Internet Appendix for
Horses for courses:
Fund managers and organizational structures

Proofs of the propositions in Section II

Proof of Lemma 1. If a manager with signal precision μ is running a fund on his own, the manager will observe the signal g conditional on the outcomes G and B with the following probabilities:

$$\upsilon\,\pi+(1-\upsilon)\,\mu=\text{Prob}[\sigma=g|O=G], \tag{1}$$

$$\upsilon\,\pi+(1-\upsilon)\,(1-\mu)=\text{Prob}[\sigma=g|O=B]. \tag{2}$$

Since the manager is uncertain about the informativeness of his signal, his posterior assessment of outcome G after observing the signal g, $p_S^g(\mu)$, is given by

$$p_S^g(\mu)=\frac{\pi\,(\upsilon\,\pi+(1-\upsilon)\,\mu)}{\upsilon\,\pi+(1-\upsilon)\,(\pi\,\mu+(1-\pi)\,(1-\mu))}. \tag{3}$$

By differentiating this expression with respect to μ, it can readily be verified that it is increasing in μ_t. Moreover, $p_S^g(\mu)=\pi$ when $\mu=1/2$. Therefore, $p_S^g(\mu)>\pi$ for $\mu\in\{\mu_L,\mu_H\}$. Similarly, it can be verified that, after he observes the signal b, the posterior assessment a manager in a single-managed fund with signal precision μ is

$$p_S^b(\mu)=\frac{\pi\,(\upsilon\,(1-\pi)+(1-\upsilon)\,(1-\mu))}{\upsilon\,(1-\pi)+(1-\upsilon)\,(\pi\,(1-\mu)+(1-\pi)\,\mu)}<\pi, \tag{4}$$

and is declining in μ.

Since $p_S^b(\mu)<p_S^g(\mu)$, it follows that for a fixed share of the fund's payoff, α, under single management, the manager's expected payoff from selecting the risky allocation is higher following receipt of the signal g that it is after receiving signal b, i.e.,

$$\begin{aligned}\alpha\,[p_S^g(\mu)\,(1+r)+(1-p_S^g(\mu))\,(1-r-\lambda)]+p_S^g(\mu)\,\mathscr{B}>\\ \alpha\,[p_S^b(\mu)\,(1+r)+(1-p_S^b(\mu))\,(1-r-\lambda)]+p_S^b(\mu)\,\mathscr{B}.\end{aligned} \tag{5}$$

Therefore, if there exists a fully revealing equilibrium in which a manager with sole charge of a fund selects the risky allocation after receiving the signal b, he will also select the risky allocation

after receiving the signal g. This implies that the fund will adopt the risky allocation regardless of the manager's signal, implying that the fund's expected payoff is

$$\pi(1+r)+(1-\pi)(1-r-\lambda)=1+R_\pi<1. \tag{6}$$

Therefore, the investors' best response is not to capitalize the fund. This contradiction establishes Claim A.

When two managers work as a team they can compare their information signals. When two managers' signals disagree, they know that they have received uninformative signals. Therefore, conditional on their signals disagreeing, the team will assess a probability of π, their prior, to outcome G. When their signal has precision μ, both managers will observe the signal g conditional on the outcomes G and B with the following probabilities:

$$\upsilon\,\pi^2+(1-\upsilon)\,\mu=\text{Prob}[(\sigma,\sigma')=(g,g)|O=G], \tag{7}$$

$$\upsilon\,\pi^2+(1-\upsilon)\,(1-\mu)=\text{Prob}[(\sigma,\sigma')=(g,g)|O=B]. \tag{8}$$

Therefore, each manager's posterior assessment of outcome G after both observe the signal g, $p_T^g(\mu)$, is given by

$$p_T^g(\mu)=\frac{\pi(\upsilon\,\pi^2+(1-\upsilon)\,\mu)}{\upsilon\,\pi^2+(1-\upsilon)\,(\pi\,\mu+(1-\pi)\,(1-\mu))}. \tag{9}$$

By differentiating this expression with respect to μ, it can readily be verified that it is increasing in μ_t. Moreover, $p_T^g(\mu)=\pi$ when $\mu=1/2$. Therefore, $p_T^g(\mu)>\pi$ for $\mu\in\{\mu_{LL},\mu_{LH},\mu_{HH}\}$. Moreover, after both members of a team observe the signal b, each manager's posterior assessment of outcome G,

$$p_T^b(\mu)=\frac{\pi(\upsilon\,(1-\pi)^2+(1-\upsilon)\,(1-\mu))}{\upsilon\,(1-\pi)^2+(1-\upsilon)\,(\pi\,(1-\mu)+(1-\pi)\,\mu}<\pi, \tag{10}$$

and is declining in μ.

Since $p_T^b(\mu)<\pi<p_T^g(\mu)$, it follows that for a fixed fraction of the fund's payoff, α, the manager's expected payoff per dollar of invested capital from selecting the risky allocation is lower following receipt of the signal b by both managers than it is if both receive signal g or if they receive conflicting signals, i.e.,

$$\begin{aligned}\alpha\,[p_T^g(\mu)\,(1+r)+(1-p_T^g(\mu))\,(1-r-\lambda)]+p_T^g(\mu)\,\delta\,\mathscr{B}>\\ \alpha\,[\pi\,(1+r)+(1-\pi)\,(1-r-\lambda)]+\pi\,\delta\,\mathscr{B}>\\ \alpha\,[p_T^b(\mu)\,(1+r)+(1-p_T^b(\mu))\,(1-r-\lambda)]+p_T^b(\mu)\,\delta\,\mathscr{B}.\end{aligned} \tag{11}$$

Therefore, if there exists a fully revealing equilibrium in which the team selects the risky allocation after receiving both receive the signal b, they will also select the risky allocation after they both receive the signal g or if they receive conflicting signals. This implies that the fund will adopt the risky allocation regardless of the managers' signals, implying that the fund's expected payoff is

$$\pi(1+r)+(1-\pi)(1-r-\lambda)=1+R_\pi<1. \tag{12}$$

Therefore, the investors' best response is not to capitalize the fund. This contradiction establishes Claim A. □

Proof of Lemma 2. Suppose investors agree to capitalize a fund in exchange for fraction $1-\alpha$ of its payoff. Under single management, a manager with signal precision μ receives the signal b, his expected payoff from selecting the safe allocation is α. Therefore, the difference between his expected payoffs from selecting the risky allocation and the safe allocation is

$$\begin{aligned}(13)\quad &\alpha\left[p_S^b(\mu)(1+r)+(1-p_S^b(\mu))(1-r-\lambda)\right]+p_S^b(\mu)\mathscr{B}-\alpha=\\ &\alpha\left[p_S^b(\mu)r-(1-p_S^b(\mu))(r+\lambda)\right]+p_S^b(\mu)\mathscr{B}<\\ &p_S^b(\mu)r-(1-p_S^b(\mu)(r+\lambda)+p_S^b(\mu)\mathscr{B}<\\ &\pi r-(1-\pi)(r+\lambda)+\pi\mathscr{B}=R_\pi+\pi\mathscr{B}<0.\end{aligned}$$

It follows that the manager will prefer the safe allocation after receiving the signal b, establishing Claim A.

