

Hedge Funds Under Fire: A Flow-Impact Perspective on Fund Returns

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Motivation

- Understanding hedge-fund performance
- Flow and the smart-money effect
- How to measure fund liquidity?
What is the effect of flow on fund return?



Outline and Main Findings

- A model of fund flow impact
 - Flow significantly affects contemporaneous return
 - Flow impact varies in the cross-section
 - Flow impact is related to fund liquidity provision

- Smart money in hedge funds
 - “Smarter money” (high-flow impact)
 - Earns up to 7% annually (1994–2008)
 - Flow impact is important for outflows

- Money is smart on the way in, but smarter on the way out!

A Model of Flow Impact

- Measure of flow:

$$F_{i,t} = \frac{AUM_{i,t} - AUM_{i,t-1} [1 + R_{i,t}]}{AUM_{i,t-1}}$$

AUM – Assets under management
R – Fund reported return
F – Fund flow

- Estimation of flow impact:

$$R_{i,t} = \alpha_i + \beta_{HF,i} R_{HF,t} + \beta_{F,i} F_{i,t} + \varepsilon_{i,t}$$

R_i – Fund *i* reported return
R_{HF} – Average hedge-fund industry return

- Data

- TASS funds, 1994–2008
- 12 investment styles, share restrictions

Estimation of Flow Impact

Table 2

	Mean	<i>t</i> -statistic of mean	Standard deviation
α_i	0.000	-1.910	0.008
<i>T</i> -stat (α_i)	0.102		1.786
$\beta_{HF,i}$	1.020	70.244	1.001
<i>T</i> -stat ($\beta_{HF,i}$)	5.103		4.548
$\beta_{F,i}$	0.002	3.496	0.047
<i>T</i> -stat ($\beta_{F,i}$)	0.130		1.132
R^2	0.330		0.249

➤ Flow is contemporaneously correlated to return

The Cross-Section of Flow Impact

Table 3

Panel B: Flow Impact

<i>Intercept</i>	0.037 [5.21]	0.015 [1.80]	-0.006 [-4.38]	-0.003 [-3.49]	0.015 [1.86]
<i>Log(AUM₁)</i>	-0.002 [-5.54]				
<i>Log(AUM₂)</i>		-0.001 [-2.05]			-0.001 [-2.61]
<i>Red Notice</i>			0.000 [3.76]		0.000 [3.24]
<i>Lockup</i>				0.000 [3.29]	0.000 [2.25]
<i>N</i>	6134	6859	7134	7134	6859
<i>R²</i>	0.005	0.001	0.002	0.002	0.004

➤ Flow impact is related to fund liquidity

Smart Money in Hedge Funds

Table 4

Portfolio	Flow (F)		Portfolio	Flow impact (B)	
	Return	Fung-Hsieh Alpha		Return	Fung-Hsieh Alpha
F1	0.22%	0.31%	B1	0.43%	0.45%
	[1.33]	[3.21]		[2.24]	[3.91]
F2	0.28%	0.32%	B2	0.22%	0.27%
	[1.57]	[3.19]		[1.73]	[3.56]
F3	0.43%	0.44%	B3	0.30%	0.35%
	[2.60]	[3.96]		[1.61]	[3.27]
F3 – F1	0.21%	0.13%	B3 -B1	-0.12%	-0.10%
	[2.82]	[1.95]		[-2.35]	[-1.89]

