

## **Internet Appendix**

### **“Portfolio Manager Ownership and Mutual Fund Risk Taking”**

April 2018

**Table A1****Robustness Tests — Excluding Funds with TNA below \$5 Million or Ownership above \$1M.**

In this table, we repeat the analysis in Table 2 except that we exclude funds with TNA below \$5 million, instead of \$15 million, in Panel A, and we exclude funds with manager ownership above \$1 million in Panel B. For the sake of brevity, we only report the coefficient estimates of the main variables of interest. Standard errors are clustered at the fund level. The superscripts \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Excluding Funds with TNA below \$5 Million

VARIABLES	<i>Across-Year Risk Change<sub>t</sub></i>		<i>Intra-Year Risk Change<sub>t</sub></i>	
	(1)	(2)	(3)	(4)
Ownership Dummy <sub>t-1</sub>	-0.312*** (-5.62)		-0.371*** (-5.99)	
Log(\$Ownership) <sub>t-1</sub>		-0.027*** (-6.21)		-0.371*** (-5.99)
Controls <sub>t-1</sub>	Yes	Yes	Yes	Yes
Objective & Year FEs	Yes	Yes	Yes	Yes
Observations	8,713	8,713	8,713	8,713
Adj. R-Squared	0.140	0.142	0.251	0.252

Panel B: Excluding Funds with Ownership above \$1 Million

VARIABLES	<i>Across-Year Risk Change<sub>t</sub></i>		<i>Intra-Year Risk Change<sub>t</sub></i>	
	(1)	(2)	(3)	(4)
Ownership Dummy <sub>t-1</sub>	-0.287*** (-4.98)		-0.323*** (-4.95)	
Log(\$Ownership) <sub>t-1</sub>		-0.025*** (-5.38)		-0.029*** (-5.39)
Controls <sub>t-1</sub>	Yes	Yes	Yes	Yes
Objective & Year FEs	Yes	Yes	Yes	Yes
Observations	6,149	6,149	6,149	6,149
Adj. R-Squared	0.168	0.169	0.293	0.294

**Table A2**  
**Robustness Tests — Alternative Measures of Portfolio Manager Ownership or Risk Changes**

This table tabulates the results of the robustness tests on alternative proxies for managerial ownership or risk changes. In Panel A, we repeat the analysis in Table 2 using alternative measures of risk changes: (i) *24-Month Across-Year Risk Change* which estimates the across-year risk change measure using 24 monthly returns; and (ii) *Intra-Year Risk Ratio* which is computed as the ratio, rather than the difference, of intended portfolio risk in the second half of the year and the realized portfolio risk in the first half of the year. In Panel B, we repeat the analysis in Table 2 using alternative measures of portfolio manager ownership. These alternative measures include: (i) *Ownership Rank*, which is set to one if \$Ownership falls in the range of \$0, and two, three, four, five, six, and seven, if it falls in the range of \$1–\$10,000, \$10,001–50,000, \$50,001–\$100,000, \$100,001–\$500,000, \$500,001–\$1,000,000, and above \$1,000,000, respectively; (ii) *Log(Mean \$Ownership)*, the logarithm of \$Ownership divided by the number of portfolio managers in a fund; (iii) *%Ownership*, the percentage of \$Ownership over funds’ total net assets. For the sake of brevity, we only report the coefficient estimates of the main variables of interest, although all control variables from Table 2 are included. Standard errors are clustered at the fund level. The superscripts \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Alternative Measures of Across-Year and Intra-Year Risk Changes

VARIABLES	<i>24-Month Across-Year Risk Change<sub>t</sub></i>		<i>Intra-Year Risk Change Ratio<sub>t</sub></i>	
	(1)	(2)	(3)	(4)
Ownership Dummy <sub>t-1</sub>	-0.223*** (-4.48)		-0.024*** (-5.82)	
Log(\$Ownership) <sub>t-1</sub>		-0.019*** (-4.80)		-0.002*** (-6.36)
Controls <sub>t-1</sub>	Yes	Yes	Yes	Yes
Objective & Year FEs	Yes	Yes	Yes	Yes
Observations	8,269	8,269	8,269	8,269
Adj. R-Squared	0.171	0.171	0.166	0.167

