Internet Appendix to "Role of Managerial Incentives and Discretion in Hedge Fund Performance"*

Table IA.I
Do Managerial Incentives and Discretion Affect Returns? Results from the Two-stage Least Squares (2SLS) Regressions

This table reports the results of the second stage from the 2SLS regressions of Returns$_t$ on various measures of managerial incentives, managerial discretion, and the control variables. The sample period is 1994 to 2002. See Table I of the main text for definitions of the variables. p-values are reported in parentheses. Coefficients marked with ***, **, and * are significant at the 1%, 5%, and 10% level, respectively.

Independent Variables	Expected Sign	
MANAGERIAL INCENTIVES		
Total Delta$_{t-1}$	+	0.275***
		(0.000)
Hurdle Rate	+	0.032***
		(0.000)
High-Water Mark	+	0.021***
		(0.000)
MANAGERIAL DISCRETION		
Lockup Period	+	0.016**
		(0.019)
Restriction Period	+	0.036***
		(0.000)
CONTROLS		
Size$_{t-1}$		−0.061***
		(0.000)
Flow$_{t-1}$		−0.002
		(0.181)
Volatility$_{t-1}$		0.116*
		(0.065)
Age$_{t-1}$		−0.010***
		(0.000)
Management Fee		−1.434***
		(0.000)
Returns$_{t-1}$		−0.028***
		(0.001)
Intercept		0.277***
		(0.000)
Strategy Dummies		Yes
No. of observations		16,901

Table IA.II
Do Managerial Incentives and Discretion Affect Alphas?

This table reports Fama-MacBeth (1973) coefficient estimates using the risk-adjusted returns (alpha$_t$) as the dependent variable. In Panel A, alpha is estimated as the annual return net of the median annual return of the strategy to which the fund belongs. In Panel B, annual alphas are estimated from fund-level time-series regressions using the Fung and Hsieh (2004) seven-factor model. Annual alpha is measured as the sum of the monthly alphas, where monthly alpha is given by the sum of the intercept and the monthly residual. The sample period is 1994 to 2002. Size is the logarithm of assets under management. See Table I of the main text for definitions of the variables. p-values are reported in parentheses. Coefficients marked with ***, **, and * are significant at the 1%, 5%, and 10% level, respectively.

Independent Variables	Exp. Sign	Panel A. Alpha = returns in excess of median strategy returns		Panel B. Alpha based on intercepts from estimating Fung and Hsieh (2004) model	
		Model 1	Model 2	Model 1	Model 2
MANAGERIAL INCENTIVES					
2-year average delta	+	0.014*** (0.004)		0.010*** (0.003)	
Lifetime average delta	+		0.030*** (0.000)		0.022*** (0.003)
Hurdle Rate	+	0.008* (0.077)	0.009* (0.062)	0.006* (0.061)	0.006** (0.046)
High-Water Mark	+	0.024*** (0.002)	0.025*** (0.001)	0.023** (0.012)	0.023*** (0.010)
MANAGERIAL DISCRETION					
Lockup Period	+	0.029* (0.085)	0.030* (0.083)	0.038** (0.038)	0.038** (0.038)
Restriction Period	+	0.019 (0.135)	0.018 (0.137)	0.026** (0.012)	0.026** (0.013)
CONTROLS					
Size$_{t-1}$		–0.018*** (0.002)	–0.018*** (0.002)	–0.016*** (0.000)	–0.017*** (0.000)
Flow$_{t-1}$		–0.007* (0.066)	–0.007* (0.067)	–0.005** (0.033)	–0.005** (0.033)
Volatility$_{t-1}$		0.284 (0.631)	0.276 (0.640)	–0.614* (0.058)	–0.620* (0.057)
Age$_{t-1}$		–0.004* (0.062)	–0.004* (0.058)	–0.002 (0.336)	–0.002 (0.326)
Management Fee		–0.503 (0.351)	–0.503 (0.349)	–0.486 (0.527)	–0.483 (0.527)
Intercept		0.044* (0.065)	0.045* (0.056)	0.099*** (0.009)	0.099*** (0.009)
Adjusted R^2		8.0%	8.1%	7.0%	7.1%
No. of observations		16,901	16,901	16,901	16,901