If the manager is part of a team with signal precision μ and he receives the signal b, he can ensure that his fund implements the safe allocation by refusing to implement the risky allocation. In this case, his expected payoff will be α. The risky allocation can only be implemented if the second manager is willing to implement it. Suppose that the first manager believes that the second one observed the signal g. Then, the manager must believe that the team's signals are not informative, and the difference between the first manager's expected payoff if the fund implements the risky allocation and his payoff from selecting the safe allocation must be

$$\begin{aligned}(14)\quad &\alpha\left((\pi(1+r)-(1-\pi)(1+r+\lambda))+\pi\delta\mathscr{B}-1\right)=\\ &\alpha\left(\pi r-(1-\pi)(r+\lambda)+\pi\mathscr{B}\right)=\alpha\left(R_\pi+\pi\mathscr{B}\right)<0.\end{aligned}$$

It follows that the manager will prefer the safe allocation. On the other hand, if the first manager believes that the second manager also observed the signal b, the difference between the first manager's expected payoff if the fund implements the risky allocation and his payoff from selecting the safe allocation is

$$\begin{aligned}(15)\quad &\alpha\left(p_T^b(\mu)(1+r)+(1-p_T^b(\mu))(1-r-\lambda)\right)+p_T^b(\mu)\delta\mathscr{B}-\alpha=\\ &\alpha\left(p_T^b(\mu)r-(1-p_T^b(\mu))(r+\lambda)\right)+p_T^b(\mu)\delta\mathscr{B}<\\ &p_T^b(\mu)r-(1-p_T^b(\mu)(r+\lambda)+p_T^b(\mu)\mathscr{B}<\\ &\pi r-(1-\pi)(r+\lambda)+\pi\mathscr{B}=R_\pi+\pi\mathscr{B}<0.\end{aligned}$$

It follows that regardless, of the first manager's beliefs regarding the signal observed by the second manager, the first manager will prefer the safe outcome, establishing Claim B. □

Proof of Proposition 1. From Lemma 2, it follows that an actively managed single-managed fund must select the risky allocation only after the receipt of signal g. Therefore, the expected payoff for single-managed fund that is managed by a type L manager equals

$$(16)\qquad 1+\upsilon R_S^U+(1-\upsilon)R^I(\mu_L).$$

Since $R_\pi < 0$ and $R^I(\mu_L) < 0$, the fund's expected payoff is less than one. Therefore, the investors' best response is not to capitalize the fund. This establishes that claim. □

Proof of Proposition 2. Suppose such an equilibrium exists. Then, the equilibrium fraction of a single-managed fund's return captured by the manager will equal

$$\alpha_S^* = \frac{\upsilon R_S^U + (1-\upsilon) R^I(\mu_H)}{1 + \upsilon R_S^U + (1-\upsilon) R^I(\mu_H)}. \tag{17}$$

Similarly, the equilibrium fraction of a team-managed fund's return captured by the managers will equal

$$\alpha_T^* = \frac{\upsilon R_T^U + (1-\upsilon) R^I(\mu_{LL})}{1 + \upsilon R_T^U + (1-\upsilon) R^I(\mu_{LL})}. \tag{18}$$

In equilibrium, a high-ability manager's should prefer to work at a single-managed fund than to be part of a team, i.e.,

$$\begin{aligned} \alpha_S^* \left(1 + \upsilon R_S^U + (1-\upsilon) R^I(\mu_H)\right) + \pi \left(\upsilon \pi + (1-\upsilon)\mu_H\right) \mathscr{B} = \\ \upsilon R_S^U + (1-\upsilon) R^I(\mu_H) + \pi \left(\upsilon \pi + (1-\upsilon)\mu_H\right) \mathscr{B} \geq \\ \alpha_T^* \left(1 + \upsilon R_T^U + (1-\upsilon) R^I(\mu_{LH})\right) + \pi \left(\upsilon \pi^2 + (1-\upsilon)\mu_{LH}\right) \delta \mathscr{B}. \end{aligned} \tag{19}$$

This condition simplifies to

$$\begin{aligned} \pi \left(\upsilon \pi (1 - \delta \pi) + (1-\upsilon)(\mu_H - \delta \mu_{LH})\right) \mathscr{B} \geq \\ \left(\upsilon \pi (\pi - 1) + (1-\upsilon)(\mu_{LH} - \mu_H) + \frac{(1-\upsilon)(\mu_{LL} - \mu_{LH})}{1 + \upsilon R_T^U + (1-\upsilon) R^I(\mu_{LL})}\right) R_\pi \end{aligned} \tag{20}$$

In equilibrium a low-ability manager should prefer to work for a team-managed fund rather than mimic a high-ability manager, i.e.,

$$\begin{aligned} \alpha_T^* \left(1 + \upsilon R_T^U + (1-\upsilon) R^I(\mu_{LL})\right) + \pi \left(\upsilon \pi^2 + (1-\upsilon)\mu_{LL}\right) \delta \mathscr{B} = \\ \upsilon R_T^U + (1-\upsilon) R^I(\mu_{LL}) + \pi \left(\upsilon \pi^2 + (1-\upsilon)\mu_{LL}\right) \delta \mathscr{B} \geq \\ \alpha_S^* \left(1 + \upsilon R_S^U + (1-\upsilon) R^I(\mu_L)\right) + \pi \left(\upsilon \pi + (1-\upsilon)\mu_L\right) \mathscr{B}. \end{aligned} \tag{21}$$

This condition simplifies to

$$\begin{aligned} \pi \left(\upsilon \pi (1 - \delta \pi) + (1-\upsilon)(\mu_L - \delta \mu_{LL})\right) \mathscr{B} \leq \\ \left(\upsilon \pi (\pi - 1) + (1-\upsilon)(\mu_{LL} - \mu_H) + \frac{(1-\upsilon)(\mu_L - \mu_H)}{1 + \upsilon R_S^U + (1-\upsilon) R^I(\mu_H)}\right) R_\pi. \end{aligned} \tag{22}$$

The equilibrium non-mimicry conditions (19) and (21), and Assumptions 3, 6, and 7 are satisfied by the following parameter values:

$$\begin{aligned} &\mu_L = 0.625,\ \mu_H = 0.845,\ \mu_{LL} = 0.773,\ \mu_{LH} = 0.922,\ \mu_{HH} = 0.993; \\ &\pi = 0.4,\ r = 0.2,\ \lambda = 0.2,\ \delta = 0.5,\ \upsilon = 0.1,\ \mathscr{B} = 0.125. \end{aligned} \tag{23}$$

□

Proof of Proposition 3. First consider a single-managed fund whose manager has ability μ. Its expected excess return is given by

$$\upsilon R_S^U + (1-\upsilon) R^I(\mu). \tag{24}$$

Since $R^I(\mu) = \pi\mu r - (1-\pi)(1-\mu)(r+\lambda)$ it is clear that $R^I(\mu)$ is increasing in μ. Moreover, since $R_S^U = \pi[\pi r - (1-\pi)(r+\lambda)]$, it follows that R_S^U is independent of μ. Therefore, a single-managed fund's excess return is increasing in managerial ability, μ. Next consider a team-managed fund with signal precision μ. Its expected excess return is given by

$$\upsilon R_T^U + (1-\upsilon) R^I(\mu). \tag{25}$$

Since $R_T^U = \pi^2[\pi r - (1-\pi)(r+\lambda)]$, it follows that R_T^U is independent of μ. Therefore, since $R^I(\mu)$ is increasing in μ, a team-managed fund's excess return is increasing in managerial ability, μ. This completes the proof of statement A.