Panel B: Alternative Measures of Managerial Ownership

VARIABLES	<i>Across-Year Risk Change<sub>t</sub></i>			<i>Intra-Year Risk Change Ratio<sub>t</sub></i>		
	(1)	(2)	(3)	(4)	(5)	(6)
Ownership Rank <sub>t-1</sub>	-0.072*** (-6.25)			-0.086*** (-6.76)		
Log(Mean \$Ownership) <sub>t-1</sub>		-0.028*** (-5.91)			-0.033*** (-6.29)	
%Ownership <sub>t-1</sub>			-0.079** (-2.34)			-0.106** (-2.42)
Controls <sub>t-1</sub>	Yes	Yes	Yes	Yes	Yes	Yes
Objective& Year FEs	Yes	Yes	Yes	Yes	Yes	Yes
Observations	8,269	8,269	8,269	8,269	8,269	8,269
Adj. R-Squared	0.150	0.144	0.150	0.267	0.263	0.267

**Table A3**  
**Robustness Tests — Year-by-Year Estimation**

This table tabulates the results of year-by-year estimation of Eq. (4). We use the same specification as in Table 2 except that we do not control for year fixed effects in the regression. To save space, we report only the coefficients on the variable of interest. Standard errors are clustered at the fund level. The superscripts \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Managerial Ownership and Across-Year Risk Changes

VARIABLES	<i>Across-Year Risk Change<sub>t</sub></i>							
	2008	2009	2010	2011	2012	2013	2014	2015
	Panel A1. Regressions using <i>Ownership Dummy</i>							
Ownership Dummy <sub>t-1</sub>	-0.349*** (-3.27)	-0.402* (-1.83)	-0.359*** (-3.78)	-0.465*** (-6.11)	-0.126 (-1.31)	-0.158*** (-2.83)	-0.258*** (-3.31)	-0.109 (-0.97)
	Panel A2. Regressions using <i>Log(\$Ownership)</i>							
Log(\$Ownership) <sub>t-1</sub>	-0.028*** (-3.40)	-0.038** (-2.19)	-0.030*** (-4.03)	-0.039*** (-6.58)	-0.010 (-1.36)	-0.014*** (-3.15)	-0.025*** (-4.08)	-0.009 (-1.01)

Panel B: Managerial Ownership and Intra-Year Risk Changes

VARIABLES	<i>Intra-Year Risk Change<sub>t</sub></i>							
	2008	2009	2010	2011	2012	2013	2014	2015
	Panel B1. Regressions using <i>Ownership Dummy</i>							
Ownership Dummy <sub>t-1</sub>	-0.273* (-1.91)	-0.498 (-1.55)	-0.302*** (-2.62)	-0.325*** (-3.99)	-0.245** (-2.30)	-0.176** (-2.36)	-0.515*** (-3.36)	-0.285** (-2.51)
	Panel B2. Regressions using <i>Log(\$Ownership)</i>							
Log(\$Ownership) <sub>t-1</sub>	-0.022** (-1.97)	-0.047* (-1.86)	-0.027*** (-2.88)	-0.028*** (-4.40)	-0.020** (-2.34)	-0.015*** (-2.67)	-0.045*** (-3.76)	-0.021** (-2.42)

