
$\log(Family\_TNA_{t\text{-}1})$	0.1898	-0.0363	-0.0522	-0.8114**	-1.1885***	-1.1509***
	(0.46)	(-0.08)	(-0.12)	(-2.45)	(-3.14)	(-3.06)
$Star\_Family_{t\text{-}1}$	-2.8691	-1.7709	-1.7318	-1.2331	0.0758	-0.0143
	(-1.03)	(-0.60)	(-0.59)	(-0.55)	(0.03)	(-0.01)
Intercept	-10.5043	-8.8480	-9.8259	4.2235	3.5269	4.3963
	(-0.58)	(-0.42)	(-0.46)	(0.29)	(0.20)	(0.24)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Style dummies	Yes	Yes	Yes	Yes	Yes	Yes
N	1,714	1,446	1,446	1,714	1,446	1,446
Adjusted R^2	0.2990	0.3099	0.3101	0.2767	0.2065	0.2061

Table 5. The effect of attention-driven purchases on fund survivorship

This table presents the estimates from the logistic regression model for the first two years of newly issued funds. The dependent variable is the termination dummy. Independent variables include net fund flows driven by abnormal search volume index, 12b-1 fees, fund loads, net expense ratio, net fund flows, logarithm of fund total net assets, logarithm of total net assets managed by the fund family, and a dummy variable of a star fund in the fund family. Detailed definitions of these variables are reported in Appendix A. The associated *p*-values are in parentheses. *, **, and *** denote statistical significance at 10%, 5%, and 1%, respectively.

	Termination_Dummy		
	Model (1)	Model (2)	Model (3)
$Net\_Flow(ASVI)_{t\text{-}1}$	-0.0102***		
	(<0.01)		
$Net\_Flow(EASVI)_{t\text{-}1}$		-0.0088***	
		(<0.01)	
$Net\_Flow(RASVI)_{t\text{-}1}$			-0.0144***
			(<0.01)
$12b\text{–}1_{t\text{-}1}$	-0.4480***	-0.6241***	-0.6094***
	(<0.01)	(<0.01)	(<0.01)
$RET_{t\text{-}1}$	-0.0012**	-0.0161***	-0.0161***
	(0.03)	(<0.01)	(<0.01)
$Load_{t\text{-}1}$	0.0284***	0.0193***	0.0214***
	(<0.01)	(<0.01)	(<0.01)
$Exp\_Ratio_{t\text{-}1}$	0.1338***	0.1589***	0.1638***
	(<0.01)	(<0.01)	(<0.01)
$Net\_Flow_{t\text{-}1}$	-0.0003**	0.0001	0.0003*
	(0.05)	(0.54)	(0.07)
$\log(Fund\_TNA_{t\text{-}1})$	0.0002***	0.0002***	0.0003***
	(<0.01)	(<0.01)	(<0.01)
$\log(Family\_TNA_{t\text{-}1})$	<0.0001***	<0.0001***	<0.0001***
	(<0.01)	(<0.01)	(<0.01)
$Star\_Family_{t\text{-}1}$	-0.6020***	-0.6904***	-0.6850***
	(<0.01)	(<0.01)	(<0.01)
Intercept	-4.3609***	-4.3921***	-4.3848***
	(<0.01)	(<0.01)	(<0.01)
Year dummies	Yes	Yes	Yes
Style dummies	Yes	Yes	Yes
N	5,558	4,883	4,883
Log likelihood	88.4948	74.0039	75.5387

Table 6. The internet search of new funds and old funds

This table presents the frequency of high internet search of new funds and old funds. The number and the portion of fund months with ASVIs higher than corresponding medians are presented. Differences in average high internet search portion in new funds and old funds are also reported. *p*-values of differences are under the null hypothesis, which states that the difference in high internet search portion in new funds and old funds is zero.

	New Funds		Old Fund		New v.s. Old	
	N	**Portion**	**N**	**Portion**	**Difference**	***p*-value**
Top 50% ASVI (50% excluded)	602	0.1745	10,374	0.2305	-0.0560	<0.01
Top 50% ASVI (50% included)	2,831	0.8206	39,174	0.8702	-0.0497	<0.01
Top 50% EASVI	826	0.2394	22,511	0.5001	-0.2607	<0.01
Top 50% RASVI	1,869	0.5417	21,468	0.4769	0.0648	<0.01

Table 7. The effect of online searches on fund flows: Old funds

This table presents the effect of the abnormal search volume index on the fund flow for funds issued for more than one year. Estimated coefficients for the regression are shown in each model. The dependent variable is the net fund flow. Independent variables are abnormal search volume index, 12b-1 fees, monthly fund return, fund loads, net expense ratio, logarithm of fund total net assets, a dummy variable of star funds in the family, and interaction terms between abnormal search volume index and monthly fund return. Fixed effects are controlled by year dummies and style dummies. Panel A presents regression results for the old funds. Panel B compares the effect between new funds and old funds. Detailed definitions of these variables are reported in Appendix A. The associated *t*-statistics are in parentheses. *, **, and *** denote statistical significance at 10%, 5%, and 1%, respectively.

Panel A. Old funds

	Dependent: Net_Flow_t					
	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)	Model (6)
$ASVI_{t\text{-}1}$	0.0502***					
	(11.68)					
$High\_Rank\_ASVI_{t\text{-}1}$				20.3044***		
				(9.30)		
$Mid\_Rank\_ASVI_{t\text{-}1}$				-3.3360***		
				(-2.76)		
$Low\_Rank\_ASVI_{t\text{-}1}$				8.6170*		
				(1.79)		
$EASVI_{t\text{-}1}$		0.1498**				
		(2.40)				
$High\_Rank\_EASVI_{t\text{-}1}$					5.3076**	
					(2.09)	
$Mid\_Rank\_EASVI_{t\text{-}1}$					-2.5385**	
					(-2.51)	
$Low\_Rank\_EASVI_{t\text{-}1}$					7.0245***	
					(4.30)	
$RASVI_{t\text{-}1}$			0.0489***			
			(11.20)			
$High\_Rank\_RASVI_{t\text{-}1}$						13.9941***
						(5.62)
$Mid\_Rank\_RASVI_{t\text{-}1}$						2.8173***
						(4.40)
$Low\_Rank\_RASVI_{t\text{-}1}$						-3.1062
						(-1.27)
$High\_Rank\_RET_{t\text{-}1}$				11.1675***	10.8089***	10.3805***
				(5.62)	(5.34)	(5.13)
$Mid\_Rank\_RET_{t\text{-}1}$				3.8430***	3.8848***	3.8999***
				(6.89)	(6.87)	(6.90)
$Low\_Rank\_RET_{t\text{-}1}$				9.9427***	7.7197***	7.9555***
				(3.77)	(2.86)	(2.95)
$Net\_Flow_{t\text{-}1}$	0.0260***	0.0268***	0.0265***	0.0265***	0.0272***	0.0268***
	(59.03)	(59.90)	(59.15)	(60.18)	(60.75)	(59.82)
$12b\text{–}1_{t\text{-}1}$	-6.4676***	-6.9591***	-6.6629***	-6.1546***	-7.0575***	-5.9869***
	(-9.35)	(-9.68)	(-9.52)	(-8.86)	(-9.28)	(-8.48)
$RET_{t\text{-}1}$	0.4631***	0.4582***	0.4525***			
	(22.95)	(22.12)	(21.97)			
$(RET_{t\text{-}1})^2$	-0.0160***	-0.0156***	-0.0165***			
	(-4.49)	(-4.29)	(-4.56)			
$Load_{t\text{-}1}$	-1.3126***	-1.2862***	-1.3467***	-1.3046***	-1.3134***	-1.3660***
	(-15.63)	(-14.66)	(-15.88)	(-15.48)	(-15.41)	(-16.03)
$Exp\_Ratio_{t\text{-}1}$	0.9354***	0.7699***	0.8601***	0.8350***	0.7711***	0.7713***
	(3.26)	(2.63)	(2.95)	(2.90)	(2.62)	(2.63)
$\log(Fund\_TNA_{t\text{-}1})$	0.2708***	0.1865**	0.3346***	0.3063***	0.1912*	0.4414***
	(4.38)	(2.16)	(5.37)	(4.92)	(1.91)	(6.71)
$\log(Family\_TNA_{t\text{-}1})$	0.3437***	0.2985***	0.3393***	0.2866***	0.2454***	0.2786***
	(5.36)	(4.47)	(5.15)	(4.45)	(3.60)	(4.21)
$Star\_Family_{t\text{-}1}$	0.1528	0.3374	0.2022	0.9378***	1.0710***	1.0485***
	(0.53)	(1.15)	(0.69)	(3.27)	(3.68)	(3.61)
Intercept	6.0892***	7.7443***	6.4567***	3.6368*	5.9572***	3.3889
	(3.08)	(3.74)	(3.21)	(1.75)	(2.77)	(1.60)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Style dummies	Yes	Yes	Yes	Yes	Yes	Yes
N	45,112	43,676	43,676	45,112	43,676	43,676
Adjusted R^2	0.1381	0.1380	0.1404	0.1377	0.1335	0.1357