➤ Hedge funds exhibit a smart-money effect

Smart Money and Flow Impact

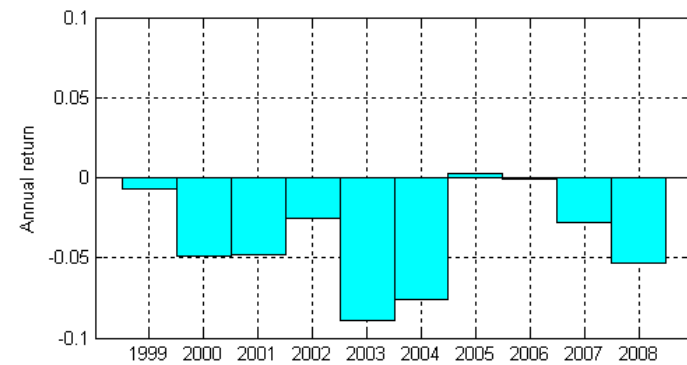
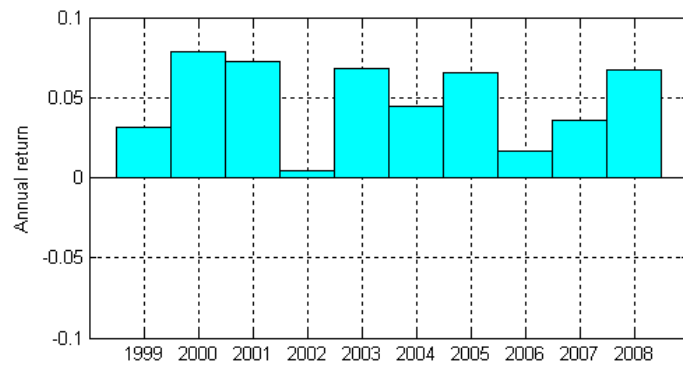
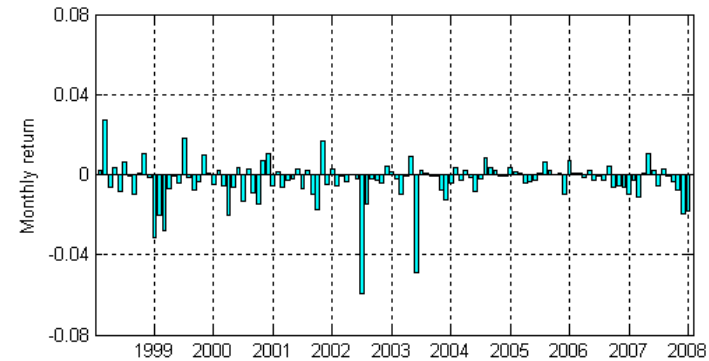
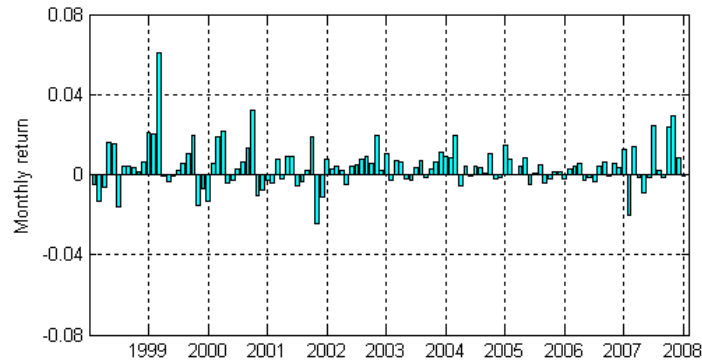
Table 5

Flow (F)	Flow impact (B)			
	B1	B2	B3	B3 – B1
F1	0.41%	0.18%	0.11%	-0.31%
	[2.01]	[1.45]	[0.55]	[-3.20]
F2	0.31%	0.17%	0.29%	-0.01%
	[1.57]	[1.25]	[1.45]	[-0.20]
F3	0.53%	0.30%	0.50%	-0.03%
	[2.61]	[2.45]	[2.57]	[-0.33]
F3 - F1	0.12%	0.11%	0.40%	0.28%
	[0.94]	[1.93]	[4.00]	[2.13]

- “Smarter money” is present in high-flow-impact funds
- Flow impact mostly affects low-flow funds

Time Series of Portfolio Returns

Figure 1



Smarter money

Low flow
(high-minus-low flow impact)



What have we learned so far?

- Main conclusions:
 - Flow impacts contemporaneous fund return
 - Hedge funds exhibit a smart-money effect
 - “Smarter money” is present in high-flow-impact funds
 - Flow impact mostly affects low-flow funds

- What's next?
 - Share restriction and investment style
 - Cross-sectional regressions instead of portfolios
 - Long-run performance
 - Robustness
 - Implications

Share Restriction and Investment Style

Tables 6 and 7

Share Restriction	Return				
	B1F3 – B1F1	B3F3 – B3F1	B3F1 – B1F1	B3F3 – B1F3	(B3F3 – B3F1) – – (B1F3 – B1F1)
Panel A. Lockup Period					
0	0.13%	0.33%	-0.19%	0.01%	0.20%
[N=5,711]	[1.45]	[3.38]	[-2.33]	[0.12]	[1.99]
1	0.08%	0.59%	-0.71%	-0.20%	0.51%
[N=1,569]	[0.26]	[3.58]	[-2.88]	[-0.80]	[1.47]
Panel B. Redemption Notice Period (days)					
0	0.42%	-0.18%	0.19%	-0.41%	-0.60%
[N=1,454]	[1.27]	[-0.74]	[0.63]	[-1.61]	[-1.54]
(0,30]	0.15%	0.49%	-0.44%	-0.10%	0.34%
[N=3,156]	[0.85]	[4.20]	[-3.19]	[-0.72]	[1.76]
(30,60]	0.09%	0.40%	-0.23%	0.08%	0.31%
[N=1,790]	[0.68]	[2.48]	[-1.57]	[0.81]	[1.70]
(60,90]	-0.06%	0.23%	-0.20%	0.09%	0.29%
[N=721]	[-0.31]	[0.89]	[-0.83]	[0.62]	[0.93]
(90, 365]	0.22%	0.57%	-0.52%	-0.17%	0.35%
[N=159]	[0.79]	[2.28]	[-2.47]	[-0.53]	[0.94]