**Table A4**  
**Robustness Tests — Subsample Analysis**

This table reports the subsample analysis on the relation between managerial ownership and fund risk taking. We divide our sample into subsamples using team fund dummy and the median fund size, fund flows, turnover ratio, fund activeness (1-R-squared), active share, or expense ratio as the cutoff. We repeat the analysis in Table 2 over each of the subsamples. To save space, we report only the coefficients on the variable of interest. Standard errors are clustered at the fund level. The superscripts \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Subsamples	<i>Dep. Var.= Across-Year Risk Change<sub>t</sub></i>		<i>Dep. Var.=Intra-Year Risk Change<sub>t</sub></i>	
	<i>Ownership Dummy<sub>t-1</sub></i>	<i>Log(\$Ownership)<sub>t-1</sub></i>	<i>Ownership Dummy<sub>t-1</sub></i>	<i>Log(\$Ownership)<sub>t-1</sub></i>
(1) Team	-0.230*** (-3.58)	-0.021*** (-4.31)	-0.298*** (-3.97)	-0.027*** (-4.74)
(2) Solo	-0.445*** (-4.62)	-0.035*** (-4.53)	-0.441*** (-4.07)	-0.035*** (-4.08)
(3) High Fund Size	-0.365*** (-4.17)	-0.031*** (-4.77)	-0.398*** (-4.15)	-0.035*** (-4.90)
(4) Low Fund Size	-0.256*** (-3.63)	-0.022*** (-3.86)	-0.300*** (-3.63)	-0.025*** (-3.81)
(5) High Net Flows	-0.387*** (-4.71)	-0.032*** (-4.94)	-0.412*** (-4.55)	-0.035*** (-5.02)
(6) Low Net Flows	-0.230*** (-3.62)	-0.021*** (-4.29)	-0.303*** (-3.75)	-0.027*** (-4.26)
(7) High Turnover	-0.207*** (-3.28)	-0.017*** (-3.38)	-0.242*** (-3.18)	-0.021*** (-3.53)
(8) Low Turnover	-0.325*** (-3.73)	-0.029*** (-4.50)	-0.395*** (-4.16)	-0.034*** (-4.84)
(9) High(1-R <sup>2</sup> )	-0.197*** (-3.67)	-0.015*** (-3.61)	-0.224*** (-2.93)	-0.018*** (-2.98)
(10) Low(1-R <sup>2</sup> )	-0.194*** (-2.58)	-0.019*** (-3.21)	-0.306*** (-3.64)	-0.028*** (-4.36)
(11) High Active Share	-0.206*** (-2.91)	-0.017*** (-2.96)	-0.226** (-2.50)	-0.020*** (-2.87)
(12) Low Active Share	-0.194*** (-2.71)	-0.017*** (-3.10)	-0.289*** (-3.40)	-0.024*** (-3.65)
(13) High Expense	-0.208*** (-3.01)	-0.019*** (-3.30)	-0.263*** (-3.15)	-0.024*** (-3.66)
(14) Low Expense	-0.312*** (-3.57)	-0.027*** (-4.11)	-0.391*** (-4.15)	-0.033*** (-4.62)

**Table A5**  
**Robustness Tests — Control for Performance Rank**

In this table, we repeat the analysis in Table 2 except that, following Kempf, Ruenzi and Thiele (2009), we control for the percentile ranking of fund performance instead of the return and we control for family fixed effects. Ranks are calculated for each investment objective and each year. They are based on cumulative raw returns and are normalized to be distributed between zero and one. To save space, we report only the coefficients on the variable of interest. Standard errors are clustered at the fund level. The superscripts \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

VARIABLES	<i>Across-Year Risk Change<sub>t</sub></i>		<i>Intra-Year Risk Change<sub>t</sub></i>	
	(1)	(2)	(3)	(4)
Ownership Dummy <sub>t-1</sub>	-0.192*** (-3.68)		-0.186*** (-2.71)	
Log(\$Ownership) <sub>t-1</sub>		-0.016*** (-3.95)		-0.017*** (-3.09)
Cum.6-Month Ret Rank <sub>t</sub>			-0.321*** (-3.45)	-0.322*** (-3.46)
Cum.12-Month Ret. Rank <sub>t-1</sub>	-0.125** (-2.10)	-0.124** (-2.08)	-0.360*** (-3.96)	-0.359*** (-3.95)
Firm FEs	Yes	Yes	Yes	Yes
Objective & Year FEs	Yes	Yes	Yes	Yes
Observations	8,269	8,269	8,269	8,269
Adjusted R-squared	0.236	0.237	0.307	0.307

