

# Hedge Fund Non-Transparency: Skill or Risk-Taking?

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3rd International Moscow Finance Conference

November 9th, 2013

- Hedge funds constitute one of the most interesting and the most complicated investment vehicles:
  - The industry is about \$2 trillion worldwide.
- Historically have been held to low regulation and reporting standards
  - This potentially enabled them to use some secretive know-how trading strategies and outperform other investors.
  - A part of this outperformance can be, however, explained by higher risks born by certain hedge funds.
- New regulations introduced in the US (2010), Australia (2012) and the EU (2013) require hedge fund managers to disclose more information, leading to greater transparency.
  - The consequences of these reforms are yet to be evaluated, but in this paper we attempt to explore the rationale behind:
  - Is it good or bad to promote transparency among hedge funds?

- It depends.
- Consider two potential sources of better performance:
  - Manager's know-how (e.g. better stock selection), so called  $\alpha$ .
  - Higher risks born (e.g. covariance with risk factors, tail risk, illiquidity), so called  $\beta$ .
- Different policy implications arise:
  - If the source of a better performance of secretive vehicles is  $\alpha$ , then we may want to protect these "trade secrets", by keeping non-transparency.
  - If the source of a better performance is  $\beta$ , then there may be scope for regulation by promoting policies that attempt to reveal the amount of risk held.

# This paper

- Use a proprietary dataset obtained from a fund-of-hedge funds to show that highly secretive, as well as in highly illiquid, and highly concentrated funds, command a risk premium.
  - Direct measure using the internal grades of the fund-of-funds
  - Represents the unique information that cannot be obtained from quantitative data alone
  - Do not rely on arguable proxies, such as accepting managed accounts
- Observe and contrast the returns during both good and bad states of the economy
  - Distinguish between a manager-specific  $\alpha$  vs a higher  $\beta$  of the fund.
  - Do not rely on the assumption of observing all risk factors
- Additionally, offer a novel explanation for why highly concentrated funds command a risk premium:
  - Prevalent among non-transparent funds where investors are unaware about the exact risks and hence cannot diversify them away

# A short literature review on hedge funds transparency

- Practitioners papers: Anson (2002), Hedges (2007), Goltz and Schroder (2010)
  - Informally suggest investors demand transparency for risk monitoring, risk aggregation, strategy drift
  - Quality of hedge fund reporting is considered to be an important investment criterion
- Aggarwal and Jorion (2012): providing managed accounts to investors (= "transparent")
  - Data up to 2009 – no evidence of over-performance of "non-transparent" funds
  - Do not relate the results to risk premium
- Agarwal et al. (2013) explore confidential filings of equity hedge funds
  - Data up to 2007 – find confidential ("non-transparent") holdings outperform regular filings
  - Interpret it as skill (higher  $\alpha$  wrt Carhart's 4F model)

# Illustration with one unobservable factor

Suppose the true model for fund/plio returns has  $n$  factors:

$$R_{it} = \alpha_i + \beta_1^i F_{1t} + \sum_{j=2}^n \beta_j^i F_{jt} + \epsilon_{it}$$

- If we know the true model and observe all  $n$  factors:
  - $\hat{\alpha}_i, \hat{\beta}_j^i$  are consistently estimated out of the data
  - $\hat{\alpha}_i = \alpha_i + (\beta_1^i - \hat{\beta}_1^i) \overline{F_{1t}} + \sum_{j=2}^n (\beta_j^i - \hat{\beta}_j^i) \overline{F_{jt}} + \overline{\epsilon_{it}}$
- If the econometrician does not know the true model or observes only  $n - 1$  factors, then  $F_{1t}$  ends up in the error term.
  - Assume for simplicity  $\text{Cov}(F_{1t}, F_{-t}) = 0$ , so that  $\hat{\beta}_j^i$  are consistent.
  - $\hat{\alpha}_i = \alpha_i + \beta_1^i \overline{F_{1t}} + \sum_{j=2}^n (\beta_j^i - \hat{\beta}_j^i) \overline{F_{jt}} + \overline{\epsilon_{it}}$
  - In periods when  $\overline{F_{1t}} \gg 0$  generally **over**-estimate  $\alpha_i$
  - In periods when  $\overline{F_{1t}} \ll 0$  generally **under**-estimate  $\alpha_i$
  - During periods when a factor is consistently +ve we can't disentangle earning a risk premium for a risky strategy (high- $\beta_j^i$ ) from skill (high- $\alpha_i$ )