- No obvious relation to fund liquidity
- Event Driven, Fixed Income, Long/Short Equity, Multi-Strategy

Cross-Sectional Regressions

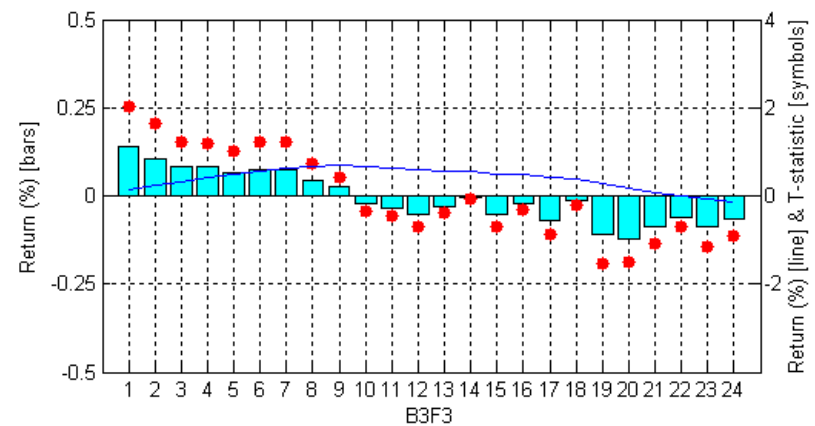
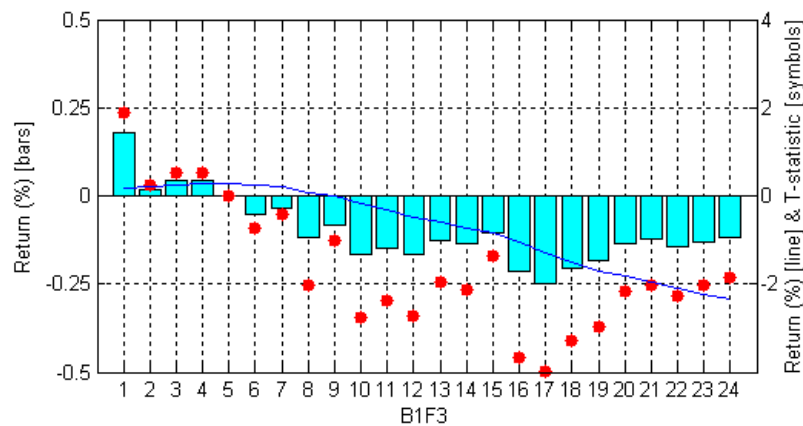
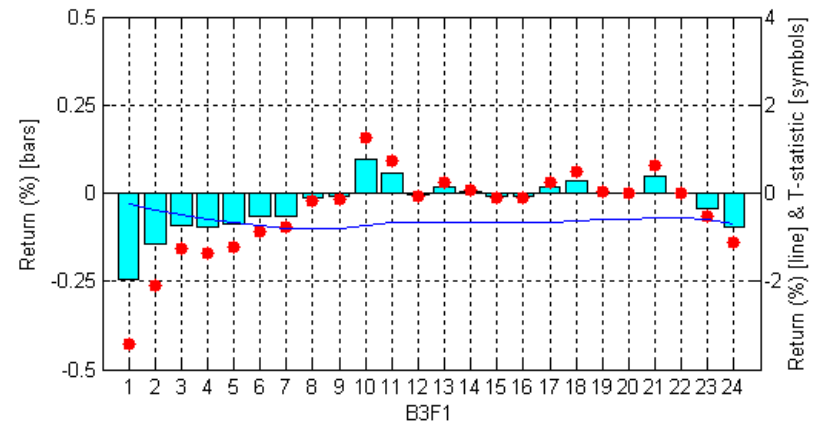
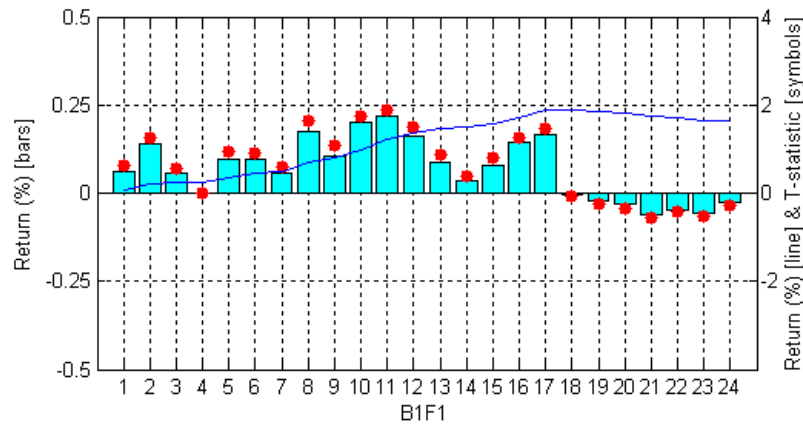
Table 8A