The difference between the excess return on a team-managed fund and a single-managed fund with signal precision μ is given by

$$\begin{aligned} &\upsilon R_T^U + (1-\upsilon) R^I(\mu) - [\upsilon R_S^U + (1-\upsilon) R^I(\mu)] \\ &= \upsilon (R_T^U - R_S^U) = \upsilon \pi R_\pi (\pi - 1). \end{aligned} \tag{26}$$

Our proof is concluded by noting that $R_\pi < 0$ and $\pi - 1 < 0$. □

Proof of Proposition 4. Lemma 1 demonstrates that, in equilibrium, funds never select the risky allocation after receiving signal b. Hence, for active fund management to be attractive to fund families, the risky allocation must only be chosen after signal g. Note that, given signal precision μ, a single-managed fund can expect to receive signal g with probability

$$\pi\left(\upsilon\pi + (1-\upsilon)\mu\right) + (1-\pi)\left(\upsilon\pi + (1-\upsilon)(1-\mu)\right). \tag{27}$$

The derivative of this expression with respect to μ is

$$\pi(1-\upsilon) - (1-\pi)(1-\upsilon) < 0. \tag{28}$$

Similarly, given signal precision μ, a team-managed fund can expect to receive the signal g with probability

$$\pi\left(\upsilon\pi^2 + (1-\upsilon)\mu\right) + (1-\pi)\left(\upsilon\pi^2 + (1-\upsilon)(1-\mu)\right). \tag{29}$$

The derivative of this expression with respect to μ is

$$\pi(1-\upsilon) - (1-\pi)(1-\upsilon) < 0. \tag{30}$$

This completes the proof of statement A.

The difference between the probabilities of a team-managed fund with signal precision μ and a single-managed fund with the same signal precision receiving the signal g is given by

$$\begin{aligned} &\pi\left(\upsilon\pi^2 + (1-\upsilon)\mu\right) + (1-\pi)\left(\upsilon\pi^2 + (1-\upsilon)(1-\mu)\right) \\ &- [\pi\left(\upsilon\pi + (1-\upsilon)\mu\right) + (1-\pi)\left(\upsilon\pi + (1-\upsilon)(1-\mu)\right)] \\ &= \upsilon(\pi - 1) < 0. \end{aligned} \tag{31}$$

□

Test for the robustness of instruments to exclusion restriction (Ashley, 2009)

Our approch to examining robustness follows Ashley (2009). Let X denote the dummy variable *TM*, let Z denote the instrument *% Team Managed*, and let us supress all the control variables and subscripts. Then the estimated model can be represented as follows:

$$\begin{aligned} ar &= \beta_0 + \beta_1 X + u \\ X &= \beta_0^1 + \beta_1^1 Z + \varepsilon. \end{aligned} \tag{32}$$

Given the covariance matrix

$$\begin{vmatrix} \sigma_Z^2 & \sigma_{ZX} & \sigma_{Zu} \\ \sigma_{XZ} & \sigma_X^2 & \sigma_{Xu} \\ \sigma_{uZ} & \sigma_{uX} & \sigma_u^2, \end{vmatrix} \tag{33}$$

it can be shown that the asymptotic sampling distribution of $\hat{\beta}_1^{IV}$ is

$$\sqrt{N}\left(\hat{\beta}_1^{IV} - \beta_1 - \delta^{IV}\right) \underset{d}{\to} \mathcal{N}(0,V), \tag{34}$$

where δ^{IV} denotes the bias and is given by

$$\delta^{IV} = \sigma_{ZX}^{-1}\sigma_{Zu}, \tag{35}$$

while V is given as

$$V = \frac{1}{N\sigma_{ZX}^2}\left[\sigma_u^2\sigma_Z^2 + 2\sigma_{Zu}^2 + \delta^2\left(\sigma_Z^2\sigma_X^2 + 2\sigma_{ZX}^2\right) - 2\delta\left(\sigma_Z^2\sigma_{Xu} + 2\sigma_{ZX}\sigma_{Zu}\right)\right]. \tag{36}$$

Thus, for given σ_{Zu}, the quantities needed in order to estimate the sampling distribution of $\hat{\beta}_1^{IV}$ are estimates of σ_Z^2, σ_X^2, σ_{XZ}, σ_{Xu}, and σ_u^2. The first three quantities can be directly obtained from the sample. The last two quantities can be estimated as follows:

$$\begin{aligned} \sigma_{Xu} &= \sigma_X^2\left[\text{plim}(\hat{\beta}_1^{OLS}) - \text{plim}(\hat{\beta}_1^{IV})\right] + \frac{\sigma_X^2\sigma_{Zu}}{\sigma_{ZX}} \\ \sigma_u^2 &= \sigma_{\hat{\varepsilon}^{IV}}^2 + 2\frac{\sigma_{Zu}\sigma_X^2}{\sigma_{XZ}}\left[\text{plim}(\hat{\beta}_1^{OLS}) - \text{plim}(\hat{\beta}_1^{IV})\right] + \frac{\sigma_{Zu}^2\sigma_X^2}{\sigma_{XZ}^2}, \end{aligned} \tag{37}$$

where $\hat{\varepsilon}^{IV}$ are estimated residuals of the IV regression.

References

Ashley, Richard, "Assessing the credibility of instrumental variables inference with imperfect instruments via sensitivity analysis," *Journal of Applied Econometrics*, 2009, *24* (2), 325–337.

Table OLS.1: Fund Performance and Team Management

This table presents regression estimates of fund-performance on management-structure. Fund performance is the monthly abnormal return in basis points (alpha plus residuals) from the Carhart four-factor model. The dummy variable *TM* that takes the value of one when the fund is team managed and zero otherwise represents fund management structure. We present both OLS estimates and four estimates that correct for potential endogeneity bias by using the percentage of team managed funds in a fund family (*% Team Managed*) to instrument *TM*. *IV TM* is the instrumented value for the team management dummy. Two endogeneity corrected estimates utilize a linear 1^{st} stage regression while the remaining two utilize a Probit 1^{st} stage model. γ is the coefficient on the residual from the 1^{st} stage regression in the *Control Function* approach, ρ is the correlation coefficient estimated from the *Probit Treatment* model, and λ^H is the coefficient on the inverse Mill's ratio used in the *Heckman* model. The average treatment effect (*ATE*) is the annualized coefficient on *TM* in performance regressions and the coefficients themselves in allocation-deviations regressions. The remaining variables include fund characteristics such as allocations to cash (*Cash*), stocks (*Stocks*), and bonds (*Bonds*); fund expenses (*Expenses*), turnover (*Turnover*), size (log(*TNA*)), and age (log(*Age*). We also use a dummy indicating the period after the most recent financial crisis (after June, 2009) (*Post*), and a dummy indicating whether the fund is still operating (*Live*). Each regression also includes fund style dummies to control for style fixed-effects and corrects for fund clustering effects (Heckman uses bootstrap). The total number of observations used (fund and quarter) is 162,449. Significance at the 1% and 5% levels is denoted by superscript a and b, respectively. The sample period is from January 1993 to December 2014.