**Table A6**  
**Robustness Tests — Control for Additional Manager Characteristics and Family Policies**

In this table, we represent the results of several robustness tests on the relation between portfolio manager ownership and risk changes. We repeat the analysis in Table 2 except we control for manager compensation structure in Panel A, and add several additional control variables on manager characteristics in Panel B. In particular, in Panel A, we control for (i) performance advisory fee dummy (Elton, Gruber and Blake, 2003), (ii) *Coles Incentive Rate* (Coles, Suay, and Woodbury, 2000; Massa and Patgiri, 2009), and (iii) dummy variables that set to one if portfolio manager compensation is tied to fund performance, AUM, advisor profits, or fixed salary, and zero otherwise (Ma, Tang, and Gómez, 2016). In Panel B, we control for the following variables: (i) the SAT score of managers' undergraduate institutions, (ii) whether the manager has an MBA degree, and (iii) a dummy variable that is set to one if any of the portfolio managers is a female and zero otherwise. In Panel C, we exclude the sample funds where all or none of fund managers in the fund family co-invest in the fund. For the sake of brevity, we only report the coefficient estimates of the main variables of interest. Standard errors are clustered at the fund level. The superscripts \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Controlling for Individual Portfolio Manager Compensation Contracts

VARIABLES	<i>Across-Year Risk Change<sub>t</sub></i>		<i>Intra-Year Risk Change<sub>t</sub></i>	
	(1)	(2)	(3)	(4)
Ownership Dummy <sub>t-1</sub>	-0.184*** (-2.94)		-0.235*** (-3.18)	
Log(\$Ownership) <sub>t-1</sub>		-0.017*** (-3.55)		-0.022*** (-3.85)
Perf. Adv. Fee <sub>t-1</sub>	-0.332 (-1.37)	-0.328 (-1.35)	0.188 (0.83)	0.193 (0.85)
Coles Incentive Rate <sub>t-1</sub>	0.286** (2.53)	0.278** (2.48)	0.269* (1.88)	0.259* (1.81)
Perf. Pay <sub>t-1</sub>	-0.295*** (-3.51)	-0.295*** (-3.53)	-0.292*** (-3.11)	-0.293*** (-3.13)
AUM Pay <sub>t-1</sub>	0.010 (0.18)	0.014 (0.24)	0.067 (0.97)	0.071 (1.04)
Profit Pay <sub>t-1</sub>	-0.086 (-1.50)	-0.083 (-1.47)	-0.079 (-1.22)	-0.076 (-1.18)
Fix Pay <sub>t-1</sub>	-0.228* (-1.74)	-0.228* (-1.73)	0.024 (0.12)	0.024 (0.12)
Controls <sub>t-1</sub>	Yes	Yes	Yes	Yes
Objective & Year FEs	Yes	Yes	Yes	Yes
Observations	6,081	6,081	6,081	6,081
Adj. R-Squared	0.148	0.149	0.240	0.241

Panel B: Controlling for Manager Education Background

VARIABLES	<i>Across-Year Risk Change<sub>t</sub></i>		<i>Intra-Year Risk Change<sub>t</sub></i>	
	(1)	(2)	(3)	(4)
Ownership Dummy <sub>t-1</sub>	-0.264*** (-4.05)		-0.345*** (-4.67)	
Log(\$Ownership) <sub>t-1</sub>		-0.024*** (-4.77)		-0.030*** (-5.30)
SAT/100	0.042* (1.84)	0.044* (1.90)	-0.023 (-0.82)	-0.021 (-0.76)
MBA (Dummy)	0.077 (1.26)	0.080 (1.33)	-0.081 (-1.12)	-0.076 (-1.05)
Female (Dummy)	-0.028 (-0.49)	-0.028 (-0.50)	-0.044 (-0.68)	-0.044 (-0.68)
Controls <sub>t-1</sub>	Yes	Yes	Yes	Yes
Objective & Year FEs	Yes	Yes	Yes	Yes
Observations	5,995	5,995	5,995	5,995
Adj. R-Squared	0.145	0.146	0.271	0.272