	Flow	D × Flow	FlowImpact	Flow × FlowImpact	D × Flow × FlowImpact
Model 1	0.07% [2.04]				
Model 2	0.16% [2.55]	-0.16% [-1.82]			
Model 3			-0.08% [-2.23]		
Model 4	0.07% [2.01]		-0.08% [-2.22]		
Model 5	0.15% [2.50]	-0.15% [-1.77]	-0.07% [-2.20]		
Model 6	0.08% [2.33]		-0.06% [-1.85]	0.00% [-0.06]	
Model 7	0.16% [2.60]	-0.14% [-1.68]	-0.06% [-1.83]	0.00% [-0.07]	
Model 8	0.15% [2.50]	-0.13% [-1.65]	0.03% [0.87]	-0.17% [-1.49]	0.34% [2.11]

➤ Smart money for inflows, smarter money for outflows

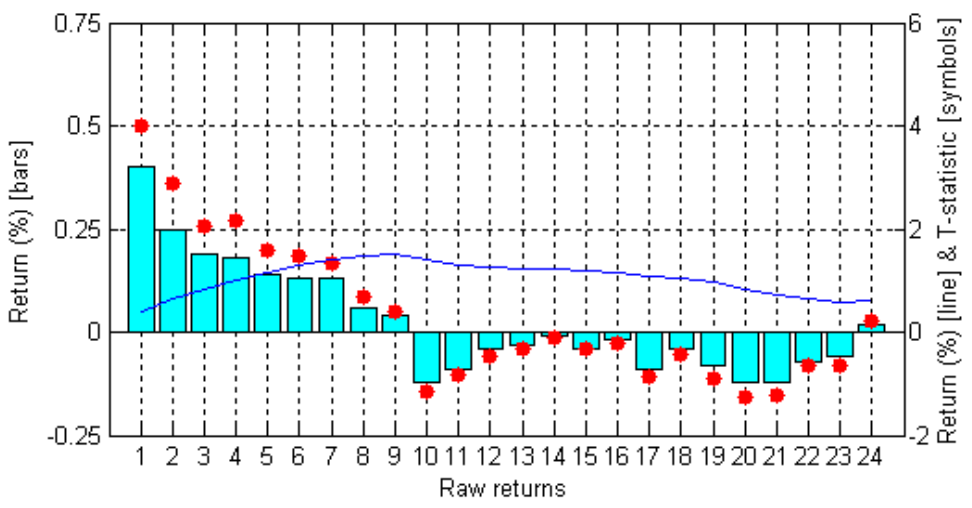
Long-Run Performance

Figure 2

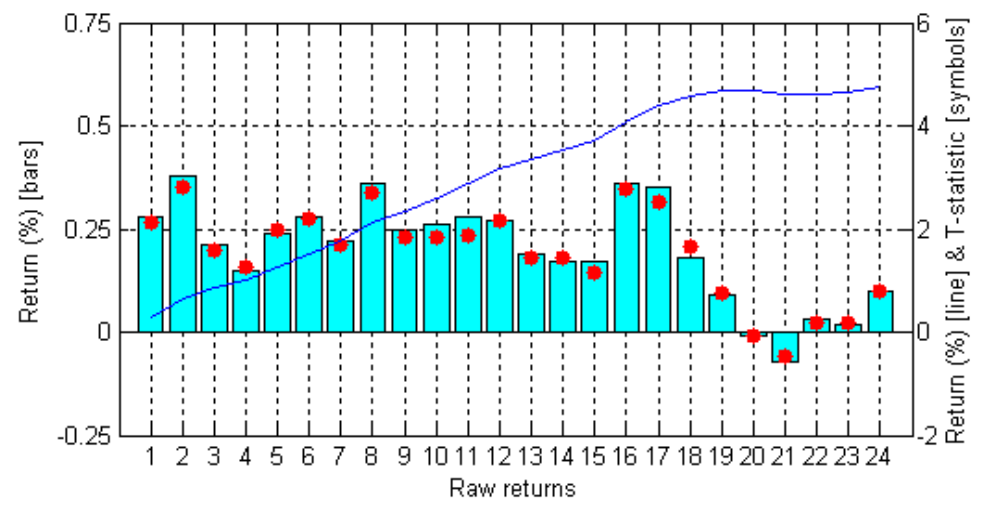


Long-Run Performance of Spreads

Figure 3



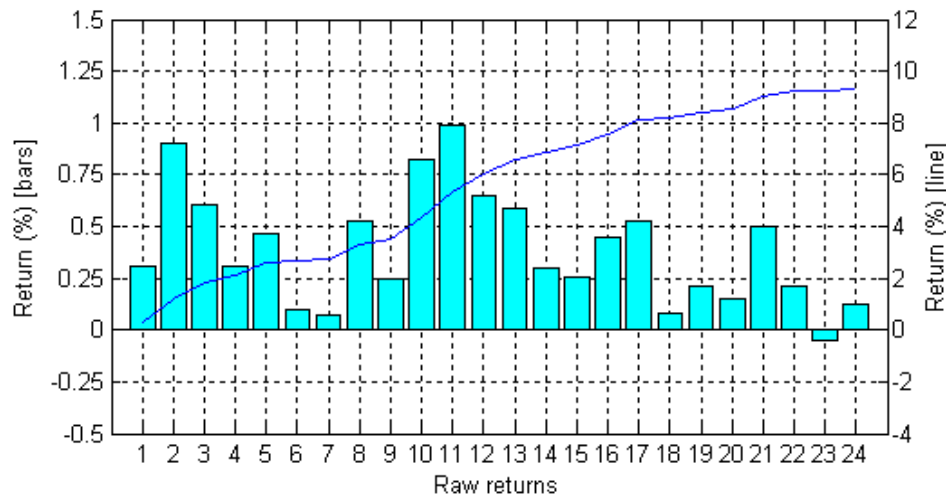
Smarter money



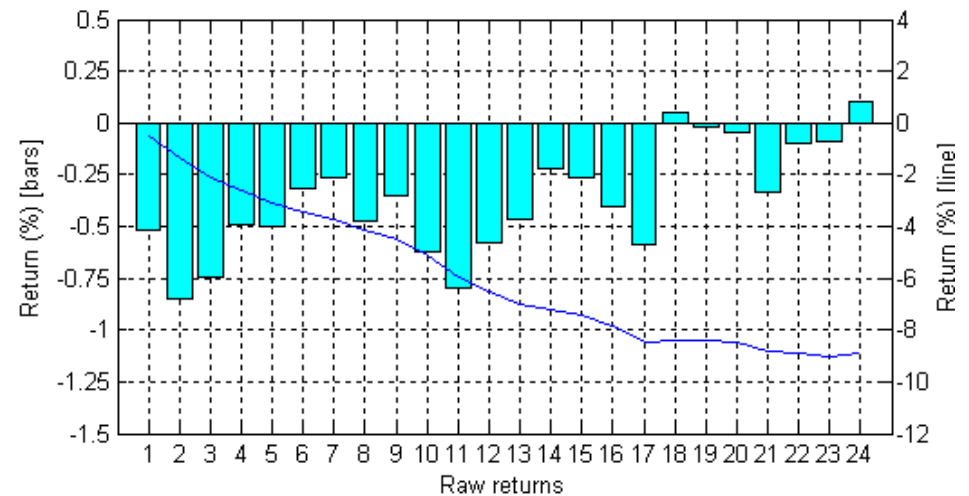
Difference-of-differences

Long-Run Performance of Lockup and No-Lockup Spreads

Figure 4



Difference-of-differences



Low flow
(high-minus-low flow impact)



Robustness Tests

- Expected versus unexpected flow (Table 10)
 - Since flow is persistent, the effect of expected flow is larger than that of unexpected flow
- Controlling for lag flow (Table 11)
 - Lag flow does not seem to have an impact
- Alternative measure of flow (Table 12)
 - Assuming flow is absorbed at beginning-of-month does not change the results



What are the implications?

- Account for capital flow impact in fund performance evaluation
- Investment strategies based on the predictability of flow and flow impact
- Understanding outflows and likelihood of meeting liquidity obligations
- Do hedge-fund managers smooth returns?
Contribution of flow to return persistence



Summary and Conclusions

- Flow has an impact on return
- Smarter money accounting for flow impact
- Effect lasts for over six months
- The persistence of flow makes money seem smarter in hindsight