	Carhart Four-Factor Abnormal Returns						
	Panel A: Linear IV			**Panel B: Probit Treatment**			
	1^{st} Stage	2^{nd} Stage		1^{st} Stage	2^{nd} Stage		
	Linear	IV	Control Func	Probit	Probit Treat	Heckman	OLS
Intercept	-0.01	-26.2[a]	-26.2[a]	-1.92[a]	-25.7[a]	-25.4[a]	-22.4[a]
	(-0.22)	(-4.34)	(-4.36)	(-18.33)	(-4.26)	(-3.36)	(-3.72)
TM (IV TM)		9.64[a]	9.64[a]		8.96[a]	8.44[a]	3.97[a]
		(6.27)	(6.28)		(5.70)	(7.21)	(4.05)
$\gamma/\rho/\lambda^H$			-10.4[a]		-0.03[a]	-4.70[a]	
			(-5.37)		(-4.54)	(-5.17)	
% Team Managed	1.02[a]			3.75[a]			
	(130.13)			(73.34)			
Expenses	-0.29[a]	-7.07	-7.07	-1.02[a]	-7.10	-7.11	-7.25
	(-4.71)	(-1.68)	(-1.67)	(-4.09)	(-1.69)	(-1.54)	(-1.73)
Stocks	-0.02	5.18	5.19	-0.05	5.19	5.20	5.24
	(-0.41)	(1.01)	(1.02)	(-0.41)	(1.01)	(0.69)	(1.02)
Cash	-0.26	-499.0	-499.0	-8.07	-502.0	-504.0	-523.0
	(-0.19)	(-0.72)	(-0.72)	(-0.85)	(-0.73)	(-0.80)	(-0.76)
Bonds	0.03	0.15	0.15	0.14	0.15	0.15	0.14
	(0.62)	(1.48)	(1.48)	(0.73)	(1.47)	(1.34)	(1.39)
Turnover	0.88	20.4[a]	20.4[a]	2.81	20.5[a]	20.5[a]	20.8[a]
	(0.38)	(2.70)	(2.70)	(0.23)	(2.71)	(4.62)	(2.76)
log(TNA)	0.01	-1.51[a]	-1.51[a]	0.12	-1.50[a]	-1.50[a]	-1.45[a]
	(0.34)	(-3.69)	(-3.70)	(1.31)	(-3.67)	(-7.15)	(-3.51)
log(Age)	-0.02[a]	4.61[a]	4.61[a]	-0.13[a]	4.57[a]	4.54[a]	4.28[a]
	(-5.28)	(5.32)	(5.33)	(-6.15)	(5.27)	(6.78)	(4.85)
Post	0.00	-51.5[a]	-51.5[a]	0.02	-51.4[a]	-51.3[a]	-50.7[a]
	(0.16)	(-31.47)	(-31.49)	(0.61)	(-31.44)	(-51.82)	(-31.19)
Live	0.00	25.9[a]	25.9[a]	0.05	25.9[a]	25.9[a]	25.7[a]
	(0.31)	(22.42)	(22.51)	(1.61)	(22.42)	(28.93)	(22.38)
ATE (bps)		115.7[a]	115.7[a]		107.5[a]	101.3[a]	47.6[a]
		(6.27)	(6.28)		(5.70)	(7.21)	(4.05)
Style Dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cluster by Fund	Yes	Yes	Yes	Yes	Yes	Bootstrap	Yes

Table OLS.2: Team Management and Deviations from Benchmark Allocations

This table presents regression estimates of fund-allocation-deviations on management-structure. Fund allocation deviations are the variance-normalized squared deviations (*pct*Δ*POS*) from style benchmark portfolio allocations. The dummy variable *TM* that takes the value of one when the fund is team managed and zero otherwise represents fund management structure. We present both OLS estimates and four estimates that correct for potential endogeneity bias by using the percentage of team managed funds in a fund family (*% Team Managed*) to instrument *TM*. *IV TM* is the instrumented value for the team management dummy. Two endogeneity corrected estimates utilize a linear 1^{st} stage regression while the remaining two utilize a Probit 1^{st} stage model. γ is the coefficient on the residual from the 1^{st} stage regression in the *Control Function* approach, ρ is the correlation coefficient estimated from the *Probit Treatment* model, and λ^H is the coefficient on the inverse Mill's ratio used in the *Heckman* model. The average treatment effect (*ATE*) is the annualized coefficient on *TM* in performance regressions and the coefficients themselves in allocation-deviations regressions. The remaining variables include fund characteristics such as allocations to cash (*Cash*), stocks (*Stocks*), and bonds (*Bonds*); fund expenses (*Expenses*), turnover (*Turnover*), size (log(*TNA*)), and age (log(*Age*). We also use a dummy indicating the period after the most recent financial crisis (after June, 2009) (*Post*), and a dummy indicating whether the fund is still operating (*Live*). Each regression also includes fund style dummies to control for style fixed-effects and corrects for fund clustering effects (Heckman uses bootstrap). The total number of observations used (fund and quarter) is 162,449. Significance at the 1% and 5% levels is denoted by superscript a and b, respectively. The sample period is from January 1993 to December 2014.

	Variance-Normalized Squared Deviations						
	Panel A: Linear IV			**Panel B: Probit Treatment**			
	1^{st} Stage	2^{nd} Stage		1^{st} Stage	2^{nd} Stage		
	Linear	IV	Control Func	Probit	Probit Treat	Heckman	OLS
Intercept	-0.01	1.40[a]	1.40[a]	-1.92[a]	1.42[a]	1.42[a]	1.16[a]
	(-0.22)	(5.95)	(5.98)	(-18.33)	(11.36)	(2.65)	(5.33)
TM (IV TM)		-0.44[a]	-0.44[a]		-0.47[a]	-0.47[a]	-0.06
		(-2.72)	(-2.73)		(-8.39)	(-8.28)	(-0.75)
$\gamma/\rho/\lambda^H$			0.69[a]		0.06[a]	0.43[a]	
			(2.79)		(5.72)	(8.68)	
% Team Managed	1.02[a]			3.75[a]			
	(130.13)			(73.34)			
Expenses	-0.29[a]	1.08[a]	1.08[a]	-1.02[a]	1.08[a]	1.08[a]	1.09[a]
	(-4.71)	(5.29)	(5.28)	(-4.09)	(11.18)	(7.88)	(5.38)
Stocks	-0.02	-14.9	-14.9	-0.05	-14.9	-14.9	-15.2
	(-0.41)	(-1.07)	(-1.09)	(-0.41)	(-1.55)	(-0.26)	(-1.08)
Cash	-0.26	171.0[b]	171.0[b]	-8.07	171.0[a]	171.0[a]	174.0[b]
	(-0.19)	(2.52)	(2.52)	(-0.85)	(4.99)	(3.27)	(2.57)
Bonds	0.03	0.01	0.01	0.14	0.01[b]	0.01	0.01
	(0.62)	(1.43)	(1.44)	(0.73)	(2.44)	(1.30)	(1.51)
Turnover	0.88	1.20	1.20	2.81	1.25	1.25	0.45
	(0.38)	(0.50)	(0.50)	(0.23)	(0.69)	(0.73)	(0.19)
log(TNA)	0.01	0.09[b]	0.09[b]	0.12	0.09[a]	0.09[a]	0.08[b]
	(0.34)	(2.42)	(2.42)	(1.31)	(6.59)	(6.89)	(2.33)
log(Age)	-0.02[a]	-0.34[a]	-0.34[a]	-0.13[a]	-0.34[a]	-0.34[a]	-0.32[a]
	(-5.28)	(-4.46)	(-4.47)	(-6.15)	(-12.89)	(-12.73)	(-4.40)
Post	0.00	0.07	0.07	0.02	0.08	0.08	0.03
	(0.16)	(1.08)	(1.08)	(0.61)	(1.75)	(1.21)	(0.36)
Live	0.00	0.35[a]	0.35[a]	0.05	0.35[a]	0.35[a]	0.36[a]
	(0.31)	(4.98)	(4.99)	(1.61)	(13.50)	(13.38)	(5.09)
ATE		-0.44[a]	-0.44[a]		-0.47[a]	-0.47[a]	-0.06
		(-2.72)	(-2.73)		(-8.39)	(-8.28)	(-0.75)
Style Dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cluster by Fund	Yes	Yes	Yes	Yes	Yes	Bootstrap	Yes