Panel B. Old funds v.s. new funds

	Dependent: Net_Flow_t		
	Model (1)	Model (2)	Model (3)
$ASVI_{t\text{-}1}$	0.0461***		
	(10.59)		
$EASVI_{t\text{-}1}$		0.1217*	
		(1.78)	
$RASVI_{t\text{-}1}$			0.0523***
			(11.79)
$ASVI_{t\text{-}1} \times D\_New_{t\text{-}1}$	-0.0182		
	(-1.53)		
$EASVI_{t\text{-}1} \times D\_New_{t\text{-}1}$		-0.0383	
		(-0.80)	
$RASVI_{t\text{-}1} \times D\_New_{t\text{-}1}$			-0.0414***
			(-2.97)
$Net\_Flow_{t\text{-}1}$	0.0263***	0.0271***	0.0268***
	(60.91)	(61.58)	(60.79)
$12b\text{–}1_{t\text{-}1}$	-6.9497***	-7.1876***	-6.9314***
	(-10.74)	(-10.58)	(-10.54)
$RET_{t\text{-}1}$	0.4495***	0.4485***	0.4438***
	(23.34)	(22.60)	(22.52)
$(RET_{t\text{-}1})^2$	-0.0153***	-0.0156***	-0.0165***
	(-4.52)	(-4.50)	(-4.77)
$Load_{t\text{-}1}$	-1.2394***	-1.2633***	-1.2758***
	(-15.34)	(-15.42)	(-15.61)
$Exp\_Ratio_{t\text{-}1}$	0.8145***	0.6315**	0.7012***
	(3.06)	(2.32)	(2.58)
$\log(Fund\_TNA_{t\text{-}1})$	0.2619***	0.2413***	0.3185***
	(4.81)	(3.31)	(5.74)
$\log(Family\_TNA_{t\text{-}1})$	0.2916***	0.2625***	0.2959***
	(4.97)	(4.27)	(4.89)
$Star\_Family_{t\text{-}1}$	0.3782	0.5111*	0.3788
	(1.38)	(1.83)	(1.36)
Intercept	6.2982***	7.6394***	6.6859***
	(3.35)	(3.84)	(3.49)
Year dummies	Yes	Yes	Yes
Style dummies	Yes	Yes	Yes
N	48,167	46,372	46,372
Adjusted R^2	0.1381	0.1388	0.1413

Table 8. Smart money effect of attention-driven purchases: Old funds

This table examines the relationship between the fund performance and its abnormal search volume index for funds issued for more than one year. The dependent variables are Fama-French 3-factor alpha and Fama-French 4-factor alpha in the subsequent 12-month period. Independent variables are abnormal search volume index, 12b-1 fees, monthly fund return, fund loads, net expense ratio, net fund flows, turnover ratio, logarithm of fund total net assets, logarithm of total net assets managed by the fund family, and a dummy variable of star funds in the family for each fund. Detailed definitions of these variables are reported in Appendix A. Year dummies and style dummies are also included in the models. The associated *t*-statistics are in parentheses. *, **, and *** denote statistical significance at 10%, 5%, and 1%, respectively.

	FF3_alpha			*FF4_alpha*		
	Model (7)	Model (8)	Model (9)	Model (10)	Model (11)	Model (12)
Net_Flow_(ASVI)$_{t\text{-}1}$	-0.0177***			-0.0169***		
	(-8.41)			(-7.91)		
Net_Flow(*EASVI*)$_{t\text{-}1}$		-0.0105***			-0.0054	
		(-3.14)			(-1.58)	
Net_Flow(*RASVI*)$_{t\text{-}1}$			-0.0187***			-0.0169***
			(-8.38)			(-7.47)
Net_Flow(*ASVI*)$_{t\text{-}1}$ × *D_New* $_{t\text{-}1}$	0.0012			0.0012		
	(0.62)			(0.60)		
Net_Flow(*EASVI*)$_{t\text{-}1}$ × *D_New* $_{t\text{-}1}$		0.0021			0.0040*	
		(0.90)			(1.69)	
Net_Flow(*RASVI*)$_{t\text{-}1}$ × *D_New* $_{t\text{-}1}$			0.0021			0.0030
			(1.01)			(1.40)
12*b*–1$_{t\text{-}1}$	-0.0321	-0.0532**	-0.0624***	-0.0057	-0.0289	-0.0338
	(-1.43)	(-2.29)	(-2.72)	(-0.25)	(-1.23)	(-1.46)
RET$_{t\text{-}1}$	-0.0111***	-0.0110***	-0.0109***	-0.0086***	-0.0088***	-0.0087***
	(-15.83)	(-15.47)	(-15.34)	(-12.17)	(-12.18)	(-12.05)
Load$_{t\text{-}1}$	-0.0042	-0.0064***	-0.0049*	0.0005	-0.0003	0.0006
	(-1.49)	(-2.21)	(-1.72)	(0.17)	(-0.09)	(0.20)
Exp_Ratio$_{t\text{-}1}$	0.0221**	0.0334***	0.0327***	0.0010	0.0113	0.0106
	(2.34)	(3.45)	(3.38)	(0.10)	(1.15)	(1.08)
Turnover$_{t\text{-}1}$	-0.0001***	-0.0001	0.0000	-0.0001*	0.0000	0.0000
	(-2.52)	(-0.97)	(-0.86)	(-1.71)	(0.08)	(0.18)
log(*Fund_TNA*$_{t\text{-}1}$)	-0.0125***	-0.0088***	-0.0123***	-0.0106***	-0.0087***	-0.0105***
	(-6.25)	(-3.73)	(-6.02)	(-5.22)	(-3.63)	(-5.06)
log(*Family_TNA*$_{t\text{-}1}$)	0.0046**	0.0063***	0.0053**	0.0071***	0.0078***	0.0072***
	(2.10)	(2.77)	(2.35)	(3.18)	(3.37)	(3.13)
Star_Family$_{t\text{-}1}$	0.0093	0.0022	0.0034	0.0025	-0.0059	-0.0048
	(0.85)	(0.20)	(0.31)	(0.22)	(-0.52)	(-0.43)
Intercept	-0.1116	-0.1098	-0.0434	-0.1867**	-0.1954**	-0.1237
	(-1.18)	(-1.14)	(-0.45)	(-1.96)	(-2.01)	(-1.27)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Style dummies	Yes	Yes	Yes	Yes	Yes	Yes
N	39,346	37,635	37,635	39,346	37,635	37,635
Adjusted R^2	0.1232	0.1195	0.1209	0.1131	0.1166	0.1143

	VA_Vanguard			*VA_FF4*		
	Model (19)	Model (20)	Model (21)	Model (22)	Model (23)	Model (24)
$Net\_Flow\_(ASVI)_{t\text{-}1}$	-0.7047***			-1.2673***		
	(-7.07)			(-8.22)		
$Net\_Flow(EASVI)_{t\text{-}1}$		-0.1577			-0.4246*	
		(-0.98)			(-1.70)	
$Net\_Flow(RASVI)_{t\text{-}1}$			-0.7162***			-1.3745***
			(-6.70)			(-8.28)
$Net\_Flow(ASVI)_{t\text{-}1} \times D\_New_{t\text{-}1}$	-0.2280**			-0.2703		
	(-1.98)			(-1.52)		
$Net\_Flow(EASVI)_{t\text{-}1} \times D\_New_{t\text{-}1}$		-0.4208***			-0.5191**	
		(-2.68)			(-2.13)	
$Net\_Flow(RASVI)_{t\text{-}1} \times D\_New_{t\text{-}1}$			-0.2018			-0.3121
			(-1.47)			(-1.46)
$12b\text{–}1_{t\text{-}1}$	-3.3509***	-4.0128***	-4.0631***	7.7285***	6.4594***	6.1729***
	(-3.12)	(-3.60)	(-3.69)	(4.66)	(3.74)	(3.61)
$RET_{t\text{-}1}$	0.0912***	0.0783**	0.0822**	-0.4518***	-0.4802***	-0.4723***
	(2.74)	(2.29)	(2.41)	(-8.78)	(-9.05)	(-8.90)
$Load_{t\text{-}1}$	-0.4598***	-0.5258***	-0.5022***	-1.1476***	-1.2123***	-1.1489***
	(-3.45)	(-3.82)	(-3.70)	(-5.56)	(-5.68)	(-5.45)
$Exp\_Ratio_{t\text{-}1}$	0.8929**	1.0928**	1.0726**	-0.0019	0.9275	0.8818
	(2.00)	(2.36)	(2.31)	(0.00)	(1.29)	(1.23)
$Turnover_{t\text{-}1}$	-0.0117***	-0.0118***	-0.0115***	-0.0072*	-0.0043	-0.0038
	(-4.66)	(-4.57)	(-4.45)	(-1.85)	(-1.07)	(-0.96)
$\log(Fund\_TNA_{t\text{-}1})$	2.5617***	2.6849***	2.6445***	3.1548***	3.2983***	3.1615***
	(27.24)	(23.86)	(27.26)	(21.69)	(18.88)	(21.00)
$\log(Family\_TNA_{t\text{-}1})$	0.4755***	0.5291***	0.5038***	0.2587	0.4702***	0.4160**
	(4.57)	(4.83)	(4.62)	(1.61)	(2.76)	(2.46)
$Star\_Family_{t\text{-}1}$	-2.2371***	-2.7067***	-2.6701***	-1.6022**	-1.6828**	-1.6039*
	(-4.34)	(-5.10)	(-5.03)	(-2.01)	(-2.04)	(-1.95)
Intercept	-5.6801	-8.5184*	-5.4058	19.8541***	6.4594***	19.6918***
	(-1.27)	(-1.85)	(-1.17)	(2.88)	(3.74)	(2.76)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Style dummies	Yes	Yes	Yes	Yes	Yes	Yes
N	39,169	37,458	37,458	39,169	37,458	37,458
Adjusted R^2	0.0591	0.0609	0.0619	0.0874	0.0825	0.0840

Table 9. The effect of attention-driven purchases on fund survivorship: Old funds

This table presents the estimates from the logistic regression model for funds issued for more than one year. The dependent variable is the termination dummy. Independent variables include net fund flows driven by abnormal search volume index, 12b-1 fees, fund loads, net expense ratio, logarithm of fund total net assets, logarithm of total net assets managed by the fund family, and a dummy variable of a star fund in the fund family. Detailed definitions of these variables are reported in Appendix A. The associated *p*-values are in parentheses. *, **, and *** denote statistical significance at 10%, 5%, and 1%, respectively.