Panel C: Excluding Cases Where All or None of Managers in the Fund Family Co-Invest

VARIABLES	<i>Across-Year Risk Change<sub>t</sub></i>		<i>Intra-Year Risk Change<sub>t</sub></i>	
	(1)	(2)	(3)	(4)
Ownership Dummy <sub>t-1</sub>	-0.207*** (-3.28)		-0.233*** (-3.11)	
Log(\$Ownership) <sub>t-1</sub>		-0.019*** (-3.73)		-0.021*** (-3.58)
Controls <sub>t-1</sub>	Yes	Yes	Yes	Yes
Objective & Year FEs	Yes	Yes	Yes	Yes
Observations	4,746	4,746	4,746	4,746
Adj. R-Squared	0.205	0.206	0.328	0.329

**Table A7**  
**Alternative Proxies of Risk-Taking Incentives**

In this table, we repeat the analysis in Table 4 using alternative proxies for risk-taking incentives. These alternative proxies are: (i) whether a fund's flow-performance relation is convex or not based on regression instead of correlation (Panel A), (ii) whether fund age is smaller than or equal to 5 years or above 5 years (Panel B), (iii) whether fund family is below or above median value, (iv) whether a fund is a loser fund that underperforming its peers based on past 12-month return in column (1) and (2) and first 6-month return in year  $t$  in column (3) and (4) (Panel D), (v) whether managers' age are above or below the median of all fund managers (Panel E). For the sake of brevity, we only report the coefficient estimates of the main variables of interest. Standard errors are clustered at the fund level. The superscripts \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Alternative Convexity Measure of Flow-Performance Relation

VARIABLES	<i>Across-Year Risk Change<sub>t</sub></i>		<i>Intra-Year Risk Change<sub>t</sub></i>	
	(1)	(3)	(4)	(6)
Ownership Dummy <sub>t-1</sub> ×Convex	-0.348*** (-3.97)		-0.455*** (-4.71)	
Ownership Dummy <sub>t-1</sub> ×Non-Convex	-0.216*** (-3.74)		-0.226*** (-3.13)	
Log(\$Ownership) <sub>t-1</sub> × Convex		-0.031*** (-4.60)		-0.039*** (-5.25)
Log(\$Ownership) <sub>t-1</sub> × Non-Convex		-0.019*** (-4.19)		-0.020*** (-3.66)
Convex	0.117 (1.44)	0.137* (1.73)	0.154 (1.55)	0.170* (1.74)
Controls <sub>t-1</sub>	Yes	Yes	Yes	Yes
Objective& Year FEs	Yes	Yes	Yes	Yes
Observations	7,252	7,252	7,252	7,252
Adj. R-Squared	0.154	0.156	0.271	0.272
F-Tests (P-value)	0.146	0.073	0.043	0.024

Panel B: Fund Age: Younger vs. Order Funds

VARIABLES	<i>Across-Year Risk Change<sub>t</sub></i>		<i>Intra-Year Risk Change<sub>t</sub></i>	
	(1)	(2)	(3)	(4)
Ownership Dummy <sub>t-1</sub> × Younger Funds	-0.755*** (-3.48)		-1.043*** (-3.88)	
Ownership Dummy <sub>t-1</sub> × Older Funds	-0.293*** (-5.08)		-0.332*** (-5.25)	
Log(\$Ownership) <sub>t-1</sub> × Younger Funds		-0.061*** (-3.63)		-0.088*** (-4.27)
Log(\$Ownership) <sub>t-1</sub> × Older Funds		-0.025*** (-5.60)		-0.029*** (-5.80)
Younger Funds	0.083 (0.46)	0.078 (0.44)	0.201 (0.98)	0.228 (1.13)
Controls <sub>t-1</sub>	Yes	Yes	Yes	Yes
Objective & Year FEs	Yes	Yes	Yes	Yes
Observations	8,269	8,269	8,269	8,269
Adj. R-Squared	0.150	0.151	0.267	0.268
F-Tests (P-value)	0.033	0.033	0.009	0.004