## Similarly for portfolios

We can compare performance of Secretive vs Transparent funds:

$$\overline{R_t^S} - \overline{R_t^T} - \sum_{j=2}^n (\hat{\beta}_j^S - \hat{\beta}_j^T) \overline{F_{jt}} = (\hat{\alpha}^S - \hat{\alpha}^T) + (\hat{\beta}_1^S - \hat{\beta}_1^T) \overline{F_{1t}}$$

(LHS can be adjusted for loadings on all observable factors, or equal the raw difference in returns if there is not enough t-s to estimate loadings)

- Observing secretive funds overperforming transparent funds in a particular period, but w/o observing  $\overline{F_{1t}}$ , one cannot distinguish:
  - $\alpha^S - \alpha^T > 0$  ("higher alpha")
  - $\beta_1^S - \beta_1^T > 0$  and  $\overline{F_{1t}} \gg 0$  ("higher beta" and the factor did well)
- At night all cats are gray:  $\alpha$ - and  $\beta$ -explanations are observationally equivalent during times when omitted factors do well.
- This is especially important, since some factors we may think hedge funds may load on (e.g. tail risk) earn a premium during *most* times.

# At night all cats are gray, but..

- If we can separate periods into those when factor realized returns are generally +ve and -ve, observing a differential performance in these periods, we can say something about the loading ( $\beta_1$ ) on this factor!

(By assumption):

In the "good" period:  $\overline{F_{1g}} > 0$  and in the "bad" period:  $\overline{F_{1b}} < 0$

(By observation): if  $\overline{R_g^S} - \overline{R_g^T} > 0$  and  $\overline{R_b^S} - \overline{R_b^T} < 0$

- Then the two inequalities can only be satisfied when:  $\beta_1^S - \beta_1^T > 0$
- Some of the performance difference may still be due to skill, but it can't be *only* skill, it has to be at least partly risk.
- If we did not observe differential performance in two periods, we would not be able to say anything.
  - Could be skill or could be loading on yet another unobservable factor.

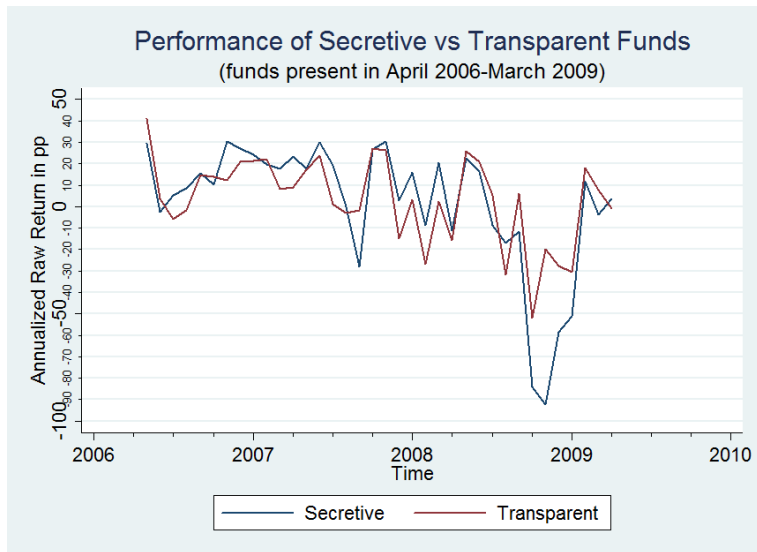


# Empirical Implementation

- Empirical challenge:
  - Pick two periods ("good" and "bad") when we are comfortable to assume that a possible (unobserved) factor had differential performance (sufficiently good and sufficiently bad).
- If we are in a lucky situation observing differential performance in secretive vs transparent funds across the two periods, then we know that  $\beta$  of the plio over-performing in the "good" period (and under-performing in the "bad" period) was higher.
  - This doesn't say what exactly that risk factor is (it may be unobservable)
  - Skill may still partly explain the overperformance, but it can't be the only explanation