	Termination_Dummy		
	Model (1)	Model (2)	Model (3)
$Net\_Flow(ASVI)_{t\text{-}1}$	-0.0098		
	(0.87)		
$Net\_Flow(EASVI)_{t\text{-}1}$		0.1115	
		(0.22)	
$Net\_Flow(RASVI)_{t\text{-}1}$			0.0083
			(0.89)
$12b\text{–}1_{t\text{-}1}$	-1.7338**	-2.0878***	-1.9797***
	(0.03)	(0.01)	(0.01)
$RET_{t\text{-}1}$	0.0608***	0.0500***	0.0504***
	(<0.01)	(0.01)	(0.01)
$Load_{t\text{-}1}$	0.2718***	0.3056***	0.2870***
	(<0.01)	(<0.01)	(<0.01)
$Exp\_Ratio_{t\text{-}1}$	0.0330	0.1622	0.1629
	(0.91)	(0.57)	(0.57)
$Net\_Flow_{t\text{-}1}$	-0.0129**	-0.0171***	-0.0170***
	(0.02)	(<0.01)	(<0.01)
$\log(Fund\_TNA_{t\text{-}1})$	-0.1449***	-0.2052***	-0.1665***
	(0.01)	(<0.01)	(0.01)
$\log(Family\_TNA_{t\text{-}1})$	0.0078	0.0159	0.0216
	(0.91)	(0.82)	(0.75)
$Star\_Family_{t\text{-}1}$	0.5667*	0.4841	0.5165
	(0.08)	(0.13)	(0.11)
Intercept	-14.5263	-15.2357	-14.6934
	(0.92)	(0.91)	(0.91)
Year dummies	Yes	Yes	Yes
Style dummies	Yes	Yes	Yes
N	43,922	42,549	42,549
Log likelihood	210.7803	194.1511	192.7318

Table 10. Two-stage least squares and IV-GMM for the effect of online search on fund flows

This table reports the results of two-stage least squares and generalized method of moments with instrumental variables for the effect of abnormal search volume index on the fund flow. The dependent variables in the first stage are abnormal search volume indexes. The instruments in the first stage are the number of letters in the fund name and the SVI of the mutual fund. Independent variables in the first stage include 12b-1 fees, monthly fund return, fund loads, net expense ratio, logarithm of fund total net assets, and a dummy variable of star funds in the family. The dependent variable in the second stage is the net fund flow. Independent variables in the second stage include abnormal search volume index, 12b-1 fees, monthly fund return, fund loads, net expense ratio, logarithm of fund total net assets, and a dummy variable of star funds in the family. Detailed definitions of these variables are reported in Appendix A. Panel A presents results from two-stage least squares. Panel B presents the results of the generalized method of moments with instrumental variables. Year dummies and style dummies are included in the first stage and the second stage. The associated *t*-statistics are in parentheses. *, **, and *** denote statistical significance at 10%, 5%, and 1%, respectively. *p*-values associated with *F*-test are presented under the null hypothesis, which states that the additional instrumental variables have no significant explanatory power in the first stage regression.

Panel A. 2SLS

	Model (1)		Model (2)		Model (3)	
	1st Stage *ASVI*	2nd Stage *Net_Flow*	1st Stage *EASVI*	2nd Stage *Net_Flow*	1st Stage *RASVI*	2nd Stage *Net_Flow*
$\#\_Letters\_in\_Name_i$	0.0019		-0.0037**		0.0098	
	(0.07)		(-2.24)		(0.34)	
$SVI\_Mutual\_Fund_t$	0.1223***		0.0063***		0.1138***	
	(3.13)		(2.72)		(2.87)	
$ASVI_{t-1}$		0.7669**				
		(2.17)				
$EASVI_{t-1}$				5.1432**		
				(1.96)		
$RASVI_{t-1}$						0.5016**
						(2.24)
Net_Flow_{t-1}	0.0205***	0.1011***	-0.0013***	0.0827***	0.0309***	0.0608***
	(3.08)	(9.79)	(-2.62)	(14.81)	(3.54)	(6.76)
$12b\text{–}1_{t-1}$	-0.2287	4.1424	0.3000**	1.1813	-0.8337	2.8050*
	(-0.09)	(1.52)	(2.03)	(0.80)	(-0.33)	(1.72)
RET_{t-1}	0.2726***	0.0266***	0.3223***	-1.5056*	-0.0328	0.1576***
	(3.76)	(0.19)	(73.72)	(-1.77)	(-0.44)	(3.30)
$(RET_{t-1})^2$	0.0097	-0.0096	-0.0119***	0.0596*	0.0222**	-0.0118
	(1.02)	(-0.91)	(-20.84)	(1.85)	(2.27)	(-1.58)
$Load_{t-1}$	-0.1726	0.3659	-0.1549***	1.0136**	-0.0137	0.2259
	(-0.40)	(0.77)	(-6.13)	(2.17)	(-0.03)	(0.80)
Exp_Ratio_{t-1}	0.8691	-3.6741***	0.0215	-2.4404***	0.9010	-2.5579***
	(0.92)	(-3.51)	(0.38)	(-4.73)	(0.93)	(-4.05)
$\log(Fund\_TNA_{t-1})$	-0.3064	4.3710***	-0.1121***	2.9790***	-0.2861	2.5508***
	(-1.51)	(17.88)	(-9.05)	(9.70)	(-1.35)	(17.02)
$\log(Family\_TNA_{t-1})$	0.1802	-0.3902**	0.1614***	-0.9738**	0.0323	-0.1674*
	(1.21)	(-2.21)	(18.30)	(-2.28)	(0.21)	(-1.70)
$Star\_Family_{t-1}$	-0.34475	2.9191***	-0.1787***	2.0432***	-0.2508	1.1762*
	(-0.35)	(2.65)	(-3.03)	(2.89)	(-0.25)	(1.80)
Intercept	-9.1869*	-12.9092**	-4.0198***	15.8494	-5.1426	-4.9825
	(-1.65)	(-2.24)	(-12.19)	(1.43)	(-0.91)	(-1.53)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Style dummies	Yes	Yes	Yes	Yes	Yes	Yes
N	3,063	3,063	2,697	2,697	2,697	2,697
Adjusted R^2	0.0048	0.3276	0.8260	0.4124	-0.0083	0.3151
p-value for F-statistics	0.0012		<0.0001		0.0033	

Panel B. IV-GMM

	Model (1)		Model (2)		Model (3)	
	1st Stage *ASVI*	2nd Stage *Net_Flow*	1st Stage *EASVI*	2nd Stage *Net_Flow*	1st Stage *RASVI*	2nd Stage *Net_Flow*
$\#\_Letters\_in\_Name_i$	-0.1184		-0.1615**		-0.2328	
	(-0.47)		(-1.79)		(-0.98)	
$SVI\_Mutual\_Fund_t$	0.1657***		0.0069***		0.1526***	
	(3.48)		(2.21)		(3.16)	
$ASVI_{t-1}$		0.4348***				
		(2.94)				
$EASVI_{t-1}$				2.3336***		
				(4.03)		
$RASVI_{t-1}$						0.4992***
						(2.83)
Net_Flow_{t-1}	0.0265***	0.0022	0.0020**	0.0200***	0.0449**	0.0030
	(3.28)	(0.30)	(1.81)	(2.95)	(3.54)	(0.27)
$12b\text{–}1_{t-1}$	18.2081	5.4131	0.6433**	15.1857	16.7804	8.9625
	(1.70)	(0.52)	(1.28)	(1.55)	(1.58)	(0.94)
RET_{t-1}	0.2861***	0.0283	0.3251***	0.1792***	-0.0285	0.1605***
	(3.49)	(0.43)	(48.61)	(5.03)	(-0.34)	(3.48)
$(RET_{t-1})^2$	0.0050	0.0019	-0.0112***	0.0193***	0.0169**	-0.0038
	(0.42)	(0.30)	(-10.03)	(2.96)	(1.36)	(-0.52)
$Load_{t-1}$	-0.4424	-0.4639	0.2416***	-1.5971**	0.5359	-0.5922
	(-0.39)	(-0.66)	(2.17)	(-2.21)	(-0.47)	(-0.82)
Exp_Ratio_{t-1}	44.9976	-25.7867	0.0433	53.6553	47.0648	1.1666
	(2.27)	(-0.48)	(0.07)	(1.00)	(2.28)	(0.03)
$\log(Fund\_TNA_{t-1})$	5.1871	0.3449	-0.522***	-0.1060	0.3898*	0.2983
	(0.82)	(0.91)	(-1.56)	(-0.31)	(0.61)	(0.74)
$\log(Family\_TNA_{t-1})$	0.8694	-1.7683**	0.2621***	-2.4108***	0.6221	-1.4837*
	(0.66)	(-2.29)	(4.01)	(-3.99)	(0.44)	(-1.81)
$Star\_Family_{t-1}$	-1.0066	1.6035**	-0.0556***	-0.1860	-1.0752	1.5924*
	(-0.66)	(2.17)	(-0.60)	(-0.27)	(-0.71)	(1.94)
Intercept	-6.5375*	42.8897	-4.0844***	-35.8325	-54.9715	9.2963
	(-2.00)	(0.66)	(-11.42)	(-0.59)	(-1.67)	(0.18)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Style dummies	Yes	Yes	Yes	Yes	Yes	Yes
N	3,063	3,063	2,697	2,697	2,697	2,697

Table 11. Heckman model for fund flows

This table reports the results of the Heckman model for the fund flow. The dependent variable in the first stage is one if the SVI is not missing and zero otherwise. The instruments in the first stage are the number of letters in the fund name and the SVI of the mutual fund. Independent variables in the first stage include 12b-1 fees, monthly fund return, fund loads, net expense ratio, logarithm of fund total net assets, and a dummy variable of star funds in the family. The dependent variable in the second stage is the net fund flow in month *t*. Independent variables in the second stage include abnormal search volume index, 12b-1 fees, monthly fund return, fund loads, net expense ratio, logarithm of fund total net assets, and a dummy variable of star funds in the family. Detailed definitions of these variables are reported in Appendix A. Year dummies and style dummies are included in the first stage and the second stage. The associated *Z*-statistics are in parentheses. *, **, and *** denote statistical significance at 10%, 5%, and 1%, respectively.