Panel C: Above- vs. Below-Median Family Size

VARIABLES	<i>Across-Year Risk Change<sub>t</sub></i>		<i>Intra-Year Risk Change<sub>t</sub></i>	
	(1)	(2)	(3)	(4)
Ownership Dummy <sub>t-1</sub> ×Big Family	-0.240*** (-3.07)		-0.340*** (-3.89)	
Ownership Dummy <sub>t-1</sub> ×Small Family	-0.398*** (-4.89)		-0.386*** (-4.23)	
Log(\$Ownership) <sub>t-1</sub> × Big Family		-0.022*** (-3.59)		-0.030*** (-4.48)
Log(\$Ownership) <sub>t-1</sub> × Small Family		-0.033*** (-5.20)		-0.033*** (-4.66)
Big Family	0.060 (0.55)	0.063 (0.58)	0.180 (1.43)	0.179 (1.44)
Controls <sub>t-1</sub>	Yes	Yes	Yes	Yes
Objective& Year FEs	Yes	Yes	Yes	Yes
Observations	8,269	8,269	8,269	8,269
Adj. R-Squared	0.150	0.151	0.267	0.268
F-Tests (P-value)	0.156	0.184	0.714	0.763

Panel D: Alternative Ways of Defining Loser Funds

VARIABLES	<i>Across-Year Risk Change<sub>t</sub></i>		<i>Intra-Year Risk Change<sub>t</sub></i>	
	(1)	(2)	(3)	(4)
Ownership Dummy <sub>t-1</sub> ×Loser	-0.449*** (-3.46)		-0.260*** (-2.95)	
Ownership Dummy <sub>t-1</sub> ×Non-Loser	-0.269*** (-5.33)		-0.074 (-0.84)	
Log(\$Ownership) <sub>t-1</sub> × Loser		-0.040*** (-4.04)		-0.022*** (-3.19)
Log(\$Ownership) <sub>t-1</sub> × Non-Loser		-0.023*** (-5.76)		-0.008 (-1.21)
Loser	0.037 (0.31)	0.063 (0.55)	0.500*** (4.27)	0.492*** (4.25)
Controls <sub>t-1</sub>	Yes	Yes	Yes	Yes
Objective& Year FEs	Yes	Yes	Yes	Yes
Observations	8,269	8,269	8,269	8,269
Adj. R-Squared	0.150	0.151	0.321	0.321
F-Tests (P-value)	0.106	0.077	0.086	0.094

Panel E: Above- vs. Below-Median Portfolio Manager Age

VARIABLES	<i>Across-Year Risk Change<sub>t</sub></i>		<i>Intra-Year Risk Change<sub>t</sub></i>	
	(1)	(2)	(3)	(4)
Ownership Dummy <sub>t-1</sub> ×Older Mgr.	-0.180*** (-2.83)		-0.271*** (-3.50)	
Ownership Dummy <sub>t-1</sub> ×Younger Mgr.	-0.438*** (-4.62)		-0.549*** (-5.38)	
Log(\$Ownership) <sub>t-1</sub> × Older Mgr.		-0.017*** (-3.40)		-0.023*** (-3.98)
Log(\$Ownership) <sub>t-1</sub> × Younger Mgr.		-0.037*** (-5.17)		-0.047*** (-6.05)
Older Mgr.	-0.226** (-2.29)	-0.230** (-2.39)	-0.287*** (-2.61)	-0.298*** (-2.78)
Controls <sub>t-1</sub>	Yes	Yes	Yes	Yes
Objective& Year FEs	Yes	Yes	Yes	Yes
Observations	7,508	7,508	7,508	7,508
Adj. R-Squared	0.158	0.160	0.278	0.279
F-Tests (P-value)	0.013	0.007	0.021	0.009