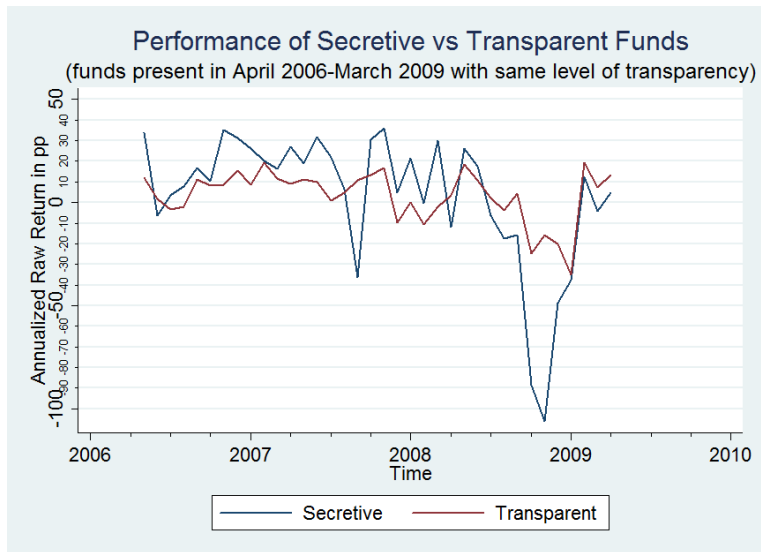
Good vs Bad periods idea

# Graphical Evidence



Funds present in 2007-2009

# Graphical Evidence



Funds present in 2007-2009 with same transparency in 2007-2009

- Detailed fund information over the 2007–2009 period, obtained from one of the largest fund of funds in the U.S.:
  - Returns net of fees, assets under management, long and short exposures, strategy.
- Scores for hedge fund transparency, liquidity, complexity, and concentration:
  - Assigned by the fund of funds every year at the end of March.
  - Based on the interactions with funds during the previous twelve months (reports to the fund of funds, meetings with managers, phone calls, etc).
  - Involve significant effort and are for internal use only.
  - On a scale from 1 to 4.
  - Not present in public hedge fund databases (e.g. CISDM, HFR, TASS)

Sample representativeness

- Transparency:
  - Willingness of the hedge fund manager to share information about the fund's current activities and investments with its investors.
- Liquidity:
  - Liquidity of investments with the hedge fund from the point of view of investors, comprising both of the liquidity of fund's assets and restrictions on investment withdrawal (e.g. the presence and the length of lockup periods).
- Concentration:
  - The level of concentration of hedge fund investments.
- Complexity:
  - Complexity of hedge fund strategy and its operations (e.g. an offshore hedge fund that uses derivative instruments and swap agreements vs a long small-cap and short large-cap stocks fund).

# Time periods

- Grades assigned at the end of March, so we use monthly returns from past April to March (so that interactions forming the basis for the grades occur when the fund return is delivered).
- April 2006 to March 2007 – "2007" – good period
  - A normal growth period according to the FCIR (2011)
  - A growth period according to NBER
- April 2007 to March 2008 – "2008" – intermediary period
  - April to November was a growth period, while December to March was a recession period according to NBER
  - Collapse of Bear Stearns in March 2008 declared the beginning of the financial crisis
- April 2008 to March 2009 – "2009" – bad period
  - A recession period according to NBER
  - Bankruptcy filing by Lehman Brothers in September

# Observations by Strategy-year

<b>Strategy</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2007-2009</b>
CR	152	156	131	439
ED	236	237	266	739
EQ	924	899	745	2,568
RV	260	246	322	828
TT	91	72	110	273
<b>Total</b>	<b>1,663</b>	<b>1,610</b>	<b>1,574</b>	<b>4,847</b>

- CR: corporate bonds and credit derivatives (e.g. CDS)
- ED: predict market moves based on specific news announcements (mainly merger arbitrage and distressed debt)
- EQ: equities (high/low net exposure to sectors and regions)
- RV: pair trades where one asset is believed to outperform another asset independent of macro events, e.g. capital structure or convertible bond arbitrage
- TT: tactical positions using various combinations of strategies

# Observations by Strategy-year

<b>Secrecy</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2007-2009</b>
Low	326	308	210	844
Med	1,118	1,062	1,083	3,263
High	219	240	281	740
Total	1,663	1,610	1,574	4,847



# Observations by Strategy-year

<b>Secrecy</b>	<b>Low</b>	<b>Med</b>	<b>High</b>	<b>Total</b>
CR	144	190	105	439
ED	101	482	156	739
EQ	415	2,043	110	2,568
RV	72	450	306	828
TT	112	98	63	273
<b>Total</b>	<b>844</b>	<b>3,263</b>	<b>740</b>	<b>4,847</b>