	1st Stage *D_SVI*	2nd Stage *Net_Flow*	1st Stage *D_SVI*	2nd Stage *Net_Flow*		
		Model(1)		Model(2)	Model(3)	Model(4)
$\#\_Letters\_in\_Name_i$	-0.0190***		-0.0184***			
	(-21.64)		(-20.06)			
$SVI\_Mutual\_Fund_t$	-0.0017		-0.0010			
	(-1.30)		(-0.71)			
$ASVI_{t-1}$		0.0278***				
		(3.59)				
$EASVI_{t-1}$				0.3366***		0.3396***
				(4.35)		(4.39)
$RASVI_{t-1}$					0.0159*	0.0166**
					(1.93)	(2.03)
$12b\text{–}1_{t-1}$	0.3238***	2.8127***	0.3310***	2.4929**	2.6881**	2.5129**
	(4.16)	(2.57)	(4.08)	(2.24)	(2.42)	(2.26)
Net_Flow_{t-1}	0.0004**	0.0467***	0.0004	0.0857***	0.0854***	0.0853***
	(2.17)	(15.63)	(1.61)	(20.12)	(19.97)	(20.00)
RET_{t-1}	0.0033	0.1886***	0.0026	0.1548***	0.1595***	0.1540***
	(1.30)	(5.97)	(1.00)	(4.81)	(4.95)	(4.79)
$(RET_{t-1})^2$	-0.0003	-0.0024	-0.0001	0.0022	-0.0013	0.0023
	(-0.93)	(-0.57)	(-0.19)	(0.52)	(-0.30)	(0.54)
$Load_{t-1}$	0.0245*	0.2362	0.0263*	0.3181*	0.2411	0.3144
	(1.75)	(1.24)	(1.81)	(1.64)	(1.25)	(1.62)
Exp_Ratio_{t-1}	0.1913***	-2.1261***	0.1976***	-2.0317***	-1.9796***	-2.0532***
	(6.56)	(-4.54)	(6.50)	(-4.19)	(-4.07)	(-4.23)
$\log(Fund\_TNA_{t-1})$	0.0934***	2.7005***	0.0987***	2.5339***	2.5065***	2.5368***
	(13.99)	(23.90)	(14.03)	(20.83)	(20.57)	(20.86)
$\log(Family\_TNA_{t-1})$	0.0719***	-0.1593**	0.0746***	-0.1904**	-0.1446*	-0.1929**
	(14.34)	(-2.03)	(14.24)	(-2.31)	(-1.77)	(-2.34)
$Star\_Family_{t-1}$	-0.0268	1.3177***	-0.0342	1.2674***	1.3438***	1.2779***
	(-0.87)	(2.97)	(-1.07)	(2.83)	(3.00)	(2.86)
Inverse Mill's Ratio		0.1417		0.6172	0.5955	0.5857
		(0.17)		(0.71)	(0.69)	(0.68)
Intercept	-1.4333***	-7.0398**	-1.5808***	-6.2930*	-7.5581**	-6.1732*
	(-8.02)	(-2.08)	(-8.52)	(-1.77)	(-2.13)	(-1.74)
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Style Dummies	Yes	Yes	Yes	Yes	Yes	Yes
N	27,820	3,063	27,454	2,589	2,589	2,589
Log likelihood	-8410		-7642			
Adjusted R^2		0.4822		0.5300	0.5273	0.5305

Table 12. The effect of the online search on the fund inflows for all equity funds

This table presents the effect of the abnormal search volume index on the fund inflows for all equity funds. The dependent variable is fund inflows from sales, which is obtained from N-SAR. Independent variables are abnormal search volume index, dummy of search volume index, 12b-1 fees, monthly fund return, fund loads, net expense ratio, logarithm of fund total net assets, a dummy variable of star funds in the family, and interaction terms between abnormal search volume index and monthly fund return. Fixed effects are controlled by year dummies and style dummies. Panel A presents results for the linear regression. Panel B presents results of the piecewise regression in accordance with Sirri and Tufano (1998). Detailed definitions of variables are reported in Appendix A. The associated *t*-statistics are in parentheses. *, **, and *** denote statistical significance at 10%, 5%, and 1%, respectively.

Panel A. Linear regression

	Dependent: $Inflow_t$			
	Model (1)	Model (2)	Model (3)	Model (4)
$ASVI_{t\text{-}1}$	0.1932***			
	(9.84)			
$EASVI_{t\text{-}1}$		1.0233***		1.0958***
		(3.11)		(3.33)
$RASVI_{t\text{-}1}$			0.2104***	0.2118***
			(10.49)	(10.56)
$Inflow_{t\text{-}1}$	0.0770***	0.0753***	0.0751***	0.0750***
	(88.60)	(86.34)	(86.28)	(86.20)
$12b\text{–}1_{t\text{-}1}$	-41.2194***	-41.1633***	-39.1131***	-41.7458***
	(-13.11)	(-12.50)	(-12.25)	(-12.70)
$RET_{t\text{-}1}$	0.6114***	0.6296***	0.5936***	0.6234***
	(6.52)	(6.52)	(6.18)	(6.47)
$(RET_{t\text{-}1})^2$	-0.0170	-0.0287*	-0.0345**	-0.0305*
	(-1.04)	(-1.70)	(-2.05)	(-1.81)
$Load_{t\text{-}1}$	-4.5068***	-4.9580***	-5.0143***	-4.9742***
	(-11.56)	(-12.58)	(-12.74)	(-12.64)
$Exp\_Ratio_{t\text{-}1}$	4.7250***	2.9846**	3.1703**	3.2911**
	(3.66)	(2.26)	(2.40)	(2.49)
$\log(Fund\_TNA_{t\text{-}1})$	23.6782***	23.3466***	24.0275***	23.2924***
	(90.03)	(67.16)	(89.65)	(67.09)
$\log(Family\_TNA_{t\text{-}1})$	7.4470***	7.6605***	7.8682***	7.7297***
	(26.73)	(26.34)	(27.36)	(26.60)
$Star\_Family_{t\text{-}1}$	-12.6120***	-12.1749***	-12.8292***	-12.9236***
	(-9.39)	(-8.87)	(-9.35)	(-9.42)
Intercept	-136.2498***	-132.9277***	-141.3773***	-133.0362***
	(-14.37)	(-13.30)	(-14.63)	(-13.33)
Year dummies	Yes	Yes	Yes	Yes
Style dummies	Yes	Yes	Yes	Yes
N	39,875	38,289	38,289	38,289
Adjusted R^2	0.4319	0.4338	0.4353	0.4354

Panel B. Piecewise regression

	Dependent: $Inflow_t$		
	Model (1)	Model (2)	Model (3)
$High\_Rank\_ASVI_{t\text{-}1}$	183.4132***		
	(18.39)		
$Mid\_Rank\_ASVI_{t\text{-}1}$	-34.3953***		
	(-6.38)		
$Low\_Rank\_ASVI_{t\text{-}1}$	-105.7515***		
	(-4.99)		
$High\_Rank\_EASVI_{t\text{-}1}$		51.1236***	
		(3.74)	
$Mid\_Rank\_EASVI_{t\text{-}1}$		59.6126***	
		(13.31)	
$Low\_Rank\_EASVI_{t\text{-}1}$		-91.0234***	
		(-12.25)	
$High\_Rank\_RASVI_{t\text{-}1}$			81.8192***
			(7.25)
$Mid\_Rank\_RASVI_{t\text{-}1}$			56.9184***
			(19.45)
$Low\_Rank\_RASVI_{t\text{-}1}$			-285.1297***
			(-26.37)
$High\_Rank\_ RET_{t\text{-}1}$	29.4732***	21.4557**	21.6315**
	(3.25)	(2.31)	(2.35)
$Mid\_Rank\_ RET_{t\text{-}1}$	5.5788**	6.0970**	5.1605**
	(2.19)	(2.35)	(2.01)
$Low\_Rank\_ RET_{t\text{-}1}$	7.7422	10.8859	11.1881
	(0.65)	(0.88)	(0.92)
$Inflow_{t\text{-}1}$	0.0761***	0.0746***	0.0731***
	(88.10)	(86.09)	(84.88)
$12b–1_{t\text{-}1}$	-36.3987***	-42.6429***	-29.1617***
	(-11.65)	(-12.84)	(-9.21)
$Load_{t\text{-}1}$	-4.7025***	-4.5972***	-5.4793***
	(-12.15)	(-11.22)	(-14.09)
$Exp\_Ratio_{t\text{-}1}$	2.9968**	4.0410***	1.9536
	(2.34)	(3.07)	(1.50)
log($Fund\_TNA_{t\text{-}1}$)	23.2585***	24.4059***	24.9737***
	(88.78)	(55.59)	(89.31)
log($Family\_TNA_{t\text{-}1}$)	7.0229***	7.9488***	7.5099***
	(25.34)	(27.10)	(26.41)
$Star\_Family_{t\text{-}1}$	-11.4842***	-10.8407***	-11.1388***
	(-8.66)	(-7.99)	(-8.29)
Intercept	-100.1059***	-146.1577***	-120.1562***
	(-10.20)	(-14.45)	(-12.09)
Year dummies	Yes	Yes	Yes
Style dummies	Yes	Yes	Yes
N	39,875	38,289	38,289
Adjusted R^2	0.4403	0.4401	0.4499

Appendix A: Variable definitions

This appendix presents detailed definitions of the variables used in the analyses and regressions.