Table IA.III
Does Delta Matter? Evidence from Sample of Funds with 20% Incentive Fee

This table reports Fama-MacBeth (1973) coefficient estimates using the risk-adjusted returns (alpha$_t$) as the dependent variable. In Panel A, alpha is estimated as the annual return net of the median annual return of the strategy to which the fund belongs. In Panel B, annual alphas are estimated from fund-level time-series regressions using the Fung and Hsieh (2004) seven-factor model. Annual alpha is measured as the sum of the monthly alphas, where monthly alpha is given by the sum of the intercept and the monthly residual. The sample period is 1994 to 2002, and the sample of funds all have incentive fee equal to 20%. Size is the logarithm of assets under management. See Table I in the main text for definitions of the variables. *p*-values are reported in parentheses. Coefficients marked with ***, **, and * are significant at the 1%, 5%, and 10% level, respectively.

Independent Variables	Exp. Sign	Panel A. Alpha = returns in excess of median strategy returns			Panel B. Alpha based on intercepts from estimating Fung and Hsieh (2004) model		
		Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
MANAGERIAL INCENTIVES							
Total Delta$_{t-1}$	+	0.011*** (0.001)			0.008*** (0.000)		
Manager's Option Delta$_{t-1}$	+		0.021*** (0.004)	0.021*** (0.002)		0.011*** (0.004)	0.011*** (0.003)
Managerial Ownership$_{t-1}$	+		0.081 (0.112)	0.254 (0.179)		0.062 (0.186)	0.156 (0.157)
Managerial Ownership2$_{t-1}$	–			–0.446 (0.251)			–0.217 (0.252)
Hurdle Rate	+	0.012 (0.139)	0.015* (0.095)	0.017* (0.088)	0.007* (0.078)	0.009** (0.032)	0.011** (0.034)
High–Water Mark	+	0.024*** (0.002)	0.025*** (0.002)	0.026*** (0.001)	0.018*** (0.007)	0.019*** (0.005)	0.019*** (0.004)
MANAGERIAL DISCRETION							
Lockup Period	+	0.027 (0.111)	0.027 (0.108)	0.027 (0.118)	0.040** (0.030)	0.040** (0.031)	0.040** (0.033)
Restriction Period	+	0.013 (0.287)	0.013 (0.281)	0.013 (0.269)	0.020* (0.090)	0.021* (0.077)	0.021* (0.078)
CONTROLS							
Size$_{t-1}$		–0.013*** (0.003)	–0.013*** (0.006)	–0.013*** (0.003)	–0.013*** (0.000)	–0.012*** (0.001)	–0.012*** (0.001)
Flow$_{t-1}$		–0.007* (0.089)	–0.006 (0.126)	–0.005 (0.180)	–0.004** (0.028)	–0.004* (0.060)	–0.003 (0.111)
Volatility$_{t-1}$		0.184 (0.747)	0.149 (0.794)	0.106 (0.849)	–0.653* (0.070)	–0.682* (0.066)	–0.709* (0.058)
Age$_{t-1}$		–0.003 (0.203)	–0.004* (0.093)	–0.004 (0.115)	–0.001 (0.739)	–0.002 (0.478)	–0.002 (0.422)
Management Fee		–0.383 (0.701)	–0.439 (0.661)	–0.441 (0.660)	–0.867 (0.387)	–0.916 (0.363)	–0.917 (0.363)
Intercept		0.037 (0.105)	0.033 (0.150)	0.029 (0.246)	0.103*** (0.009)	0.098** (0.011)	0.097** (0.013)
Adjusted R^2		6.6%	6.9%	7.4%	6.2%	6.5%	6.6%
No. of observations		11,149	11,149	11,149	11,149	11,149	11,149

Table IA.IV
Do Incentive Fees Have Additional Explanatory Power over Delta?