# Summary Statistics

Variable	Period	Mean	Median	Std
Excess Return	2007	7.66%	8.25%	28.47%
	2008	-1.27%	1.44%	44.92%
	2009	-21.90%	-5.29%	76.85%
Volatility	2007	6.80%	6.03%	4.55%
	2008	10.86%	9.05%	6.54%
	2009	15.66%	12.37%	10.24%
AUM	March 2007	1.99b	0.81b	3.19b
	March 2008	2.38b	1.04b	3.76b
	March 2009	1.85b	0.66b	2.98b

- Estimate the following specification:

$$R_{it} - r_f = \alpha_{\text{Sec}}^M D_{\text{Sec},it}^M + \alpha_{\text{Sec}}^H D_{\text{Sec},it}^H + \gamma X'_{it} + d_t + \epsilon_{it}$$

- For different time periods (monthly):
  - "good": April 2006 to March 2007
  - "bad": April 2008 to March 2009
- With and without controls  $X'_{it}$  that could potentially drive the returns (lnAUM, flows, strategy-month FEs).

# Fund Performance: April 2006 to March 2007 ("good")

		Net Performance (annualized pp)						
Sec	Med	1.85	1.91	1.75	1.47	1.02	0.48	3.58**
	High	4.83***	4.88***	4.09*	4.64***	4.59**	4.51*	8.32***
Illiq	Med				1.01	0.39	2.53	0.98
	High				6.51***	4.80**	7.68***	5.85*
Conc	Med				2.88**	3.56**	3.82***	3.71**
	High				5.24	6.57	8.36***	6.81***
Comp	Med				-0.09	-1.24	-1.46	-1.55
	High				-3.34**	-2.87*	-3.60*	-1.70
Month FE		Y	Y	Y				
Strategy-month FE					Y	Y	Y	
HF Controls					Y	Y	Y	
Present in 2007-2009			Y	Y		Y	Y	
Same Tran in 2007-2009							Y	
Obs		1,663	1,663	996	1,663	1,576	987	771
N funds		150	150	83	150	145	83	65
Adj. $R^2$		0.001	0.170	0.185	0.181	0.224	0.303	0.282

# Fund Performance: April 2008 to March 2009 ("bad")

		Net Performance (annualized pp)						
Sec	Med	-15.35***	-14.86***	-17.75***	-11.20***	-10.98**	-21.18***	-19.88***
	High	-9.98*	-10.10*	-16.73**	-7.02	-9.73*	-15.70**	-15.32
Illiq	Med				-13.36***	-23.02***	-22.02**	-21.05**
	High				-33.70***	-47.41***	-38.73***	-41.32***
Conc	Med				-4.69	-1.13	-1.83	-3.03
	High				-8.65	-2.81	-8.01	-10.30
Comp	Med				3.51	-2.01	3.64	8.74
	High				10.69**	-2.20	-7.43	-9.79
Month FE			Y	Y	Y			
Strategy-month FE						Y	Y	Y
HF Controls						Y	Y	Y
Present in 2007-2009				Y	Y		Y	Y
Same Tran in 2007-2009								Y
Obs		1,574	1,574	1,020	1,574	1,510	1,003	780
N funds		140	140	85	140	137	85	65
Adj. $R^2$		0.003	0.177	0.217	0.207	0.264	0.274	0.224

# Market timing?

- Market timing is the ability of a fund manager to predict the overall movement of the market (or another risk factor) and adjust the portfolio's exposure to systematic risk accordingly.
- In particular, this means increasing beta when information about the factor return becomes more favorable:  $\partial\beta_{it}/\partial\hat{F}_{t+1} > 0$  (Grinblatt and Titman (1990)).
- If the over-performance in the good period is due to better market-timing (adjusting  $\beta_1$  upwards), then in the bad period more secretive funds should adjust  $\beta_1$  downwards and ceteris paribus over-perform as well.
- But they under-perform, so it can't be pure market timing.

# Concentration premium?

- In standard finance theory, concentration of hedge fund investments should not matter if investors can diversify away the non-systematic (idiosyncratic) risks.
  - In contrast, Ang et al. (2009) find that idiosyncratic volatility bears a significant premium.
- We offer a new explanation of why concentration may bear a premium, unrelated to investor constraints that prevent full diversification.
  - Contrast concentration premium in secretive vs transparent funds
  - Intuitively, hedge fund investors should be compensated for the risks associated with fund's concentrated investments when they do not know what constitutes these investments, i.e. do not know which risks to diversify away.
  - Expect to see a concentration risk premium only among the secretive hedge funds.