**Table A8**  
**Risk-Taking Incentives and the Impact of Ownership: Alternative Ownership Measures**

This table reports the results of robustness tests on the risk-taking incentives and the impact of ownership on risk changes. In Panel A (B), we repeat the analysis in Table 4 Panel A (B) using alternative measures of portfolio manager ownership. These alternative measures include: (i) *Ownership Rank*, which is set to one if \$Ownership falls in the range of \$0, and two, three, four, five, six, and seven, if it falls in the range of \$1–\$10,000, \$10,001–50,000, \$50,001–\$100,000, \$100,001–\$500,000, \$500,001–\$1,000,000, and above \$1,000,000, respectively; (ii) *Log(Mean \$Ownership)*, the logarithm of \$Ownership divided by the number of portfolio managers in a fund; (iii) *%Ownership*, the percentage of \$Ownership over funds' total net assets. For the sake of brevity, we only report the coefficient estimates of the main variables of interest, although all control variables from Table 4 are included. Standard errors are clustered at the fund level. The superscripts \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Convex vs. Non-Convex Flow-Performance Relation						
VARIABLES	<i>Across-Year Risk Change<sub>t</sub></i>			<i>Intra-Year Risk Change Ratio<sub>t</sub></i>		
	(1)	(2)	(3)	(4)	(5)	(6)
Ownership Rank <sub>t-1</sub> ×Convex	-0.102*** (-6.40)			-0.113*** (-6.09)		
Ownership Rank <sub>t-1</sub> ×Non-Convex	-0.034*** (-2.84)			-0.041*** (-2.83)		
Log(Mean \$Ownership) <sub>t-1</sub> ×Convex		-0.039*** (-5.63)			-0.045*** (-5.57)	
Log(Mean \$Ownership) <sub>t-1</sub> ×Non-Convex		-0.013** (-2.56)			-0.014** (-2.42)	
%Ownership <sub>t-1</sub> ×Convex			-0.121** (-2.46)			-0.100 (-1.50)
%Ownership <sub>t-1</sub> ×Non-Convex			0.008 (0.19)			-0.010 (-0.20)
Convex	0.344*** (4.03)	0.282*** (3.55)	0.086** (2.04)	0.291*** (2.63)	0.247** (2.42)	0.007 (0.12)
Controls <sub>t-1</sub>	Yes	Yes	Yes	Yes	Yes	Yes
Objective& Year FEs	Yes	Yes	Yes	Yes	Yes	Yes
Observations	7,063	7,063	7,063	7,063	7,063	7,063
Adj. R-Squared	0.160	0.158	0.151	0.273	0.273	0.268
F-Tests (P-value)	0.000	0.000	0.038	0.001	0.001	0.234

Panel B: Whether Fund Past Performance is in the Bottom Quartile (Loser)

