Is Money Smart or Naïve?
Evidence from Investor Flow to Hedged Mutual Funds

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Abstract

This paper shows that hedged mutual funds, on average, do not add significant value for investors over a recent sample period. We further find that investors of hedged mutual funds do not have the ability to pick superior fund managers after controlling for the exotic risk factors. Further analyses document that investors of hedged mutual funds exhibit stronger tendency to chase past performance and appear to use a wrong model specification when assessing hedged mutual funds. Finally, we show that investors of hedged mutual funds place greater emphasis on the return associated with exotic risk exposures. These results are inconsistent with the predictions of the smart money hypothesis, but support the naïve investor hypothesis.

Keywords: Hedged mutual funds, Fund flow, Smart-money effect, Exotic risk factors

JEL classification: G11, G23, D14

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1. Introduction

Hedged mutual funds differ significantly from traditional equity and bond mutual funds in that hedged mutual funds employ strategies that rely heavily on short positions, leverage, and/or derivatives – strategies generally employed by hedge funds.[1] With increasing competition among mutual funds in the past decades, hedged mutual funds observed a substantial growth over time. The total asset under management by hedged mutual funds increases more than 120 fold (from $2.3 billion to $285.6 billion) from 1994 to 2019. Previous studies examine the performance of hedged mutual funds (Agarwal, Boyson, and Naik, 2009; McCarthy and Wong, 2020; Newton, 2009). However, little systematic analysis has been performed regarding the behavior and selection ability of hedged mutual fund investors as well as factors affecting their investment decisions. Our paper fills this void in mutual fund literature by analyzing the growth of hedged mutual funds from the investors' point of view. Specifically, in this study we are interested in the following questions:

First, do hedged mutual funds outperform the market? Previous studies find mixed results regarding the performance of hedged mutual funds (Agarwal, Boyson, and Naik, 2009; Newton, 2009; McCarthy and Wong, 2020). Using a recent time period, we first examine the performance of hedged mutual funds.

Second, do investors of hedged mutual funds have the ability to identify fund managers with superior skills? The smart money hypothesis argues that fund investors have incentives to invest accordingly by moving money toward good performers and away from poor performers (Gruber, 1996; Zheng, 1999; Keswani and Stolin, 2008; Jiang and Yuksel, 2019, Gupta-Mukherjee, 2020) Since hedged mutual funds mimic strategies mainly used by hedge funds, we expect that investors in these

[1] These strategies include absolute return, equity leverage, market-neutral, long-short equity, or dedicated short-bias. For example, the prospectus of one fund in our sample, Grizzly Short Fund, states that this fund invests in short positions and derivatives to profit from stocks that drop in price (https://sec.report/Ticker/GRZZX). The prospectus of another fund, Eaton Vance Global Macro Absolute Return Advantage Fund, in our sample, states that this fund seeks total return by investing in securities, derivatives, and other instruments to establish long and short investment exposures around the world (https://sec.report/Ticker/EGRAX)

funds differ substantially from those of traditional equity and bond funds in terms of financial background and sophistication. It is generally believed that sophisticated investors rely on more advanced evaluation criteria in their fund selection. To better detect the smart money effect in hedged mutual funds, we rely on Fung and Hsieh's (2001) factor models developed for hedge funds.

Third, to better understand whether the investor flow to hedged mutual funds is driven by rational decisions or behavioral biases, here we ask: what are the determinants of investor flow to hedged mutual funds? As an alternative to the smart money hypothesis, we argue that investors might confuse the fund exposures to exotic risk factors with managerial skill when allocating capital among hedged mutual funds – the naïve investor hypothesis. The naïve investor hypothesis also predicts that investors naively select hedged mutual funds based on their past return and/or the risk adjusted performance using a wrong model specification when assessing hedged mutual fund managerial skill.

Our results show no evidence that hedged mutual funds, on average, do not add significant value for investors. Once we distinguish flow into positive and negative, we find that the difference in the Carhart (1997) four-factor alpha between positive and negative flow portfolios is significantly positive. At first glance, this finding is consistent with the smart money hypothesis. As noted previously, unlike their more traditional counterparts, hedged mutual funds offer investors exposure to the exotic risk factors that are both uncorrelated with global markets and has a positive expected return. Thus, the positive flow-performance relation documented in hedged mutual funds could be due to their exposure to the exotic risk factors developed by Fung and Hsieh (2001).[2] Once controlling for exotic risk factors using the Fung and Hsieh (2001) seven-factor model, the difference in alpha between positive and negative flow portfolios is no longer significant.