# Interaction Results: Secrecy x Concentration 2007

Variable	Level	Net Performance (annualized pp)		
Secrecy	Med	-0.59	-0.50	0.21
	High	-2.00	-2.15	3.08
Concentration	Med	-0.04	-0.23	2.72
	High	2.72	2.97	3.71
SxC	Med*Med	4.21	4.45	1.21
	Med*High	5.02	4.09	2.39
	High*Med	4.82	4.73	-0.03
	High*High	8.23**	7.65*	12.33***
Month FE		Y		
Strategy-month FE				Y
HF Controls				Y
Obs		1,663	1,663	1,576
N funds		150	150	145
Adj. $R^2$		0.006	0.175	0.223



# Interaction Results: Secrecy x Concentration 2007

		Con			Con		
		Low	Med	High	Low	Med	High
Sec	Low	5.49***	5.46***	8.21***	0	-0.04	2.72
	Med	4.91***	9.08***	12.65***	0	4.17***	7.74
	High	7.49***	12.28***	18.44***	0	4.78**	10.95***
Sec	Low	0	0	0			
	Med	-0.59	3.62	4.43			
	High	2.00	6.82**	10.23***		DID=	8.23**

- Indeed, the concentration premium is present among most secretive hedge funds, where investors may not know what the exact risks to be diversified away are.
- Concentration does not bear a premium among transparent hedge funds, where investors have more information about the risks held.

# Conclusion

- We find evidence of secretive, illiquid, concentrated funds earning a risk premium.
- The variation introduced by the crisis enables us to distinguish the risk-premium channel from the manager-specific alpha.
  - At least part of the over-performance by secretive funds (in the good period) is due to higher risks born
  - So there may indeed be some scope for regulation
- The results are not driven by funds being selected into the pool of fund of funds investments (balanced panel results are similar).
- Furthermore, we find the concentration risk premium is only present among the most secretive funds, suggesting for a reason preventing investors from full diversification that is unrelated to their own constraints: they may be unaware of the exact risks.

# Directions?

- Hunt for a factor and risk-adjust returns?
  - The point about over- and under- performance in good/bad periods is robust to including observable factors.
  - If the included factors miss at least one, then same story.
  - If we guess and observe all factors correctly, what is the prediction for alpha in good/bad periods? Equal in both?
  - The problem is that we can't know whether we've included all factors or not and the two
  - And if there is market timing additionally?
- Elaborate on the test?
  - Overperformance in "good" period is not independent of the underperformance in "bad" period
  - Type I error is probably lower
- Have a neater definition of time periods?
  - Based on stock index falling below a certain threshold

# Future Fund Flows

Variable	Level	Net flow over 3 months in pp			
		2007	2008	2009	2007-2009
Sec	Med	5.14	2.46	-9.33**	-0.33
	High	4.35	4.17	-1.79	2.16
Illiq	Med	-2.31	-0.39	-6.67**	-3.18*
	High	1.04	-1.72	-10.69***	-2.85
Conc	Med	3.03	5.51***	0.50	2.73*
	High	6.15	2.47	4.13	3.60**
Comp	Med	-1.30	5.68***	4.20	2.72
	High	1.95	-1.46	7.67*	2.18
Month FE		Y	Y	Y	Y
Strategy FE		Y	Y	Y	Y
HF Controls		Y	Y	Y	Y
Present in 07-09		Y	Y	Y	Y
Same Tran in 07-09		Y	Y	Y	Y
Obs		780	780	769	2,329
N funds		65	65	65	65
Adj. $R^2$		0.116	0.171	0.454	0.367

# Fund Return Volatility

Variable	Level	(Annualized pp)			
		2007	2008	2009	2007-2009
Sec	Med	1.38*	2.90***	5.53***	3.34***
	High	2.57**	1.34	3.40	3.03**
Illiq	Med	0.51	1.26	6.39**	2.54*
	High	1.20	5.11*	12.31***	5.27***
Conc	Med	1.65**	2.10	1.71	2.21**
	High	4.34***	4.73**	6.41*	5.71***
Comp	Med	0.042	0.60	-1.13	-0.32
	High	-1.95	-3.58*	-1.01	-2.00
Month FE		Y	Y	Y	Y
Strategy FE		Y	Y	Y	Y
HF Controls		Y	Y	Y	Y
Present in 07-09		Y	Y	Y	Y
Same Tran in 07-09		Y	Y	Y	Y
Obs		771	780	780	2,331
N funds		65	65	65	65
Adj. $R^2$		0.523	0.427	0.295	0.4453