Table OLS.3: Ln(# of Funds in a Family) as the Instrument

This table presents regression estimates of fund-performance and the fund-allocation-deviations on management-structure. Fund performance is the monthly abnormal return in basis points (alpha plus residuals) from the Carhart four-factor model. Fund allocation deviations are the variance-normalized squared deviations ($pct\Delta POS$) from style benchmark portfolio allocations. The dummy variable *TM* that takes the value of one when the fund is team managed and zero otherwise represents fund management structure. We present both OLS estimates and four estimates that correct for potential endogeneity bias by using the log of total number of funds in a fund family (*Ln#Funds*) to instrument *TM*. *IV TM* is the instrumented value for the team management dummy. Two endogeneity corrected estimates utilize a linear 1^{st} stage regression while the remaining two utilize a Probit 1^{st} stage model. γ is the coefficient on the residual from the 1^{st} stage regression in the *Control Function* approach, ρ is the correlation coefficient estimated from the *Probit Treatment* model, and λ^H is the coefficient on the inverse Mill's ratio used in the *Heckman* model. The average treatment effect (*ATE*) is the annualized coefficient on *TM* in performance regressions and the coefficients themselves in allocation-deviations regressions. All regressions include the control variables reported in Table 1 plus a dummy indicating the period after the most recent financial crisis (after June, 2009), and a dummy indicating whether the fund is still operating. Each regression also includes fund style dummies to control for style fixed-effects and corrects for fund clustering effects (Heckman uses bootstrap). We exclude any fund families with the total number of funds greater than 100, and thus the total number of observations used (fund and quarter) is 148,229. Significance at the 1% and 5% levels is denoted by superscript a and b, respectively. The sample period is from January 1993 to December 2014.

	Panel A: Linear IV					**Panel B: Probit Treatment**				
	1^{st} Stage	Performance		Deviation		1^{st} Stage	Performance		Deviation	
	Linear	IV	Control Func	IV	Control Func	Probit	Probit Treat	Heckman	Probit Treat	Heckman
Intercept	0.51[a]	-81.6[a]	-78.2[a]	2.52[a]	2.37[a]	0.02	-79.9[a]	-79.9[a]	2.25[a]	2.25[a]
	(54.31)	(-6.74)	(-8.99)	(4.89)	(5.32)	(0.81)	(-10.47)	(-4.80)	(11.31)	(3.86)
TM (IV TM)		108.6[a]	100.1[a]	-2.27[a]	-2.04[a]		103.1[a]	103.1[a]	-1.80[a]	-1.80[a]
		(6.51)	(9.93)	(-2.99)	(-3.17)		(10.87)	(12.30)	(-7.07)	(-6.71)
$\gamma/\rho/\lambda^H$			-96.7[a]		1.94[a]		-0.40[a]	-60.5[a]	0.14[a]	1.03[a]
			(-9.64)		(2.96)		(-10.39)	(-11.77)	(5.11)	(6.11)
Ln(#Funds)	0.04[a]					0.11[a]				
	(38.76)					(38.48)				
ATE		1,303.2[a]	1,201.2[a]	-2.27[a]	-2.04[a]		1,237.2[a]	1,237.2[a]	-1.80[a]	-1.80[a]
		(6.51)	(9.93)	(-2.99)	(-3.17)		(10.87)	(12.30)	(-7.07)	(-6.71)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Style Dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cluster by Fund	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Bootstrap	Yes	Bootstrap

Table OLS.4: The Relation Between Benchmark Allocation Deviations and Performance

This table presents an OLS regression estimate of fund-performance on management-structure and fund allocation deviations. Fund performance is the monthly abnormal return in basis points (alpha plus residuals) from the Carhart four-factor model. Fund allocation deviations *% Deviation* is the variance-normalized squared deviations ($pct\Delta POS$) from style benchmark portfolio allocations in percent. The dummy variable *TM* that takes the value of one when the fund is team managed and zero otherwise represents fund management structure. The remaining variables include fund characteristics such as allocations to cash (*Cash*), stocks (*Stocks*), and bonds (*Bonds*); fund expenses (*Expenses*), turnover (*Turnover*), size (log(*TNA*)), and age (log(*Age*). We also use a dummy indicating the period after the most recent financial crisis (after June, 2009) (*Post*), and a dummy indicating whether the fund is still operating (*Live*). The regression also employs fund style dummies to control for style fixed-effects and corrects for fund clustering effects. The total number of observations used (fund and quarter) is 137,792. Significance at the 1% and 5% levels is denoted by superscript a and b, respectively. The sample period is from January 1993 to December 2014.

	Abnormal Return
Intercept	-17.2[a]
	(-3.26)
TM	3.33[a]
	(3.43)
% Deviation	-0.06
	(-1.49)
Expenses($\times$10000)	-8.39[b]
	(-1.97)
Stocks($\times$100)	2.10
	(0.84)
Cash($\times$10000)	-442.0
	(-0.57)
Bonds	0.15
	(1.20)
Turnover($\times$100)	5.29
	(0.81)
log(TNA)	-1.65[a]
	(-4.50)
log(Age)	4.00[a]
	(4.76)
Post	-43.5[a]
	(-28.91)
Live	25.9[a]
	(21.45)
adj R^2 (%)	1.8

Table OLS.5: 2-Way Clustering

This table reports regression estimates of fund-performance and the fund-allocation-deviations on management-structure clustering errors by time and fund. We report results using both linear and Probit 1^{st} stage regressions, respectively. Fund performance is the monthly abnormal return in basis points (alpha plus residuals) from the Carhart four-factor model. Fund allocation deviations are the variance-normalized squared deviations ($pct\Delta POS$) from style benchmark portfolio allocations. The dummy variable *TM* that takes the value of one when the fund is team managed and zero otherwise represents fund management structure. We present four estimates that correct for potential endogeneity bias by using the percentage of team managed funds in a fund family (*% Team Managed*) to instrument *TM*. *IV TM* is the instrumented value for the team management dummy. Two endogeneity corrected estimates utilize a linear 1^{st} stage regression while the remaining two utilize a Probit 1^{st} stage model. γ is the coefficient on the residual from the 1^{st} stage regression in the *Control Function* approach and λ^H is the coefficient on the inverse Mill's ratio used in the *Heckman* model. The average treatment effect (*ATE*) is the annualized coefficient on *TM* in performance regressions and the coefficients themselves in allocation-deviations regressions. All regressions include the control variables reported in Table 1 plus a dummy indicating the period after the most recent financial crisis (after June, 2009), and a dummy indicating whether the fund is still operating. Each regression also includes fund style dummies to control for style fixed-effects and corrects for fund clustering effects. The total number of observations used (fund and quarter) is 162,449. Significance at the 1% and 5% levels is denoted by superscript a and b, respectively. The sample period is from January 1993 to December 2014.