Finally, we investigate the relation between hedged mutual fund flow and a number of fund characteristics including fund size, expenses, turnover, past

[2] Hedge fund literature shows that the exotic risk factors help explain the performance strategies that are also implemented by hedged mutual funds (Fung and Hsieh 2001, 2004).

performance and funds' exposure to exotic risk factors. Consistent with the naïve investor hypothesis, hedged mutual fund investors exhibit a stronger tendency to chase past performance based on raw return and risk-adjusted performance using a wrong model specification (i.e., the Carhart (1997) four-factor model) when assessing hedged fund managerial skill. We further show that investors seem to confuse skill and risk exposures of hedged mutual funds. We interpret this finding as that investors of hedged mutual funds place greater emphasis on the return associated with exotic risk exposures.

Our work is related to literature on the smart money effect (Gruber, 1996; Zheng, 1999; Keswani and Stolin, 2008; Jiang and Yuksel, 2019, Gupta-Mukherjee, 2020). Most of this work investigates the smart money effect among equity and bond funds. Our study adds to this literature by examining the smart effect in hedged mutual funds. We find no evidence that hedged mutual fund investors have ability to identify superior fund management. Our study also contributes to literature that investigates the performance of hedged mutual funds (Agarwal, Boyson, and Naik, 2009; McCarthy and Wong, 2020; Newton, 2009). Different from the literature, in this paper we take a different approach and investigate whether investor flow to hedged mutual funds is driven by rational decisions or behavioral biases. Our results indicate that investors of hedged mutual funds confuse the fund exposures to exotic risk factors with managerial skill when flowing into and allocating capital among hedged mutual funds. This, in turn, leads to significant growth in hedged mutual funds even when these funds on average underperform their passive benchmarks.

2. Data and Sample

2.1. Hedged Mutual Fund Sample

The mutual fund data used in this study are obtained from the CRSP Survivor-Bias-Free U.S. Mutual Fund Database. Our sample includes all actively managed U.S. hedged mutual funds. We remove the first two years of return data and funds with total net assets less than $15 million (Evans, 2010). For funds with multiple share classes, we compute value-weighted fund characteristics. Our sample period is

from January 1994 to December 2019. Following Keswani and Stolin (2008), Jiang and Yuksel (2017, 2019), we also restrict our sample to funds with valid observations of monthly total net assets (TNA) to obtain monthly fund flows as follows:

$$\text{FLOW}_{i,t}(\$) = [\text{TNA}_{i,t} - \text{TNA}_{i,t-1} \times (1 + \text{Ret}_{i,t})] \quad (1)$$

where $\text{TNA}_{i,t}$ and $\text{TNA}_{i,t-1}$ refer to the total net asset of fund i at the end of month t and $t-1$, respectively. $\text{Ret}_{i,t}$ refers to fund return.

Panel A (Panel B) of Figure 1 plots the total asset under management (total number of funds) of the hedged mutual funds between January 1994 and December 2019. As shown in Panel A (Panel B) of Figure 1, the total asset under management by hedged mutual funds increases from $2.3 billion (14 funds) in 1994 to $285.6 billion (845 funds) in 2019. Our sample consists of 1,114 distinct funds. Table 1 reports the summary statistics of hedged mutual fund characteristics.

3. Empirical Results:

3.1. Excess Returns and Sharpe Ratios of Positive- and Negative-Flow Portfolios.

Each month, the returns of hedged mutual fund portfolios are computed for both equal-weighted and flow-weighted portfolios. Table 2 reports the time-series mean and standard deviation monthly net (post-expense) and gross (pre-expense) mutual fund returns (in excess of 1-month T-bill rate) of new-money portfolios as well as the corresponding Sharpe ratios. We compute gross monthly fund return as the CRSP reported net monthly return plus 1/12th of the annual expense ratio reported by CRSP. As a benchmark, summary statistics of monthly market returns in excess of 1-month T-bill rate are also reported. Consistent with the previous literature (Sapp and Tiwari, 2004; Gupta-Mukherjee, 2020), the equal-weighted monthly return of all hedged mutual funds is lower than the return of market portfolio. Once we distinguish hedged mutual funds between positive- and negative-cash flows funds, regardless of using net or gross return, Table 2 shows that the average returns and Sharpe ratios of positive cash-flow portfolios are higher than those of negative cash-flow portfolios. For example,

for net returns, the Sharpe ratio of equal-weighted (flow-weighted) positive-cash flows funds is 0.201 (0.126) in Panel A (Panel B).