Variables	Definitions
Internet Search Variables	
$SVI_{i,t}$	The search volume index for fund i from month t-1 to month t, using the fund name as keyword in the query.
$SVI\_Family_{i,t}$	The search volume index for the fund family with which fund i is affiliated in month t.
$ASVI_{i,t}$	The abnormal search volume index, defined as the difference between $SVI_{i,t}$ and the median search volume index for the first 12 months.
$EASVI_{i,t}$	The expected abnormal search volume index for fund i from month t-1 to month t, which can be obtained from Equation (2).
$RASVI_{i,t}$	The residual abnormal search volume index for fund i from month t-1 to month t, which can be obtained from Equation (3).
$D\_SVI_{i,t}$	A dummy variable that equals one if the search volume index for fund i in month t is not missing and zero otherwise.
$SVI\_Mutual\_Fund_t$	The search volume index in month t for the key word "Mutual Fund."
$Low\_Rank\_ASVI_{i,t}$	The bottom *ASVI* quintile for fund i in month t, defined as Min($Rank\_ASVI_{i,t}$, 0.2). $Rank\_ASVI_{i,t}$ is the percentile *ASVI* relative to other funds in month t.
$Mid\_Rank\_ASVI_{i,t}$	The middle *ASVI* quintile for fund i in month t, defined as Min(0.6, $Rank\_ASVI_{i,t}$ - $Low\_Rank\_ASVI_{i,t}$). $Rank\_ASVI_{i,t}$ is the percentile *ASVI* relative to other funds in month t.
$High\_Rank\_ASVI_{i,t}$	The highest *ASVI* quintile for fund i in month t, defined as Min(0.2, $Rank\_ASVI_{i,t}$ - $Low\_Rank\_ASVI_{i,t}$ - $Mid\_Rank\_ASVI_{i,t}$). $Rank\_ASVI_{i,t}$ is the percentile *ASVI* relative to other funds in month t.
$Low\_Rank\_EASVI_{i,t}$	The bottom *EASVI* quintile for fund i in month t, defined as Min($Rank\_EASVI_{i,t}$, 0.2). $Rank\_EASVI_{i,t}$ is the percentile *EASVI* relative to other funds in month t.
$Mid\_Rank\_EASVI_{i,t}$	The middle *EASVI* quintile for fund i in month t, defined as Min(0.6, $Rank\_EASVI_{i,t}$ - $Low\_Rank\_EASVI_{i,t}$). $Rank\_EASVI_{i,t}$ is the percentile *EASVI* relative to other funds in month t.
$High\_Rank\_EASVI_{i,t}$	The highest *EASVI* quintile for fund i in month t, defined as Min(0.2, $Rank\_EASVI_{i,t}$ - $Low\_Rank\_EASVI_{i,t}$ - $Mid\_Rank\_EASVI_{i,t}$). $Rank\_EASVI_{i,t}$ is the percentile *EASVI* relative to other funds in month t.
$Low\_Rank\_RASVI_{i,t}$	The bottom *RASVI* quintile for fund i in month t, defined as Min($RANK\_RASVI_{i,t}$, 0.2). $Rank\_RASVI_{i,t}$ is the percentile *RASVI* relative to other funds in month t.
$Mid\_Rank\_RASVI_{i,t}$	The middle *RASVI* quintile for fund i in month t, defined as Min(0.6, $Rank\_RASVI_{i,t}$ - $Low\_Rank\_RASVI_{i,t}$). $Rank\_RASVI_{i,t}$ is the percentile *RASVI* relative to other funds in month t.
$High\_Rank\_RASVI_{i,t}$	The highest *RASVI* quintile for fund i in month t, defined as Min(0.2, $Rank\_RASVI_{i,t}$ - $Low\_Rank\_RASVI_{i,t}$ - $Mid\_Rank\_RASVI_{i,t}$). $Rank\_RASVI_{i,t}$ is the percentile *RASVI* relative to other funds in month t.

<u>Fund Characteristics Variables</u>	
$D\_New_{i,t}$	A dummy variable that equals one if fund *i* in month *t* is newly issued less than one year earlier and zero otherwise.
$RET_{i,t}$ (%)	Monthly return for fund *i* in month *t*.
$Low\_Rank\_RET_{i,t}$	The bottom performance quintile for fund *i* in month *t*, defined as Min($Rank\_RET_{i,t}$, 0.2). $Rank\_RET_{i,t}$ is the percentile monthly return relative to other funds in month *t*.
$Mid\_Rank\_RET_{i,t}$	The middle performance quintile for fund *i* in month *t*, defined as Min(0.6, $Rank\_RET_{i,t}$ - $Low\_Rank\_RET_{i,t}$). $Rank\_RET_{i,t}$ is the percentile monthly return relative to other funds in month *t*.
$High\_Rank\_RET_{i,t}$	The highest performance quintile for fund *i* in month *t*, defined as Min(0.2, $Rank\_RET_{i,t}$ - $Low\_Rank\_RET_{i,t}$ - $Mid\_Rank\_RET_{i,t}$). $Rank\_RET_{i,t}$ is the percentile monthly return relative to other funds in month *t*.
$RET\_Q_{i,q}$ (%)	Average monthly return for fund *i* in quarter *q*.
12-*month Holding Period* $Return_{i,t}$ (%)	Subsequent 12-month buy-and-hold return for fund *i* in month *t*.
12-*month Market-adjusted* $Return_{i,t}$ (%)	Subsequent 12-month excess return for fund *i* in month *t*, defined as the difference in holding period returns between the fund and the CRSP value-weighted market index from month *t*+1 to month *t*+12 for fund *i*.
12-*month Objective-adjusted* $Return_{i,t}$ (%)	Subsequent 12-month excess return for fund *i* in month *t*, defined as the difference in holding period returns between the fund and the value-weighted average of funds with the same investment objective from month *t*+1 to month *t*+12 for fund *i*.
$FF3\_alpha_{i,t}$ (%)	Subsequent 12-month risk-adjusted return for fund *i* in month *t*, defined as the intercept obtained from the time-series regression of fund excess returns on the factors introduced by Fama and French (1992), including market excess returns and mimicking returns for the size (SMB) and value (HML).
$FF4\_alpha_{i,t}$	Subsequent 12-month risk-adjusted return for fund *i* in month *t*, defined as the intercept obtained from the time-series regression of fund excess returns on factors introduced by Carhart (1997), including market excess returns and mimicking returns for the size (SMB), value (HML), and momentum (MOM).
$VA\_FF4_{i,t}$	Subsequent 12-month value-added performance for fund *i* in month *t*, defined as the sum of the value added for the following 12 months. The value added is the product of assets under management in the previous month and the difference between the gross return and benchmark return. Assets under management are inflation-adjusted total net assets on the basis of 2012 CPI. Following Berk and van Binsbergen (2015), the benchmark return is estimated by Fama–French four-factor model.
$VA\_Vanguard_{i,t}$	Subsequent 12-month value-added performance for fund *i* in month *t*, defined as the sum of the value added for the following 12 months. The value added is the product of assets under management in the previous month and the difference between the gross return and benchmark return. Assets under management are inflation-adjusted total net assets on the basis of 2012 CPI. The benchmark return is estimated by 11 Vanguard index funds (see Berk and van Binsbergen, 2015).