This table reports Fama-MacBeth (1973) coefficient estimates using the risk-adjusted returns (alpha$_t$) as the dependent variable. In Panel A, alpha is estimated as the annual return net of the median annual return of the strategy to which the fund belongs. In Panel B, annual alphas are estimated from fund-level time-series regressions using the Fung and Hsieh (2004) seven-factor model. Annual alpha is measured as the sum of the monthly alphas, where monthly alpha is given by the sum of the intercept and the monthly residual. The sample period is 1994 to 2002. Size is the logarithm of assets under management. See Table I in the main text for definitions of the variables. p-values are reported in parentheses. Coefficients marked with ***, **, and * are significant at the 1%, 5%, and 10% level, respectively.

Independent Variables	Exp. Sign	Panel A. Alpha = returns in excess of median strategy returns			Panel B. Alpha based on intercepts from estimating Fung and Hsieh (2004) model		
		Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
MANAGERIAL INCENTIVES							
Total Delta$_{t-1}$	+	0.011***			0.007***		
		(0.001)			(0.001)		
Manager's Option Delta$_{t-1}$	+		0.016**	0.016***		0.009**	0.009**
			(0.011)	(0.010)		(0.026)	(0.024)
Managerial Ownership$_{t-1}$	+		0.104**	0.267		0.057	0.136
			(0.045)	(0.112)		(0.235)	(0.191)
Managerial Ownership$_{2t-1}$	–			–0.407			–0.142
				(0.157)			(0.414)
Incentive Fee	+	0.064	0.026	0.000	0.067*	0.041	0.024
		(0.184)	(0.602)	(1.000)	(0.080)	(0.346)	(0.618)
Hurdle Rate	+	0.007	0.010*	0.011*	0.005*	0.007*	0.008*
		(0.165)	(0.085)	(0.092)	(0.090)	(0.059)	(0.064)
High–Water Mark	+	0.026***	0.026***	0.027***	0.024***	0.024**	0.024***
		(0.001)	(0.001)	(0.001)	(0.010)	(0.015)	(0.008)
MANAGERIAL DISCRETION							
Lockup Period	+	0.028*	0.029*	0.029*	0.037**	0.037**	0.037**
		(0.083)	(0.072)	(0.077)	(0.042)	(0.042)	(0.042)
Restriction Period	+	0.016	0.016	0.016	0.024**	0.025**	0.024**
		(0.197)	(0.185)	(0.181)	(0.018)	(0.015)	(0.015)
CONTROLS							
Size$_{t-1}$		–0.012***	–0.011**	–0.011**	–0.012***	–0.011***	–0.011***
		(0.008)	(0.015)	(0.011)	(0.000)	(0.001)	(0.001)
Flow$_{t-1}$		–0.007*	–0.007*	–0.006	–0.005**	–0.005*	–0.005*
		(0.059)	(0.086)	(0.112)	(0.029)	(0.055)	(0.082)
Volatility$_{t-1}$		0.284	0.254	0.230	–0.612*	–0.632*	–0.649*
		(0.634)	(0.668)	(0.695)	(0.060)	(0.057)	(0.052)
Age$_{t-1}$		–0.003	–0.004*	–0.005*	–0.001	–0.002	–0.002
		(0.118)	(0.076)	(0.084)	(0.545)	(0.413)	(0.371)
Management Fee		–0.567	–0.596	–0.619	–0.622	–0.628	–0.631
		(0.401)	(0.373)	(0.359)	(0.468)	(0.465)	(0.464)
Intercept		0.019	0.019	0.020	0.078**	0.078**	0.079**
		(0.407)	(0.381)	(0.329)	(0.016)	(0.016)	(0.015)
Adjusted R^2		7.1%	7.4%	7.7%	6.4%	6.7%	6.8%

| No. of observations | 16,901 | 16,901 | 16,901 | 16,901 | 16,901 | 16,901 |