3.2. Performance of Positive- and Negative-Flow Portfolios – Portfolio Analysis.

Gruber (1996) and Zheng (1999) show that investors are able to earn superior returns based on their investment decisions. In contrast, Sapp and Tiwari (2004) show that the smart money effect is explained by the momentum factor. The recent studies by Jiang and Yuksel (2019) and Gupta-Mukerjee (2020) show that the smart money effect varies across different periods. To evaluate the performance of the positive and negative flow portfolios, we employ the following factor specifications:

(i) Carhart (1997) four-factor model:

$$r_{p,t} = \alpha_p^{4F} + \beta_{1,p}\text{MKTRF}_t + \beta_{2,p}\text{SMB}_t + \beta_{3,p}\text{HML}_t + \beta_{4,p}\text{UMD}_t + \varepsilon_p \quad (2)$$

where $r_{p,t}$ is the monthly return on a portfolio of funds in excess of the 1-month T-bill rate; *MKTRF* is the excess return on a value-weighted market portfolio; *SMB*, *HML*, and *UMD* are, respectively, returns on a zero-investment factor mimicking portfolios for size, book-to-market, and 1-year momentum in stock returns.[3] As noted earlier, hedged mutual funds differ significantly from traditional equity and bond mutual funds in that hedged mutual funds employ strategies that rely heavily on short positions, leverage, and/or derivatives (i.e., absolute return, equity leverage, market-neutral, long-short equity, or dedicated short-bias). Therefore, we use Fung and Hsieh (2001) factor models:

(ii) Fung and Hsieh (2001) seven-factor model:

$$\begin{aligned} r_{p,t} = \alpha_p^{7F} &+ \beta_{1,p}\text{MKTRF}_t + \beta_{2,p}\text{SMB}_t + \beta_{3,p}\text{PTFSBD}_t + \beta_{4,p}\text{PTFSFX}_t \\ &+ \beta_{5,p}\text{PTFCOM}_t + \beta_{6,p}\text{B10Y}_t + \beta_{7,p}\text{CREDSPR} + \varepsilon_p \end{aligned} \quad (3)$$

where return on a portfolio of funds in excess of the 1-month T-bill rate; *MKTRF* is the excess return on a value-weighted market portfolio; *SMB*, *PTFSBD*, *PTFSFX*,

[3] We obtain the excess return of the market portfolio as well as the zero-investment factor mimicking portfolios for size, book-to-market and momentum from Kenneth French's website: (https://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html).

PTFCOM, *B10Y*, and *CREDSPR* are, respectively, returns on a zero-investment factor mimicking portfolios for size, bond trend-following factor, currency trend-following factor, commodity trend-following, bond market factor, credit spread factor.[4]

(iii) Fung and Hsieh (2001) nine-factor model:

$$r_{p,t} = \alpha_p^{9F} + \beta_{1,p}MKTRF_t + \beta_{2,p}SMB_t + \beta_{3,p}PTFSBD_t + \beta_{4,p}PTFSFX_t + \beta_{5,p}PTFCOM_t + \beta_{6,p}B10Y_t + \beta_{7,p}CREDSPR + \beta_{8,p}PTFSIR + \beta_{9,p}PTFSSTK + \varepsilon_p \quad (4)$$

In addition to factors used in Eq (3), The Fung and Hsieh (2001) nine-factor model further includes PTFSIR (a short-term interest trend-following factor) and PTFSSTK (a stock index trend-following factor).

(iv) The Eleven-Factor Model:

Finally, we extend the nine-factor model by further including *HML*, and *UMD*, used in the Carhart (1997) four-factor model (Eq.(2)).