$12b\text{–}1_{i,t}$ (%)	12b-1 fees for fund i in month t, defined as 12b-1 fees scaled by the total net assets of the fund in month t.
$12b\text{–}1\_Q_{i,q}$ (%)	12b-1 fees for fund i in quarter q, defined as the average monthly 12b-1 fees scaled by the total net assets of the fund.
$Family\_12b\text{–}1_{i,t}$ (%)	Family 12b-1 fees for fund i in month t, defined as the weighted average 12b-1 fees of the fund family with which fund i is affiliated.
$Exp\_Ratio_{i,t}$ (%)	Net expense ratio for fund i in month t, defined as fund expenses excluding 12b-1 fees and scaled by the total net assets of the fund in month t.
$Exp\_Ratio\_Q_{i,q}$ (%)	Net expense ratio for fund i in quarter q, defined as average monthly fund expenses excluding 12b-1 fees and scaled by the total net assets of the fund.
$Load_{i,t}$ (%)	Fund loads for fund i in month t, which involves front-end loads and back-end loads.
$Load\_Q_{i,q}$ (%)	Fund loads for fund i in quarter q, which is the average monthly fund loads in quarter q.
$Num\_Class_{i,t}$	Number of share classes for fund i in month t, defined as the number of multiple class shares the fund has.
$Turnover_{i,t}$ (%)	Turnover ratio for fund i in month t, defined as the minimum of aggregated sales or aggregated purchases of securities divided by the average 12-month total net assets of the fund.
$Inflow_{t\text{-}1}$	Fund inflow for fund i in month t, which is fund inflows from sales obtained from N-SAR filings in SEC's EDGAR database.
$Net\_Flow_{i,t}$ ($mil.)	Net fund flow for fund i in month t, defined as the monthly fund inflow subtracted from the monthly fund outflow of the fund in month t, $Net\_Flow_{i,t} = TNA_{i,t}\text{-}\ TNA_{i,t\text{-}1} \times (1+RET_{i,t})$.
$Net\_Flow(ASVI)_{i,t}$	Attention-driven fund flow induced by *ASVI* for fund i in month t, defined as the expected value from a time series regression of net fund flow on fund i's *ASVI* in the previous month.
$Net\_Flow(\mathrm{E}ASVI)_{i,t}$	Attention-driven fund flow induced by *EASVI* for fund i in month t, defined as the expected value from a time series regression of net fund flow on fund i's *EASVI* in the previous month.
$Net\_Flow(\mathrm{R}ASVI)_{i,t}$	Attention-driven fund flow induced by *RASVI* for fund i in quarter q, defined as the expected value from a time series regression of net fund flow on fund i's *RASVI* in the previous month.
$Net\_Flow(ASVI)_{i,q}$	Attention-driven fund flow induced by *ASVI* for fund i in quarter q, defined as the expected value from a time series regression of net fund flow on fund i's *ASVI* in the previous quarter.
$Net\_Flow(\mathrm{E}ASVI)_{i,q}$	Attention-driven fund flow induced by *EASVI* for fund i in quarter q, defined as the expected value from a time series regression of net fund flow on fund i's *EASVI* in the previous quarter.
$Net\_Flow(\mathrm{R}ASVI)_{i,q}$	Attention-driven fund flow induced by *RASVI* for fund i in month t, defined as the expected value from a time series regression of net fund flow on fund i's *RASVI* in the previous quarter.
$Net\_Flow\_Q_{i,q}$ ($mil.)	Net fund flow for fund i in quarter q, defined as the average monthly fund inflow subtracted from the monthly fund outflow of the fund.
$Fund\_TNA_{i,t}$ ($mil.)	Total net assets under management by fund i in month t.

Fund_TNA_Q$_{i,q}$ (\$mil.)	Average monthly total net assets under management by fund *i* in quarter *q*.
Family_TNA$_{i,t}$ (\$mil.)	Total net assets under management by the family of fund *i* in month *t*.
Family_TNA_Q$_{i,q}$ (\$mil.)	Average monthly total net assets under management by the family of fund *i* in quarter *q*.
Star_Family$_{i,t}$	A dummy variable that equals one if there is at least one star fund in the family of fund *i* in month *t* and zero otherwise.
Star_Family_Q$_{i,q}$	A dummy variable that equals one if there is at least one star fund in the family of fund *i* in quarter *q* and zero otherwise.
#_Star_Funds_in_Family$_{i,t}$	Number of star funds in the family of fund *i* in month *t*.
STD_Family$_{i,t}$	The standard deviation of Fama–French three-factor alphas among the family for fund *i* in month *t*.
Survival_time$_{i}$ (months)	Survival time for fund *i*, defined as the number of months from the date on which the fund is newly issued to the latest date for which fund data are available. The survival time is censored at 24 months and April 2012.
Max_age_Family$_{i,t}$ (months)	Maximum survival time among funds in the fund family with which fund *i* is affiliated in month *t*.
Termination_Dummy$_{i,t}$	A dummy variable that equals one if fund *i* is delisted in month *t*, and zero otherwise.
Termination_Dummy_Q$_{i,q}$	A dummy variable that equals one if fund *i* is delisted in quarter *q*, and zero otherwise.
Incubation$_{i}$	A dummy variable that equals one if fund *i* adopted an incubation process, and zero otherwise.
#_Letters_in_Name$_{i}$	Number of letters in the name of fund *i*.

Appendix B: Appendix tables

Table B1. Summary statistics: SVI groups

This table presents the mean and the standard deviation for major variables in each ASVI group. The sample is divided into five groups based on expected abnormal search volume index and residual abnormal search volume index in Panel A and Panel B, respectively. Variables include abnormal search volume index (ASVI), expected abnormal search volume index (EASVI), residual abnormal search volume index (RASVI), net fund flows, 12b-1 fees, monthly fund return, fund loads, net expense ratio, number of multiple class shares, turnover ratio, fund total net assets, total net assets under management by the family, a dummy variable of star funds in the family, number of star funds in the family, survival months, a dummy variable for incubation funds, and the number of letters of the fund name. Detailed definitions of these variables are reported in Appendix A.

Panel A. EASVI groups

	EASVI_1 (low)		EASVI_2		EASVI_3		EASVI_4		EASVI_5 (high)	
	Mean	Std.	Mean	Std.	Mean	Std.	Mean	Std.	Mean	Std.
Investor attention										
ASVI	-3.2813	18.2734	-0.4373	14.3100	-0.0034	15.1078	0.8807	17.2220	2.2143	20.4220
EASVI	-3.3668	3.0262	-0.7227	0.2739	0.0541	0.1924	0.7647	0.2299	2.4007	1.2814
RASVI	0.0855	18.1275	0.2854	14.3034	-0.0575	15.1108	0.1160	17.2270	-0.1864	20.2902
Fund characteristics										
Net_Flow ($mil)	6.8802	10.7049	7.3271	10.5048	7.8862	10.8220	7.5247	10.7483	7.0294	10.6382
12*b*–1 (%)	0.1027	0.1503	0.1547	0.1935	0.1716	0.1963	0.1587	0.1935	0.1217	0.1780
RET (%)	-0.2426	7.2885	0.5781	4.5790	0.4396	4.4553	0.4831	4.3297	0.6266	5.1149
Load (%)	3.0513	1.0204	3.3403	1.1521	3.3234	1.1389	3.2976	1.1610	2.8947	1.1361
Exp_Ratio (%)	1.0362	0.4916	0.9542	0.4995	0.9218	0.5121	0.8888	0.5548	0.9530	0.5021
Num_Class	2.6219	2.3152	2.9297	2.4063	2.8448	1.9696	2.5735	1.7362	2.3301	1.9314
Turnover (%)	69.1613	79.4095	66.4326	79.8127	74.0941	82.3482	66.8777	74.4641	60.5856	63.9829
Fund_TNA ($mil.)	157.4392	221.9822	123.8929	196.8101	122.5211	190.8304	103.4265	164.7325	101.3938	167.2438
Family_TNA ($mil.)	99246	196310	130686	213085	170426	243522	206536	285741	176560	272296
STD_Family	2.0695	1.9745	1.3442	1.4270	1.3479	1.3748	1.4563	1.5147	1.7095	1.7864
Star_Fund_in_Family	0.6170	0.4865	0.7190	0.4499	0.8007	0.3998	0.7631	0.4255	0.6340	0.4821
#_Star_Fund_in_Family	12.1146	18.0323	18.1046	22.2715	20.7271	21.0596	17.6258	20.5648	12.9199	18.3998
Survival_Time (months)	21.7119	4.2060	22.5490	3.4370	22.9493	2.8673	22.3644	3.6202	20.0915	5.2858
Incubation	0.5025	0.5004	0.5556	0.4973	0.5931	0.4917	0.5948	0.4913	0.4346	0.4961
#_Letters_in_Name	53.0867	14.7677	51.6275	13.3366	53.0229	12.7369	54.3399	12.1731	54.4085	14.0139
# of funds	204		231		222		223		190	
# of fund months	611		612		612		612		612	

Panel B. RASVI groups

	RASVI_1 (low)		RASVI_2		RASVI_3		RASVI_4		RASVI_5 (high)	
	Mean	Std.	Mean	Std.	Mean	Std.	Mean	Std.	Mean	Std.
Investor attention										
ASVI	-18.3428	11.9975	-2.7217	3.7911	-0.0700	0.9404	-0.0593	1.1353	20.5422	23.8724
EASVI	0.0443	2.4781	0.5297	2.7634	0.3859	0.9974	-0.8064	1.2519	-1.0180	3.2739
RASVI	-18.3871	11.4703	-3.2514	2.0363	-0.4559	0.3312	0.7472	0.4389	21.5602	22.7761
Fund characteristics										
Net_Flow ($mil)	7.2574	10.6091	7.1558	10.8995	8.0567	10.9121	6.8859	10.1160	7.2923	10.8569
12*b*–1 (%)	0.1268	0.1662	0.1265	0.1819	0.1757	0.2065	0.1640	0.2012	0.1164	0.1562
RET (%)	-0.0157	5.5388	0.2490	5.5981	0.7596	4.1631	0.7576	4.3156	0.1347	6.3889
Load (%)	3.0640	1.1864	3.0547	1.0660	3.3527	1.0855	3.4366	1.1379	2.9992	1.1351
Exp_Ratio (%)	0.9741	0.4793	1.0080	0.5338	0.8322	0.5207	0.8775	0.5111	1.0622	0.4925
Num_Class	2.4746	1.8618	2.3971	1.9218	2.7484	1.8134	3.1961	2.6232	2.4837	2.0584
Turnover (%)	66.9218	72.3951	67.1554	76.3993	69.1998	77.6915	62.7870	74.6548	71.0836	80.4002
Fund_TNA ($mil.)	125.3262	186.2841	118.4835	185.0960	118.5281	181.2597	120.6823	201.4184	125.6010	197.7465
Family_TNA ($mil.)	140545	222802	168168	273458	206977	279902	145939	227026	121893	218055
STD_Family	1.8965	1.9863	1.6189	1.6834	1.4539	1.4511	1.2888	1.3000	1.6849	1.7253
Star_ Family	0.6088	0.4884	0.6667	0.4718	0.8448	0.3624	0.7810	0.4139	0.6324	0.4826
#_Star_Fund_in_Family	12.1997	17.7024	14.0278	19.3509	22.5572	22.3764	20.5539	22.0434	12.1536	17.5713
Survival_Time (months)	20.5483	4.9601	21.3023	4.4496	23.3170	2.4874	23.2141	2.6494	21.2827	4.4630
Incubation	0.3895	0.4880	0.4755	0.4998	0.7108	0.4538	0.6699	0.4706	0.4346	0.4961
#_Letters_in_Name	53.0147	14.3265	53.2810	14.0484	54.5261	11.9469	53.0507	12.7388	52.6127	14.0797
# of funds	124		177		163		170		198	
# of fund months	611		612		612		612		612	

Table B2. Persistence of investor attention

This table reports persistence for high-attention and low-attention mutual funds. At the end of each year, high-attention mutual funds are those funds with top 50% of average search volume indexes, and low-attention mutual funds are those funds with bottom 50% of average search volume indexes. Panel A presents the percentage of high-ASVI (low-ASVI) mutual funds that will be assigned to high-attention or low-attention group in the following year. Panels B and C presents high-attention and low-attention mutual funds in terms of EASVI and RASVI respectively.