	Panel A: Linear IV					**Panel B: Probit Treatment**				
	1^{st} Stage	Performance		Deviation		1^{st} Stage	Performance		Deviation	
	Linear	IV	Control Func	IV	Control Func	Probit	Probit Treat	Heckman	Probit Treat	Heckman
Intercept	-0.01	-26.2	-26.2	1.40[a]	1.40[a]	-1.92[a]	-25.7	-25.4	1.41[a]	1.41[a]
	(-0.22)	(-1.89)	(-1.89)	(5.61)	(5.61)	(-18.33)	(-1.85)	(-1.83)	(5.70)	(5.72)
TM (IV TM)		9.64[b]	9.64[b]	-0.44[b]	-0.44[b]		8.89[b]	8.44[b]	-0.46[a]	-0.47[a]
		(2.47)	(2.47)	(-2.40)	(-2.41)		(2.37)	(2.22)	(-2.59)	(-2.63)
γ/λ^H			-10.4[b]		0.69[a]			-4.70		0.43[a]
			(-2.18)		(2.61)			(-1.80)		(2.84)
% Team Managed	1.02[a]					3.75[a]				
	(132.74)					(73.34)				
ATE		115.7[b]	115.7[b]	-0.44[b]	-0.44[b]		106.7[b]	101.3[b]	-0.46[a]	-0.46[a]
		(2.47)	(2.47)	(-2.40)	(-2.41)		(2.37)	(2.22)	(-2.59)	(-2.63)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Style Dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cluster by Fund+Quarter	Yes	Yes	Yes	Yes	Yes	Fund	Yes	Yes	Yes	Yes

Table OLS.6: Anonymous versus Named Teams

This table reports regression estimates of fund-performance and the fund-allocation-deviations on management-structure after accounting for team anonymity. Panel A reports results on fund performance and Panel B on allocation deviations. We report OLS results as well as results using both linear and Probit 1^{st} stage regressions, respectively. Fund performance is the monthly abnormal return in basis points (alpha plus residuals) from the Carhart four-factor model. Fund allocation deviations are the variance-normalized squared deviations ($pct\Delta POS$) from style benchmark portfolio allocations. The dummy variable *NTM* (*ATM*) that takes the value of one when the fund is managed by a named (an anonymous) team and zero otherwise. We present four estimates that correct for potential endogeneity bias by using the percentage of named (anonymous) team managed funds in a fund family, *% NTM Managed* (*% ATM Managed*) to instrument *NTM* (*ATM*). *IV NTM* (*IV ATM*) is the instrumented value for *NTM* (*ATM*). Two endogeneity corrected estimates utilize linear 1^{st} stage regressions while the remaining two utilize Probit 1^{st} stage models. *ATM* γ (*NTM* γ) is the coefficient on the residual from the 1^{st} stage regression in the *Control Function* approach, and *ATM* λ^H (*NTM* λ^H) is the coefficient on the inverse Mill's ratio used in the Heckman model. *ATM ATE* (*NTM ATE*) is the annualized coefficient on *ATM* (*NTM*) in performance regressions and the coefficients themselves in allocation-deviations regressions. All regressions include the control variables reported in Table 1 plus a dummy indicating the period after the most recent financial crisis (after June, 2009), and a dummy indicating whether the fund is still operating. Each regression also includes fund style dummies to control for style fixed-effects and corrects for fund clustering effects. The total number of observations used (fund and quarter) is 162,449. Significance at the 1% and 5% levels is denoted by superscript a and b, respectively. The sample period is from January 1993 to December 2014.

	Panel A: Performance								
	Panel A1: Linear IV					**Panel A2: Probit Treatment**			
	1^{st} Stage		Performance			1^{st} Stage		Performance	
	Linear	Linear	OLS	IV	Control Func	Probit	Probit	Probit Treat	Heckman
Intercept	0.01 (0.59)	-0.02 (-1.02)	-22.4[a] (-3.72)	-26.2[a] (-4.36)	-26.2[a] (-4.36)	-1.74[a] (-12.65)	-2.03[a] (-15.71)	-24.1[a] (-4.00)	-58.7[a] (-8.96)
ATM (IV ATM)			3.99[a] (3.66)	10.5[a] (6.48)	10.5[a] (6.48)			6.89[a] (4.49)	6.03[a] (4.02)
NTM (IV NTM)			3.84[a] (3.36)	8.77[a] (4.67)	8.76[a] (4.66)			6.27[a] (3.45)	5.30[a] (2.99)
ATM γ/λ^H					-12.5[a] (-5.87)				-2.54[b] (-2.32)
NTM γ/λ^H					-8.97[a] (-3.95)				-1.80 (-1.47)
% ATM Managed	1.02[a] (151.94)					3.82[a] (74.49)			
% NTM Managed		1.03[a] (137.98)					3.72[a] (74.16)		
ATM ATE (bps)			47.9[a] (3.66)	126.0[a] (6.48)	126.0[a] (6.48)			82.7[a] (4.49)	72.4[a] (4.02)
NTM ATE (bps)			46.1[a] (3.36)	105.2[a] (4.67)	105.1[a] (4.66)			75.2[a] (3.45)	63.6[a] (2.99)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Style Dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cluster by Fund	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

	Panel B: Deviation				
	Panel B1: Linear IV			Panel B2: Probit IV	
	OLS	IV	Control Func	Probit Treat	Heckman
Intercept	1.16[a]	1.43[a]	1.43[a]	1.39[a]	2.56[a]
	(5.34)	(6.15)	(6.15)	(5.94)	(5.29)
ATM (IV ATM)	0.06	-0.26	-0.26	-0.20	-0.19
	(0.45)	(-1.20)	(-1.19)	(-0.91)	(-0.90)
NTM (IV NTM)	-0.16[b]	-0.56[a]	-0.55[a]	-0.49[a]	-0.44[a]
	(-2.12)	(-3.44)	(-3.43)	(-3.15)	(-2.94)
ATM γ/λ^H			0.65[b]		0.30
			(1.98)		(1.56)
NTM γ/λ^H			0.72[a]		0.31[a]
			(3.37)		(2.66)
ATM ATE	0.24	-1.04	-1.04	-0.80	-0.76
	(0.45)	(-1.20)	(-1.19)	(-0.91)	(-0.90)
NTM ATE	-0.64[b]	-2.24[a]	-2.20[a]	-1.96[a]	-1.76[a]
	(-2.12)	(-3.44)	(-3.43)	(-3.15)	(-2.94)
Controls	Yes	Yes	Yes	Yes	Yes
Style Dummy	Yes	Yes	Yes	Yes	Yes
Cluster by Fund	Yes	Yes	Yes	Yes	Yes