Panel A (Panel B) of Table 3 reports the difference in net (gross) return and the risk-adjusted performance between positive and negative cash-flow portfolios based on the four-, seven-, nine-, and eleven-factor model. The results are reported for both equal-weighted portfolios (upper panel) and cash-flow-weighted portfolios (lower panel). Unlike equal-weighted portfolios, cash-flow-weighted portfolios place greater emphasis on funds that experience the largest absolute investor money flows. As such, the cash-flow-weighted portfolios capture more accurately the performance of new money in and out of hedged mutual funds.

As shown in Panel A and B of Table 3, the results based on the Carhart (1997) four-factor model show a significant smart money effect in the entire sample of hedged mutual funds. For example, in Specification (4) of Panel A the difference between the cash-flow-weighted positive and negative portfolio is 0.477% per month (t = 1.71). At first glance, this finding is consistent with the smart money effect. However, unlike traditional equity mutual funds, hedged mutual funds are more likely to benefit from

[4] We obtain the bond trend-following factor, currency trend-following factor, commodity trend-following, bond market factor, and credit spread factor from David A. Hsieh's website: (https://faculty.fuqua.duke.edu/~dah7/HFRFData.htm).

the exotic factors that are uncorrelated with size, value and momentum factors. If hedged mutual fund investors merely chase past fund return generated by these exotic factors, then hedged fund portfolios, on average, receive more investor flow. This, in turn, could lead to the finding of a smart money effect, despite the absence of ability on the part of investors to select superior hedged fund managers. In Specification (5) of Table 3, we report the results based on the seven-factor model. As shown in Table 3, once including the exotic risk factors by Fung and Hsieh (2001), the differences in alpha between positive and negative cash-flow funds are no longer significant at any conventional level. This finding is inconsistent with the smart money hypothesis. The results based on nine- and eleven-factor models provide similar results.

3.3. Determinants of Fund Flows to Hedged Mutual Funds

Our earlier analyses so far highlight two important results: (1) hedged mutual funds, on average, do not add significant value for investors and (2) hedged mutual fund investors, on average, do not exhibit an ability to pick superior fund manager, i.e., the smart money effect, after controlling for the exotic risk exposures. Then, a natural question is what explains the substantial growth in the hedged mutual fund industry? Alternative to the smart money hypothesis, we hypothesize that hedged mutual fund investors confuse the fund exposures to exotic risk factors with managerial skill when allocating capital among hedged mutual funds, the naïve investors hypothesis.

According to the naïve investor hypothesis, investors naively select hedged mutual funds based on their past return and/or risk-adjusted performance using a wrong model specification (i.e., the Carhart (1997) four-factor model). This hypothesis predicts no significant relation between investor flow and the risk-adjusted performance based on the Fung and Hsieh (2001) seven-factor model. Finally, if investors confuse managerial skill with risk exposure of hedged mutual funds, then we expect fund flow to be positively associated with fund exposure to the exotic risk factors, i.e., the Fung and Hsieh (2001) seven-factor model. To test these predictions, we examine the relation between fund flow and various fund characteristics as well as

past-fund performance and the fund's exposure to exotic risk factors using the Fama-MacBeth (1973) regressions as follows:

$$\begin{aligned} \text{FLOW}(\%)_{i,t} = {} & \beta_1 \text{Log}(\text{TNA})_{i,t-1} + \beta_2 \text{Log}(\text{Age})_{i,t-1} + \beta_3 \text{Expense}_{i,t-1} \\ & + \beta_4 \text{Turnover}_{i,t-1} + \beta_5 \text{Ret}_{t-3:t-1}(\alpha^{4F}_{i,t-1}) + \beta_6 \alpha^{7F}_{i,t-1} \\ & + \beta_7 \text{Exotic\_Risk\_Exposure}_{i,t-1} + \text{Intercept}_{i,t} + \varepsilon_{i,t} \end{aligned} \quad (5)$$