VARIABLES	<i>Across-Year Risk Shift<sub>t</sub></i>			<i>Intra-Year Risk Shift<sub>t</sub></i>		
	(1)	(2)	(3)	(4)	(5)	(6)
Ownership Rank <sub>t-1</sub> ×Loser	-0.136*** (-6.02)			-0.183*** (-5.98)		
Ownership Rank <sub>t-1</sub> ×Non-Loser	-0.053*** (-4.61)			-0.058*** (-4.70)		
Log(Mean \$Ownership) <sub>t-1</sub> ×Loser		-0.052*** (-5.66)			-0.066*** (-5.31)	
Log(Mean \$Ownership) <sub>t-1</sub> ×Non-Loser		-0.021*** (-4.26)			-0.023*** (-4.45)	
%Ownership <sub>t-1</sub> ×Loser			-0.325*** (-4.51)			-0.445*** (-3.94)
%Ownership <sub>t-1</sub> ×Non-Loser			0.028 (0.90)			0.028 (0.76)
Loser	0.434** (2.48)	0.367** (2.15)	0.186 (1.21)	0.535** (2.52)	0.390* (1.95)	0.124 (0.73)
Controls <sub>t-1</sub>	Yes	Yes	Yes	Yes	Yes	Yes
Objective& Year FEs	Yes	Yes	Yes	Yes	Yes	Yes
Observations	8,269	8,269	8,269	8,269	8,269	8,269
Adj. R-Squared	0.152	0.151	0.147	0.268	0.267	0.265
F-Tests (P-value)	0.000	0.000	0.000	0.000	0.001	0.000

**Table A9**  
**Alternative Measures of Fund Risk Exposures**

This table reports the estimation results of Eq. (6) using alternative measures of fund risk exposures. These alternative measures in Panel A are (i) factor loading on the SMB (size) factor (column 1–2), (ii) the HML (book-to-market) factor (column 3–4), and (iii) the UMD (momentum) factor (column 5–6). In Panel B, we use fund total risk (i.e., annualized standard deviation of fund returns) constructed using weekly data (column 1–2), and market beta estimated using weekly data (column 3–4). In Panel C, we use fund co-skewness, constructed using daily return data as in Harvey and Siddique (2000) and Ang, Chen, and Xing (2006). We control for the same set of variables as in Table 7 and cluster the standard errors at the fund level. For the sake of brevity, we only report the coefficient estimates of the main variables of interest. The superscripts \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Fund Betas on SMB, HML, and UMD Factors

VARIABLES	<i>SMB Beta<sub>t</sub></i>		<i>HML Beta<sub>t</sub></i>		<i>UMD Beta<sub>t</sub></i>	
	(1)	(2)	(3)	(4)	(5)	(6)
Ownership Dummy <sub>t-1</sub>	0.0058 (1.11)		-0.0006 (-0.09)		-0.0090* (-1.84)	
Log(\$Ownership) <sub>t-1</sub>		0.0005 (1.30)		-0.0001 (-0.28)		-0.0011*** (-2.87)
Controls <sub>t-1</sub>	Yes	Yes	Yes	Yes	Yes	Yes
Objective & Year FEs	Yes	Yes	Yes	Yes	Yes	Yes
Observations	8,269	8,269	8,269	8,269	8,269	8,269
Adj. R-Squared	0.823	0.823	0.388	0.388	0.321	0.321

Panel B: Fund Risk Variables Based on Weekly Returns

VARIABLES	<i>Fund Return Std. Dev.<sub>t</sub>(Weekly)</i>		<i>Market Beta<sub>t</sub>(Weekly)</i>	
	(1)	(2)	(3)	(4)
Ownership Dummy <sub>t-1</sub>	-0.3081** (-2.46)		-0.0142*** (-2.66)	
Log(\$Ownership) <sub>t-1</sub>		-0.0236** (-2.40)		-0.0011*** (-2.68)
Controls <sub>t-1</sub>	Yes	Yes	Yes	Yes
Objective & Year FEs	Yes	Yes	Yes	Yes
Observations	8,269	8,269	8,269	8,269
Adj. R-Squared	0.871	0.871	0.356	0.356

Panel C: Co-skewness

VARIABLES	<i>Co-skewness<sub>t</sub></i>	
	(1)	(2)
Ownership Dummy <sub>t-1</sub>	-0.0020 (-1.44)	
Log(\$Ownership) <sub>t-1</sub>		-0.0001 (-1.23)
Controls <sub>t-1</sub>	Yes	Yes
Objective & Year FEs	Yes	Yes
Observations	8,269	8,269
Adjusted R-squared	0.922	0.922