Table OLS.7: Fama–MacBeth Regression with Recursive Samples

This table presents estimates of the relation between fund-performance and the fund-allocation-deviations with management-structure using Fama-MacBeth regression with recursive samples. Fund performance is the monthly abnormal return in basis points (alpha plus residuals) from the Carhart four-factor model. Fund allocation deviations are the variance-normalized squared deviations ($pct\Delta POS$) from style benchmark portfolio allocations. The dummy variable *TM* that takes the value of one when the fund is team managed and zero otherwise represents fund management structure. We present both OLS estimates and four estimates that correct for potential endogeneity bias by using the percentage of team managed funds in a fund family (*% Team Managed*) to instrument *TM*. *IV TM* is the instrumented value for the team management dummy. Two endogeneity corrected estimates utilize a linear 1^{st} stage regression while the remaining two utilize a Probit 1^{st} stage model. γ is the coefficient on the residual from the 1^{st} stage regression in the *Control Function* approach and λ^H is the coefficient on the inverse Mill's ratio used in the *Heckman* model. Each quarter, we estimate regressions in both stages using the available observations up to that quarter. The average treatment effect (*ATE*) is the annualized coefficient on *TM* in performance regressions and the coefficients themselves in allocation-deviations regressions. All regressions include the control variables reported in Table 1 plus a dummy indicating the period after the most recent financial crisis (after June, 2009), and a dummy indicating whether the fund is still operating. Each regression also includes fund style dummies to control for style fixed-effects and Newey and West (1987) correction for standard errors. The total number of observations used (fund and quarter) is 162,449. Significance at the 1% and 5% levels is denoted by superscript a and b, respectively. The sample period is from January 1993 to December 2014.

	Panel A: Linear IV						**Panel B: Probit Treatment**			
	Performance			Deviation			Performance		Deviation	
Coefficient	OLS	IV	Control Func	OLS	IV	Control Func	Probit Treat	Heckman	Probit Treat	Heckman
IV TM	1.97	6.33[a]	6.33[a]	-0.07[a]	-0.30[a]	-0.30[a]	6.64[a]	6.49[a]	-0.29[a]	-0.30[a]
	(1.53)	(2.59)	(2.59)	(-9.76)	(-6.65)	(-6.65)	(2.93)	(2.85)	(-5.49)	(-5.72)
γ/λ^H			-8.19[a]			0.44[a]		-4.95[a]		0.25[a]
			(-3.61)			(5.81)		(-4.30)		(4.83)
Expenses	-1.05	-1.05	-1.05	-0.00	-0.00	-0.00	-1.04	-1.04	-0.00	-0.00
	(-1.09)	(-1.09)	(-1.09)	(-0.79)	(-0.91)	(-0.92)	(-1.09)	(-1.09)	(-0.90)	(-0.91)
Stocks	0.14[a]	0.13[a]	0.13[a]	0.00	0.00	0.00	0.13[a]	0.13[a]	0.00	0.00
	(3.11)	(3.09)	(3.09)	(1.69)	(1.74)	(1.74)	(3.09)	(3.09)	(1.73)	(1.73)
Cash	0.10	0.11	0.11	0.02[a]	0.02[a]	0.02[a]	0.11	0.11	0.02[a]	0.02[a]
	(0.71)	(0.78)	(0.78)	(5.44)	(5.53)	(5.53)	(0.77)	(0.77)	(5.52)	(5.52)
Bonds	0.34[a]	0.34[a]	0.34[a]	0.01[a]	0.01[a]	0.01[a]	0.34[a]	0.34[a]	0.01[a]	0.01[a]
	(4.34)	(4.47)	(4.47)	(5.37)	(5.13)	(5.13)	(4.47)	(4.47)	(5.19)	(5.20)
Turnover	0.13[a]	0.12[a]	0.12[a]	-0.00	-0.00	-0.00	0.12[a]	0.12[a]	-0.00	-0.00
	(5.51)	(5.46)	(5.46)	(-1.67)	(-1.15)	(-1.14)	(5.46)	(5.45)	(-1.15)	(-1.08)
log(TNA)	-1.23[a]	-1.29[a]	-1.29[a]	0.08[a]	0.09[a]	0.09[a]	-1.30[a]	-1.29[a]	0.09[a]	0.09[a]
	(-6.03)	(-6.22)	(-6.22)	(40.4)	(45.5)	(45.7)	(-6.26)	(-6.25)	(45.4)	(45.4)
log(Age)	1.31[a]	1.43[a]	1.43[a]	-0.25[a]	-0.26[a]	-0.26[a]	1.43[a]	1.43[a]	-0.26[a]	-0.26[a]
	(2.80)	(2.95)	(2.95)	(-7.38)	(-7.28)	(-7.28)	(2.96)	(2.95)	(-7.25)	(-7.23)
Live	19.0[a]	19.2[a]	19.2[a]	0.34[a]	0.34[a]	0.34[a]	19.2[a]	19.2[a]	0.34[a]	0.34[a]
	(12.5)	(12.2)	(12.2)	(25.5)	(27.5)	(27.4)	(12.2)	(12.3)	(27.1)	(27.4)
ATE	23.6	76.0[a]	76.0[a]	-0.28[a]	-1.20[a]	-1.20[a]	79.7[a]	77.9[a]	-1.16[a]	-1.20[a]
	(1.53)	(2.59)	(2.59)	(-9.76)	(-6.65)	(-6.65)	(2.93)	(2.85)	(-5.49)	(-5.72)
Style Dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Newey–West	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table OLS.8: Fama–MacBeth Regression with Rolling Samples

This table presents estimates of the relation between fund-performance and the fund-allocation-deviations with management-structure using Fama-MacBeth regression with rolling samples of 60 quarters. Fund performance is the monthly abnormal return in basis points (alpha plus residuals) from the Carhart four-factor model. Fund allocation deviations are the variance-normalized squared deviations ($pct\Delta POS$) from style benchmark portfolio allocations. The dummy variable *TM* that takes the value of one when the fund is team managed and zero otherwise represents fund management structure. We present both OLS estimates and four estimates that correct for potential endogeneity bias by using the percentage of team managed funds in a fund family (*% Team Managed*) to instrument *TM*. *IV TM* is the instrumented value for the team management dummy. Two endogeneity corrected estimates utilize a linear 1^{st} stage regression while the remaining two utilize a Probit 1^{st} stage model. γ is the coefficient on the residual from the 1^{st} stage regression in the *Control Function* approach and λ^H is the coefficient on the inverse Mill's ratio used in the *Heckman* model. Each quarter, we estimate regressions in both stages with rolling samples of 60 quarters. The average treatment effect (*ATE*) is the annualized coefficient on *TM* in performance regressions and the coefficients themselves in allocation-deviations regressions. All regressions include the control variables reported in Table 1 plus a dummy indicating the period after the most recent financial crisis (after June, 2009), and a dummy indicating whether the fund is still operating. Each regression also includes fund style dummies to control for style fixed-effects and Newey and West (1987) correction for standard errors. The total number of observations used (fund and quarter) is 162,449. Significance at the 1% and 5% levels is denoted by superscript a and b, respectively. The sample period is from January 1993 to December 2014.