where dependent variable is normalized flow. Following the previous literature (Huang, Wei, and Yan, 2007; Jiang and Yuksel, 2019; Gupta-Mukherjee, 2020), we use several fund characteristics that are related to fund flow. To test whether hedged mutual fund investors exhibit simple trend chasing behavior or rely on a wrong model specification, we use both naïve performance measure ($\text{Return}_{t-3,t-1}$), and risk-adjusted fund return based on the Carhart (1997) four-factor model ($\alpha^{4F}_{i,t-1}$). We also include more sophisticated measure, i.e., risk-adjusted fund return based on the Fung and Hsieh (2001) seven-factor model ($\alpha^{7F}_{i,t-1}$). Both $\alpha^{4F}_{i,t-1}$ and $\alpha^{7F}_{i,t-1}$ are estimated over the previous 24 monthly (minimum of 20) fund returns While sophisticated investors understand the correct risk-adjusted fund performance such as $\alpha^{7F}_{i,t-1}$, we expect naïve investor flow to be strongly associated with $\text{Return}_{t-3,t-1}$ or $\alpha^{4F}_{i,t-1}$. Finally, to test whether hedged fund investors might confuse the fund exposures to exotic risk factors with managerial skill, we include the fund's exposure to exotic risk factors (Exotic_Risk_Exposure) measured as the proportion of the variance of fund return explained by the Fung and Hsieh (2001) seven-factor model estimated over the previous 24 monthly (minimum of 20) fund returns. The naïve investor hypothesis expects a positive relation between Flow and Exotic_Risk_Exposure.

Consistent with the literature, Specification (1) of Table 4 shows hedged mutual fund flow is negatively related to fund size (Log(TNA)) and positively related to fund age (Log(Age)) and fund expense ratio (Expense). More importantly, as shown in Specification (2) and (3), we find fund flow is significantly related to raw return ($\text{Return}_{t-3,t-1}$) and the risk-adjusted performance ($\alpha^{4F}_{i,t-1}$) based on the Carhart (1997) model. However, we find no significant relation between the risk-adjusted performance based on the Fung and Hsieh (2001) model ($\alpha^{7F}_{i,t-1}$) and fund flow. We interpret these

findings as evidence that hedged mutual fund investors naively select hedged mutual funds based on their past return and/or risk adjusted performance using a wrong model specification (i.e., the Carhart (1997) four-factor model) when assessing hedged fund managerial skill. Moreover, in both specifications (2) and (3), consistent with the naïve investor hypothesis, Table 4 shows a significant relation between fund flow and the fund's exposure to exotic risk factors.

4. Conclusion

In this paper, we find no evidence that hedged mutual funds, on average, perform better than the market portfolio over a recent sample period. Moreover, using monthly fund flow, this paper examines the smart money effect in hedged mutual funds. After controlling the exotic risk factors based on the Fung and Hsieh (2001) seven-factor model, we show that investors of hedged mutual funds do not exhibit any ability to identify fund managers with superior skills and to invest accordingly by moving money toward good performers and away from poor performers. Moreover, consistent with the naïve investor hypothesis, we find that hedged mutual fund investors exhibit a stronger tendency to chase past performance based on raw return and risk-adjusted performance using a wrong model when assessing hedged fund managerial skill. Finally, we find a significantly positive relation between fund flow and fund exposure to exotic risk factors, suggesting that investors seem to confuse skill with risk exposures of hedged mutual funds.

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Table 1. Summary Statistics

This table the time-series averages of cross-sectional mean, median, standard deviation, 25th percentile, and 75th percentile of fund characteristics. Fund characteristics include TNA ($million), the total net assets under fund management (TNA) at the beginning of the month; Fund Age, in years since inception; Expenses (%), the percentage of total investment that shareholders pay for a fund's expenses; Turnover (%), defined as the minimum of aggregate purchases or sales of securities during the year, divided by the average TNA; Flow (%), the one-month normalized net flow into a fund and defined as $\left(\mathrm{TNA}_{i,t} - \mathrm{TNA}_{i,t-1}(1 + \mathrm{R}_{t-1,t-1})\right)/\mathrm{TNA}_{i,t-1}$. The sample period is from 1994m1 to 2019m12.

	Mean	Median	25th Pctl.	75th Pctl.	St. Dev.
TNA ($ Millions)	395.09	99.18	42.16	312.47	996.81
Age (years)	8.04	6.03	3.44	10.92	6.57
Expenses (%)	1.41	1.38	1.05	1.69	0.52
Turnover (%/year)	243.65	127.99	63.33	283.35	432.82
Flow (%)	1.74	-0.14	-3.02	3.66	17.34

Table 2. Descriptive Statistics of Excess Returns of Hedged Mutual Fund Portfolios Formed on Past Flows