Panel A. ASVI

	Successive Period	
Initial Period	High ASVI	Low ASVI
High ASVI	68.02%	31.98%
Low ASVI	21.30%	78.70%

Panel B. EASVI

	Successive Period	
Initial Period	High EASVI	Low EASVI
High EASVI	96.10%	3.90%
Low EASVI	13.42%	86.58%

Panel C. RASVI

	Successive Period	
Initial Period	High RASVI	Low RASVI
High RASVI	69.09%	30.91%
Low RASVI	26.44%	73.56%

Table B3. The effect of online searches on fund flow in different periods

This table presents the effect of the abnormal search volume index on the fund flow for newly issued funds in different periods. Estimated coefficients for the regression are shown in each model. The dependent variable is the net fund flow. Independent variables are abnormal search volume index, 12b-1 fees, monthly fund return, fund loads, net expense ratio, logarithm of fund total net assets, a dummy variable of star funds in the family, and interaction terms between abnormal search volume index and monthly fund return. Fixed effects are controlled by year dummies and style dummies. Results in both the crisis period and noncrisis period are presented. Detailed definitions of these variables are reported in Appendix A. The associated *t*-statistics are in parentheses. *, **, and *** denote statistical significance at 10%, 5%, and 1%, respectively.

	Dependent: Net_Flow_t					
	Crisis Period			Non-crisis Period		
	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)	Model (6)
$ASVI_{t-1}$	0.0410**			0.0202**		
	(2.48)			(2.37)		
$EASVI_{t-1}$		0.2333**			0.4931***	
		(2.12)			(4.31)	
$RASVI_{t-1}$		0.0141			0.0181**	
		(0.76)			(1.99)	
D_SVI_{t-1}			2.4748***			1.8994***
			(11.23)			(12.26)
Net_Flow_{t-1}	0.0232***	0.0510***	0.0340***	0.0961***	0.1177***	0.0469***
	(6.13)	(8.02)	(24.80)	(18.82)	(19.98)	(39.02)
$12b\text{–}1_{t-1}$	3.5379	0.5198	0.7731*	2.7950**	3.1282**	3.6960***
	(1.42)	(0.20)	(1.67)	(2.29)	(2.49)	(10.58)
RET_{t-1}	0.2387***	0.2163***	0.0574***	0.1278***	0.1110***	0.0862***
	(4.62)	(3.99)	(4.89)	(3.10)	(2.68)	(6.89)
$(RET_{t-1})^2$	0.0056	0.0084	0.0029**	-0.0077	0.0002	-0.0001
	(0.84)	(1.23)	(2.00)	(-1.35)	(0.03)	(-0.08)
$Load_{t-1}$	0.1773	0.4261	-0.1305	0.1913	0.2388	-0.1835***
	(0.41)	(0.99)	(-1.42)	(0.89)	(1.07)	(-2.95)
Exp_Ratio_{t-1}	-2.8611***	-3.6585***	-1.3053***	-1.9138***	-2.0162***	-1.8721***
	(-3.25)	(-3.98)	(-7.68)	(-4.10)	(-4.17)	(-14.57)
$\log(Fund\_TNA_{t-1})$	2.4677***	2.1235***	1.5736***	2.4375***	2.4723***	1.9049***
	(12.03)	(9.47)	(38.59)	(23.24)	(22.04)	(62.70)
$\log(Family\_TNA_{t-1})$	-0.2516	-0.3172*	0.0310	-0.1718**	-0.2485***	-0.0117
	(-1.54)	(-1.93)	(1.09)	(-2.30)	(-3.19)	(-0.54)
$Star\_Family_{t-1}$	1.8545*	1.6368	0.2331	1.0521**	1.0896**	0.4063***
	(1.69)	(1.51)	(1.30)	(2.16)	(2.18)	(3.10)
Intercept	-5.1353	-3.0311	0.7051	-5.5862**	-3.6069	-0.1034
	(-1.51)	(-0.82)	(1.00)	(-2.49)	(-1.54)	(-0.17)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Style dummies	Yes	Yes	Yes	Yes	Yes	Yes
N	815	686	8,631	2,248	2,011	19,189
Adjusted R^2	0.4439	0.4936	0.3621	0.5373	0.5698	0.3539

Table B4. Surviving and nonsurviving funds within two years

This table presents the summary statistics for newly issued funds. Surviving new funds are funds remaining in existence for two years or more. New funds that started after May 2010 and that have not been liquidated or merged before April 2012 are also classified as surviving new funds. Nonsurviving new funds are those newly issued funds that have been liquidated or merged within two years of their issuance. Variables include abnormal search volume index (ASVI), dummy of SVI, expected ASVI (EASVI), residual ASVI (RASVI), monthly fund return, 12b-1 fees, net expense ratio, fund loads, number of multiple class shares, turnover ratio, fund total net assets, net fund flow, total net assets under management by the family, a dummy variable of star funds in the family, the number of star funds in the family, a dummy variable for incubation funds, survival months, a dummy variable for a fund that is liquidated within one year, and the number of letters in the fund name. Detailed definitions of these variables are reported in Appendix A. *p*-values of differences are reported under the null hypothesis, which states that the difference in variables between surviving funds and nonsurviving funds is zero.

	Surviving (*Termination_Dummy* = 0)			Non-surviving (*Termination_Dummy* = 1)			Diff.	
	Mean	Std.	Median	Mean	Std.	Median	Mean	*p*-value
ASVI	0.0018	16.8955	0	0.0060	21.8125	-0.5833	-0.0042	0.9963
EASVI	-0.1559	2.1483	0.0342	-0.2433	3.2692	0.1799	0.0874	0.5347
RASVI	0.0017	16.1776	-0.3277	0.2419	20.6362	-2.0150	-0.2401	0.7909
Net_Flow ($mil)	7.8067	10.8799	1.8312	6.2947	10.3813	0.8371	1.5121	<0.0001
12*b*–1 (%)	0.1572	0.1936	0.0282	0.0686	0.1143	0.0037	0.0887	<0.0001
RET (%)	0.4925	5.2329	0.9017	-0.1760	5.5384	0.1234	0.6684	0.0034
FF3_alpha (%)	0.0007	0.0106	0.0006	-0.0099	0.0154	-0.0029	0.0106	<0.0001
FF4_alpha (%)	-0.0002	0.0109	0.0003	-0.0096	0.0148	-0.0035	0.0094	<0.0001
VA_Vanguard ($mil.)	-0.0326	22.5884	0.1201	-19.6511	79.6962	-0.9260	19.6185	<0.0001
VA_FF4 ($mil.)	3.0745	26.0174	0.2140	-11.3849	31.9628	-1.4272	14.4593	<0.0001
Load (%)	3.2886	1.1364	3.0955	2.7085	0.9423	2.5561	0.5801	<0.0001
Exp_Ratio (%)	0.9513	0.5253	0.9900	0.9655	0.4690	1	-0.0142	0.4933
Num_Class	2.7610	2.1559	2	2.0240	1.5340	1	0.7370	<0.0001
Turnover (%)	71.1673	81.3318	40.0000	64.2404	72.7302	30.0000	6.9269	0.0311
Fund_TNA ($mil.)	119.6839	190.4482	30.4000	117.3717	187.2519	20.4	2.3122	0.7774
Family_TNA ($mil.)	163881	247653	61736	106728	229441	7672	57153	<0.0001
Star_Fund_in_Family	0.7566	0.4292	1	0.5314	0.4994	1	0.2252	<0.0001
#_Star_Fund_in_Family	18.3505	21.8699	11	8.7096	14.9675	2	9.6409	<0.0001
Survival_Time (months)	22.8663	3.7121	24	18.3069	3.2103	19	4.5594	<0.0001
Incubation	0.6470	0.4780	1	0.0853	0.2796	0	0.5617	<0.0001
#_Letters_in_Name	53.3566	14.0053	54	52.2695	11.2406	53	1.0871	0.0331
# of funds	238			58				
# of fund months	2,782	1,910		668	279			

Table B5. The effect of attention-driven purchase on fund survivorship: Quarterly

This table presents the estimates from the logistic regression model for the first two years of newly issued funds. The dependent variable is the termination dummy. Independent variables are quarter averages of fund characteristics, including net fund flows driven by abnormal search volume index, 12b-1 fees, fund loads, net expense ratio, net fund flows, logarithm of fund total net assets, logarithm of total net assets managed by the fund family, and a dummy variable of a star fund in the fund family. Detailed definitions of these variables are reported in Appendix A. The associated *p*-values are in parentheses. *, **, and *** denote statistical significance at 10%, 5%, and 1%, respectively.