# Ln Assets Under Management

Variable	Level	Ln AUM			
		2007	2008	2009	2007-2009
Sec	Med	0.06	0.19	0.14	0.16
	High	0.85	1.10*	1.46**	1.12*
Illiq	Med	0.65	0.96**	0.60	0.77*
	High	0.20	0.71	0.19	0.35
Conc	Med	-0.17	0.04	0.09	-0.04
	High	-0.14	-0.32	-0.36	-0.36
Comp	Med	-0.41	-0.32	0.32	-0.12
	High	0.20	0.23	0.40	0.21
Month FE		Y	Y	Y	Y
Strategy FE		Y	Y	Y	Y
HF Controls		Y	Y	Y	Y
Present in 07-09		Y	Y	Y	Y
Same Tran in 07-09		Y	Y	Y	Y
Obs		771	780	780	2,331
N funds		65	65	65	65
Adj. $R^2$		0.523	0.427	0.295	0.4453

- This idea of "good" and "bad" periods having different informational content is not completely new:
- E.g. Schmalz-Zhuk (2013) formulate it in terms of risk-averse investors and cash flow sensitivities.
  - Good performance in bad times can be due to either high alpha or low beta, both of which are a positive signal about firm value
  - Bad performance in bad times is clearly a bad signal about firm value: it can be due to either bad alpha or due to high beta, both of which are undesirable attributes for risk-averse investors.
  - In sum, cash flow news in downturns provide less ambiguous signals about firm value, irrespective of the direction.
  - Find that stocks react more to news in downturns, rather than upturns.

Macro State	Good News Higher than expected performance	Bad News Lower than expected performance	Price Reaction
<i>Good Times</i>	<i>high <math>\alpha</math> or high <math>\beta</math></i>	<i>low <math>\alpha</math> or low <math>\beta</math></i>	?   ?
<i>Bad Times</i>	<i>high <math>\alpha</math> or low <math>\beta</math></i>	<i>low <math>\alpha</math> or high <math>\beta</math></i>	↑   ↓

- Ang et al. (2011) suggest these data:
  - Have similar composition by sector to the overall sector weighting of the industry as reported by TASS and Barclays Hedge
  - Not a voluntary performance disclosure, which mitigates the reporting bias in e.g. TASS (Agarwal et al, 2010, among others)
  - Survival biases mitigated by the fact that often hedge funds enter the database not when they receive funds from the Fund, but several months prior to and often exit the database several months after disinvestment.
  - Funds which terminate due to poor performance are also in.
  - Aggregate performance of the Fund is similar to the performance of the main hedge fund indexes.



# Multivariate Results: all periods

		Net Performance (annualized pp)							
		April 06-March 07		April 07-March 08		April 08-March 09		April 06-March 09	
Sec	Med	0.63	3.69**	-2.22	3.84	-22.21***	-20.80***	-4.84**	-3.52
	High	4.16*	8.42***	2.67	10.25	-16.26**	-15.73*	-1.40	0.00
Illiq	Med	1.97	0.65	-5.71*	-10.07***	-22.93**	-21.48**	-7.57**	-10.02**
	High	7.68***	5.78*	-5.90	-10.06*	-39.47***	-42.06***	-10.67***	-13.74***
Conc	Med	3.87***	3.69**	7.97**	9.62**	-1.86	-2.81	2.77	2.52
	High	8.04***	6.92***	0.90	0.08	-7.82	-9.95	-2.50	-3.67
Comp	Med	-0.90	-1.31	5.92	8.32	3.67	9.27	3.48	5.59
	High	-2.59	-0.99	-3.86	-8.42	-7.58	-9.04	-1.75	-6.94
Month FE		Y	Y	Y	Y	Y	Y	Y	Y
Strategy FE		Y	Y	Y	Y	Y	Y	Y	Y
HF Controls		Y	Y	Y	Y	Y	Y	Y	Y
Present in 07-09		Y	Y	Y	Y	Y	Y	Y	Y
Same Tran in 07-09			Y		Y		Y		Y
Obs		987	771	936	780	1,003	780	2,931	2,331
N funds		86	65	78	65	85	65	86	65
Adj. $R^2$		0.227	0.243	0.325	0.312	0.266	0.230	0.305	0.274