Separately for Net and Gross fund return, this table the time-series mean and standard deviation of cross-sectional averages of monthly excess returns (in excess of the risk-free rate) of fund portfolios formed on past flows. The corresponding Sharpe ratios for the portfolios are also reported. In the beginning of each month, funds are grouped to form a positive cash-flow portfolio and a negative cash-flow portfolio based on the sign of the net cash-flow experienced by each fund during the previous month. Panel A reports statistics of equal-weighted returns for *all funds*, *positive cash flow funds*, and *negative cash flow funds*. Panel B reports statistics of TNA-weighted returns for *all funds*, and cash-flow-weighted returns for *positive cash flow funds*, and *negative cash flow funds*. Panel C reports statistics of market excess return (*MKTRF*) which is the value-weighted market index of all NYSE, AMEX, and NASDAQ stocks. Returns are expressed in percentage per month. The sample period is from 1994m1 to 2019m12.

	Net Return			Gross Return		
	Mean	St. Dev.	Sharpe Ratio	Mean	St. Dev.	Sharpe Ratio
Panel A. Equal-Weighted						
All Funds	0.506	3.682	0.137	0.610	3.680	0.166
Positive Flow	0.712	3.544	0.201	0.818	3.542	0.231
Negative Flow	0.210	3.681	0.057	0.310	3.680	0.084
Panel B. Flow-Weighted						
All Funds	0.305	3.172	0.096	0.390	3.170	0.123
Positive Flow	0.509	4.055	0.126	0.604	4.154	0.145
Negative Flow	0.196	4.240	0.046	0.284	4.234	0.067
Panel C. Market Factor						
Market (MKTRF)	0.683	4.290	0.159			

Table 3. Performance of Hedged Mutual Fund Portfolios Formed on Past Flows

This table reports the performance of average hedged mutual funds and hedged mutual fund portfolios formed on past flows during the previous month. In the beginning of each month, funds are grouped to form a positive cash-flow portfolio and a negative cash-flow portfolio based on the sign of the net cash-flow experienced by each fund during the previous month. Separately for net fund return in Panel A and gross fund return in Panel B, this table reports the differences in excess return between positive and negative cash flow portfolios as well as risk-adjusted performance based on the Carhart (1997) four-factor model (α^{4F}), the Fung and Hsieh (2001) seven-factor model (α^{7F}), as well as the nine-factor model (α^{9F}), and eleven-factor model (α^{11F}) described in Section 3.2. Alphas are expressed in percentage per month. Newey-West (1987) t – statistics with a lag of 3 are reported in parentheses. *, **, and *** denote significance at 10%, 5%, and 1% level, respectively. The sample period is from 1994m1 to 2019m12.

Panel A. Fund Performance based on Net Return.

Positive Flow Ret	Negative Flow Ret	Difference: Positive - Negative Cash Flow				
		Ret	α^{4F}	α^{7F}	α^{9F}	α^{11F}
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel A1. Equal-Weighted						
0.712***	0.210	0.503***	0.604***	-0.465	-0.277	-0.131
(3.44)	(0.92)	(3.42)	(4.10)	(-0.76)	(-0.50)	(-0.22)
Panel A2. Cash-Flow Weighted						
0.509	0.196	0.313*	0.477*	-0.222	-0.105	0.117
(1.64)	(0.65)	(1.71)	(1.83)	(-0.18)	(-0.09)	(0.24)

Panel B. Fund Performance based on Gross Return.

Positive Cash Flow	Negative Cash Flow	Difference: Positive - Negative Cash Flow				
		Ret	α^{4F}	α^{7F}	α^{9F}	α^{11F}
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel B1. Equal-Weighted						
0.818***	0.310	0.508***	0.610***	-0.477	-0.292	-0.148
(3.95)	(1.36)	(3.46)	(4.13)	(-0.77)	(-0.52)	(-0.24)
Panel B2. Cash-Flow Weighted						
0.604*	0.284	0.319*	0.482*	-0.244	-0.128	0.191
(1.94)	(0.94)	(1.73)	(1.85)	(-0.19)	(-0.10)	(0.23)