	Termination_Dummy_Q		
	Model (1)	Model (2)	Model (3)
$Net\_Flow\_Q(ASVI)_{q\text{-}1}$	-0.6997***		
	(<0.01)		
$Net\_Flow\_Q(EASVI)_{q\text{-}1}$		-0.8235***	
		(<0.01)	
$Net\_Flow\_Q(RASVI)_{q\text{-}1}$			-1.6834***
			(<0.01)
$12b\text{–}1\_Q_{q\text{-}1}$	-0.3319	3.6003	0.1166
	(0.86)	(0.38)	(0.97)
$RET\_Q_{q\text{-}1}$	0.2399***	0.5919***	0.7596
	(<0.01)	(<0.01)	(<0.01)
$Load\_Q_{q\text{-}1}$	0.2896	-0.0935	0.2242
	(0.20)	(0.82)	(0.57)
$Exp\_Ratio\_Q_{q\text{-}1}$	0.2098	0.0297	0.6589
	(0.70)	(0.97)	(0.48)
$Net\_Flow\_Q_{q\text{-}1}$	0.0012	0.0125	0.0111
	(0.93)	(0.57)	(0.60)
$\log(Fund\_TNA\_Q_{q\text{-}1})$	0.0196	-0.1862	0.0202
	(0.88)	(0.34)	(0.92)
$\log(Family\_TNA\_Q_{q\text{-}1})$	-0.0368	0.0912	-0.0397
	(0.63)	(0.40)	(0.73)
$Star\_Family\_Q_{q\text{-}1}$	-0.0043	0.3428	0.1785
	(0.88)	(0.80)	(0.73)
Intercept	-13.0613	-14.7846	-14.1938
	(0.96)	(0.94)	(0.76)
Year dummies	Yes	Yes	Yes
Style dummies	Yes	Yes	Yes
N	2,097	1,912	1,912
Log likelihood	278.8709	333.7454	333.4564

Table B6. Summary statistics for major variables: Old funds

This table presents summary statistics for major variables all equity funds during the sample period. Variables include abnormal search volume index (ASVI), expected abnormal search volume index (EASVI), residual abnormal search volume index (RASVI), dummy of search volume index (D_SVI), net fund flows, 12b-1 fees, monthly fund return, Fama-French risk-adjusted alphas, value-added performance, fund loads, net expense ratio, number of multiple class shares, turnover ratio, fund total net assets, total net assets under management by the family, a dummy variable of star funds in the family, number of star funds in the family, survival months, and the number of letters in the fund name. Detailed definitions of these variables are reported in Appendix A. *p*-values of differences are reported under the null hypothesis that the difference in variables between funds with SVIs and funds without SVI is zero.

	All Funds			Funds with SVIs			Funds without SVI			Diff.	
	Mean	Std.	Median	Mean	Std.	Median	Mean	Std.	Median	Mean	*p*-value
Investor attention											
ASVI				5.4591	22.1720	0					
EASVI				5.5318	6.2575	6.1531					
RASVI				0.0162	21.2997	-4.4886					
D_SVI	0.1456	0.3527	0								
Fund characteristics											
Net_Flow ($mil)	0.9841	13.8389	-0.0200	3.5195	20.3388	0.1716	0.5520	12.3439	-0.0286	2.9675	<0.0001
12*b*–1 (%)	0.2044	0.2065	0.1504	0.2273	0.1905	0.2245	0.2004	0.2089	0.1330	0.0269	<0.0001
RET (%)	0.4490	4.6520	0.8211	0.5443	4.7713	0.9436	0.4328	4.6311	0.8014	0.1115	<0.0001
FF3_alpha (%)	-0.0521	0.6120	-0.0440	0.0036	0.6398	0.0099	-0.0620	0.6064	-0.0526	0.0656	<0.0001
FF4_alpha (%)	-0.0815	0.6178	-0.0571	-0.0358	0.6453	-0.0100	-0.0897	0.6124	-0.0646	0.0539	<0.0001
VA_Vanguard ($mil.)	4.7860	131.5458	0.0422	17.4588	256.5736	1.3736	2.5216	92.7363	0.0116	14.9372	<0.0001
VA_FF4 ($mil.)	8.2203	276.9255	0.1075	29.9868	640.6524	1.8104	4.3310	130.2095	0.0580	25.6558	<0.0001
Load (%)	3.3014	1.2657	3.1772	3.4679	1.3109	3.3633	3.2730	1.2556	3.1590	0.1950	<0.0001
Exp_Ratio (%)	0.6757	0.5110	0.6396	0.6358	0.4571	0.6147	0.6826	0.5194	0.6459	-0.0468	<0.0001
Num_Class	3.4599	2.1577	3	4.6787	2.9357	4	3.2521	1.9194	3	1.4266	<0.0001
Turnover (%)	79.0045	68.9943	58.0000	71.0636	61.7777	53.0000	80.3579	70.0606	59.0000	-9.2943	<0.0001
Fund_TNA ($mil.)	545.2676	880.0773	148.2000	1172.5100	1224.6800	631.0500	438.3685	756	122	734.1415	<0.0001
Family_TNA ($mil.)	88085	127436	32838	134173	149648	77096	80230	121520	27434	53943	<0.0001
Star_ Family	0.6893	0.4628	1	0.7710	0.4202	1	0.6753	0.4682	1	0.0956	<0.0001
#_Star_Fund_in_Family	3.8021	5.0919	2	4.9617	5.7316	3	3.6044	4.9477	2	1.3573	<0.0001
Survival_Time (months)	10.0118	11.2613	7.0849	13.5291	15.0447	9.6274	9.4124	10.3628	6.7425	4.1167	<0.0001
#_Letters_in_Name	53.6013	14.1460	53	49.1671	13.8551	49	54.3570	14.0562	54	-5.1899	<0.0001
# of funds	6,092			738			5,354				
# of fund months	332,118			48,360			283,758				

Table B7. Surviving and non-surviving funds with SVIs – All funds

This table presents the summary statistics for funds with nonmissing SVIs. Surviving funds are funds remaining in existence within the sample period. Non-surviving funds are those funds that have been liquidated or merged during the sample period. Variables include abnormal search volume index (ASVI), expected ASVI (EASVI), residual ASVI (RASVI), net fund flow, 12b-1 fees, monthly fund return, fund loads, net expense ratio, number of multiple class shares, turnover ratio, fund total net assets, total net assets under management by the family, a dummy variable of star funds in the family, the number of star funds in the family, fund age, and the number of letters in the fund name. The detailed definitions of these variables are reported in Appendix A. *p*-values of differences are reported under the null hypothesis that the difference in variables between surviving funds and non-surviving funds is zero.

	Surviving funds			Non-surviving funds			Diff.	
	Mean	Std.	Median	Mean	Std.	Median	Mean	*p*-value
ASVI	5.7799	22.5591	0.0000	3.3530	19.3100	0.0000	2.4269	<0.0001
EASVI	5.9050	6.2505	6.5126	3.0522	5.7104	3.4903	2.8528	<0.0001
RASVI	-0.0186	21.6747	-4.8311	0.2477	18.6191	-2.2271	-0.2663	0.3084
Net_Flow ($mil)	4.5130	20.4396	0.4654	-3.0021	18.3773	-2.1966	7.5151	<0.0001
12*b*–1 (%)	0.2219	0.1891	0.2096	0.2628	0.1958	0.2739	-0.0409	<0.0001
RET (%)	0.5736	4.8024	0.9443	0.3517	4.5574	0.9331	0.2219	0.0003
FF3_alpha (%)	0.0047	0.6474	0.0141	0.0135	0.5805	-0.0062	-0.0084	0.2971
FF4_alpha (%)	-0.0383	0.6533	-0.0086	-0.0056	0.5850	-0.0067	-0.0327	0.0001
VA_Vanguard ($mil.)	18.9910	266.4480	1.5106	10.4665	185.6248	0.6665	8.5245	0.0026
VA_FF4 ($mil.)	34.2862	679.9216	1.9358	15.1023	301.7991	1.3515	19.1838	0.0004
Load (%)	3.3787	1.2985	3.2747	4.0539	1.2392	4.3556	-0.6752	<0.0001
Exp_Ratio (%)	0.6245	0.4547	0.5900	0.7098	0.4657	0.7963	-0.0853	<0.0001
Num_Class	4.6049	2.9175	4	5.1635	3.0084	5	-0.5586	<0.0001
Turnover (%)	68.9202	61.5120	51.0000	85.1343	61.6761	68.0000	-16.2141	<0.0001
Fund_TNA ($mil.)	1165.6500	1213.1400	647.5000	1217.5700	1297.0400	541.2000	-51.9190	0.0027
Family_TNA ($mil.)	134242	151657	73507	133720	135730	90245	522.6	0.7778
Star_Fund_in_Family	0.7504	0.4328	1	0.9058	0.2921	1	-0.1554	<0.0001
#_Star_Fund_in_Family	4.8238	5.7074	3	5.8669	5.8077	5	-1.0431	<0.0001
Fund_Age (years)	12.8596	14.6475	9.0932	17.9240	16.7795	12.6740	-5.0643	<0.0001
#_Letters_in_Name	49.7513	13.7442	49	45.3318	13.9686	45	4.4196	<0.0001
# of funds	636			102				
# of fund months	41,967	34,468	13,197	6,393	5,800	855		