	Panel A: Linear IV						**Panel B: Probit Treatment**			
	Performance			Deviation			Performance		Deviation	
Coefficient	OLS	IV	Control Func	OLS	IV	Control Func	Probit Treat	Heckman	Probit Treat	Heckman
IV TM	1.52	5.39[b]	5.39[b]	-0.07[a]	-0.32[a]	-0.32[a]	6.64[a]	5.53[b]	-0.30[a]	-0.32[a]
	(1.11)	(2.04)	(2.04)	(-9.51)	(-6.23)	(-6.23)	(2.93)	(2.19)	(-5.22)	(-5.45)
γ/λ^H			-7.28[a]			0.45[a]		-4.40[a]		0.27[a]
			(-2.92)			(5.59)		(-3.31)		(4.71)
Expenses	-1.05	-1.05	-1.05	-0.00	-0.00	-0.00	-1.04	-1.04	-0.00	-0.00
	(-1.09)	(-1.09)	(-1.09)	(-0.79)	(-0.91)	(-0.92)	(-1.09)	(-1.09)	(-0.90)	(-0.91)
Stocks	0.13[a]	0.13[a]	0.13[a]	0.00	0.00	0.00	0.13[a]	0.13[a]	0.00	0.00
	(3.08)	(3.06)	(3.06)	(1.67)	(1.71)	(1.71)	(3.09)	(3.06)	(1.70)	(1.70)
Cash	0.10	0.11	0.11	0.02[a]	0.02[a]	0.02[a]	0.11	0.11	0.02[a]	0.02[a]
	(0.72)	(0.78)	(0.78)	(5.43)	(5.52)	(5.52)	(0.77)	(0.78)	(5.51)	(5.51)
Bonds	0.33[a]	0.33[a]	0.33[a]	0.01[a]	0.01[a]	0.01[a]	0.34[a]	0.33[a]	0.01[a]	0.01[a]
	(4.23)	(4.34)	(4.34)	(5.32)	(5.03)	(5.03)	(4.47)	(4.33)	(5.08)	(5.08)
Turnover	0.12[a]	0.12[a]	0.12[a]	-0.00	-0.00	-0.00	0.12[a]	0.12[a]	-0.00	-0.00
	(5.57)	(5.54)	(5.54)	(-1.78)	(-1.42)	(-1.42)	(5.46)	(5.53)	(-1.43)	(-1.37)
log(TNA)	-1.22[a]	-1.28[a]	-1.28[a]	0.08[a]	0.09[a]	0.09[a]	-1.30[a]	-1.28[a]	0.09[a]	0.09[a]
	(-5.84)	(-5.98)	(-5.98)	(41.5)	(47.4)	(47.6)	(-6.26)	(-6.00)	(47.0)	(47.1)
log(Age)	1.11[b]	1.21[b]	1.21[b]	-0.26[a]	-0.27[a]	-0.27[a]	1.43[a]	1.20[b]	-0.27[a]	-0.27[a]
	(2.12)	(2.19)	(2.19)	(-7.22)	(-7.07)	(-7.07)	(2.96)	(2.18)	(-7.04)	(-7.02)
Live	18.8[a]	19.0[a]	19.0[a]	0.34[a]	0.33[a]	0.33[a]	19.2[a]	19.0[a]	0.33[a]	0.33[a]
	(11.9)	(11.6)	(11.6)	(25.6)	(28.4)	(28.3)	(12.2)	(11.6)	(28.0)	(28.4)
ATE	18.2	64.7[b]	64.7[b]	-0.28[a]	-1.28[a]	-1.28[a]	79.7[a]	66.4[b]	-1.20[a]	-1.28[a]
	(1.11)	(2.04)	(2.04)	(-9.51)	(-6.23)	(-6.23)	(2.93)	(2.19)	(-5.22)	(-5.45)
Style Dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Newey–West	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table OLS.9: Controlling for Return-based Family Correlation

This table reports regression estimates of fund-performance and the fund-allocation-deviations on management-structure controlling for fund family effects. The fund family control we employ is fund return correlation within a family. We report results using linear and Probit 1^{st} stage regressions. Fund performance is the monthly abnormal return in basis points (alpha plus residuals) from the Carhart four-factor model. Fund allocation deviations are the variance-normalized squared deviations ($pct\Delta POS$) from style benchmark portfolio allocations. The dummy variable *TM* that takes the value of one when the fund is team managed and zero otherwise represents fund management structure. We present four estimates that correct for potential endogeneity bias by using the percentage of team managed funds in a fund family (*% Team Managed*) to instrument *TM*. *IV TM* is the instrumented value for the team management dummy. Two endogeneity corrected estimates utilize a linear 1^{st} stage regression while the remaining two utilize a Probit 1^{st} stage model. γ is the coefficient on the residual from the 1^{st} stage regression in the *Control Function* approach, ρ is the correlation coefficient estimated from the *Probit Treatment* model, and λ^H is the coefficient on the inverse Mill's ratio used in the *Heckman* model. The average treatment effect (*ATE*) is the annualized coefficient on *TM* in performance regressions and the coefficients themselves in allocation-deviations regressions. All regressions include the control variables reported in Table 1 plus a dummy indicating the period after the most recent financial crisis (after June, 2009), and a dummy indicating whether the fund is still operating. Each regression also includes fund style dummies to control for style fixed-effects and corrects for fund clustering effects (Heckman uses bootstrap). The total number of observations used (fund and quarter) is 162,449. Significance at the 1% and 5% levels is denoted by superscript a and b, respectively. The sample period is from January 1993 to December 2014.

	Panel A: Linear IV					**Panel B: Probit Treatment**				
	1^{st} Stage	Performance		Deviation		1^{st} Stage	Performance		Deviation	
	Linear	IV	Control Func	IV	Control Func	Probit	Probit Treat	Heckman	Probit Treat	Heckman
Intercept	0.07[b]	-70.6[a]	-70.6[a]	1.56[a]	1.56[a]	-1.67[a]	-69.5[a]	-69.5[a]	1.60[a]	1.60[a]
	(2.19)	(-10.61)	(-10.61)	(3.91)	(3.90)	(-38.29)	(-13.23)	(-6.42)	(7.87)	(4.20)
TM (IV TM)		10.1[a]	10.1[a]	-0.44[b]	-0.44[b]		8.96[a]	8.96[a]	-0.47[a]	-0.47[a]
		(6.45)	(6.45)	(-2.57)	(-2.57)		(6.95)	(7.23)	(-7.91)	(-8.59)
$\gamma/\rho/\lambda^H$			-10.2[a]		0.70[a]		-0.03[a]	-4.70[a]	0.06[a]	0.43[a]
			(-5.21)		(2.70)		(-5.02)	(-5.43)	(5.57)	(9.50)
% Team Managed	1.01[a]					3.72[a]				
	(123.38)					(252.73)				
Family Correlation	-9.52[a]	58.9[a]	58.9[a]	-0.21	-0.21	-32.2[a]	58.6[a]	58.6[a]	-0.22	-0.22
	(-3.88)	(13.65)	(13.65)	(-0.67)	(-0.67)	(-8.85)	(16.55)	(16.88)	(-1.40)	(-1.40)
ATE		121.2[a]	121.2[a]	-0.44[b]	-0.44[b]		107.5[a]	107.5[a]	-0.46[a]	-0.46[a]
		(6.45)	(6.45)	(-2.57)	(-2.57)		(6.95)	(7.23)	(-7.91)	(-8.59)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Style Dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cluster by Fund	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Bootstrap	Yes	Bootstrap