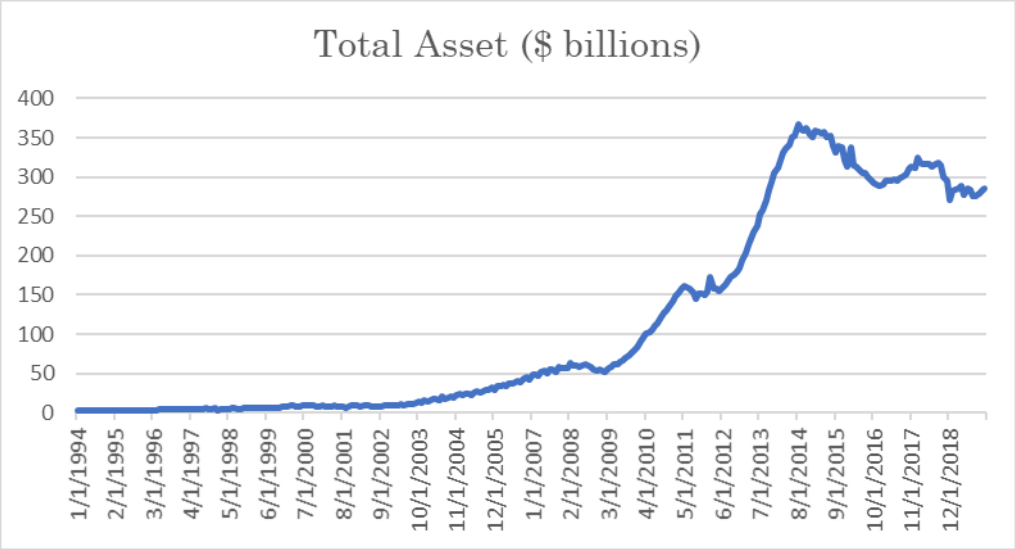
Table 4. Determinants of Hedged Mutual Fund Flows

This table reports the results from the cross-sectional regressions of monthly normalized hedged mutual fund flows of a fund on the fund's logarithm of previous month *TNA* (Log(TNA)_{t-1}), logarithm of fund age (Log(Age)_{t-1}), expense ratio ($\text{Expense\_ratio}_{t-1}$), turnover ($\text{Turnover}_{t-1}$), the previous three-month return ($\text{Ret}_{t-3:t-1}$), lagged fund's four-factor alpha in month *t-1* (α_{t-1}^{4F}) estimated from the Carhart (1997) four-factor model based on the preceding 24 monthly fund returns (minimum of 20), lagged fund's seven-factor alpha in month *t-1* (α_{t-1}^{7F}) estimated from the Fung and Hsieh (2001, 2004) seven-factor model based on the preceding 24 monthly fund returns (minimum of 20), and the exotic beta exposure ($\text{Exotic\_Risk\_Exposure}_{t-1}$) proxied by the proportion of the variance of the fund return explained by the Fung and Hsieh (2001) seven-factor model estimated over the previous 24 monthly (minimum of 20) fund returns. The reported coefficients are time-series averages of monthly cross-sectional regressions from 1994m1 to 2019m12 and the *t*-statistics (in parentheses) are based on Newey-West (1987) standard errors with a lag of 3. *N* is the total number of observations. *, **, and *** denote significance at 10%, 5%, and 1% level, respectively.

	(1)	(2)	(3)	(4)
Log(TNA)_{t-1}	-0.122***			-0.104***
	(-5.46)			(-5.86)
Log(Age)_{t-1}	0.031*			0.019*
	(1.82)			(1.68)
$\text{Expense\_ratio}_{t-1}$	1.695**			1.744**
	(2.01)			(2.13)
Turnover_{t-1}	0.012			0.009
	(1.39)			(0.87)
$\text{Ret}_{t-3:t-1}$		0.435**		0.243*
		(2.37)		(1.78)
α_{t-1}^{4F}			0.015***	
			(2.94)	
α_{t-1}^{7F}		-0.001	-0.001	-0.001
		(-1.32)	(-0.36)	(-0.41)
$\text{Exotic\_Risk\_Exposure}_{t-1}$		0.020***	0.022***	0.018***
		(6.31)	(5.79)	(5.14)
Intercept	0.465***	0.082***	0.075***	0.426***
	(6.64)	(6.74)	(6.18)	(6.14)
N	72,233	69,323	69,323	69,323
Adj. R^2	0.059	0.161	0.133	0.199

Figure 1. Growth in Alternative Mutual Funds
This figure plots the total asset under management and the number of funds of the alternative mutual funds from 1994m1 to 2019m12 in Panel A and Panel B, respectively.

Panel A. Total asset under management



Panel B. Total number of funds.