SFRA Second Colloquium

Hedge Funds: Performance and Risk Characteristics

William Fung
Hedge Fund Centre, London Business School

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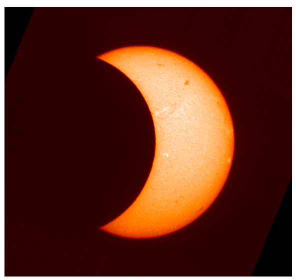
Why is this tricky?
Circa 2003: Judging Past Performance

- The complete universe of hedge funds cannot be observed: pass, present and *future?*



?

Past —— Present —→ future

- Indices are tracking portfolios of this "**unobservable**" universe of hedge funds

Public Data Set: Reporting Firms/Funds, Year End 2009

(source: Edelman, Fung and Hsieh, Institutional Quality Hedge Funds, Oxford-Man Institute, October, 2010)

Source **(public date sources)**	# of Firms	# of Funds
Barclays	1,195	2,836
CISDM	810	2,244
HFR	1,659	4,377
Lipper/TASS	1,256	3,407
Merge	2,328	6,606

Non-reporting Large Firms: Year end 2009

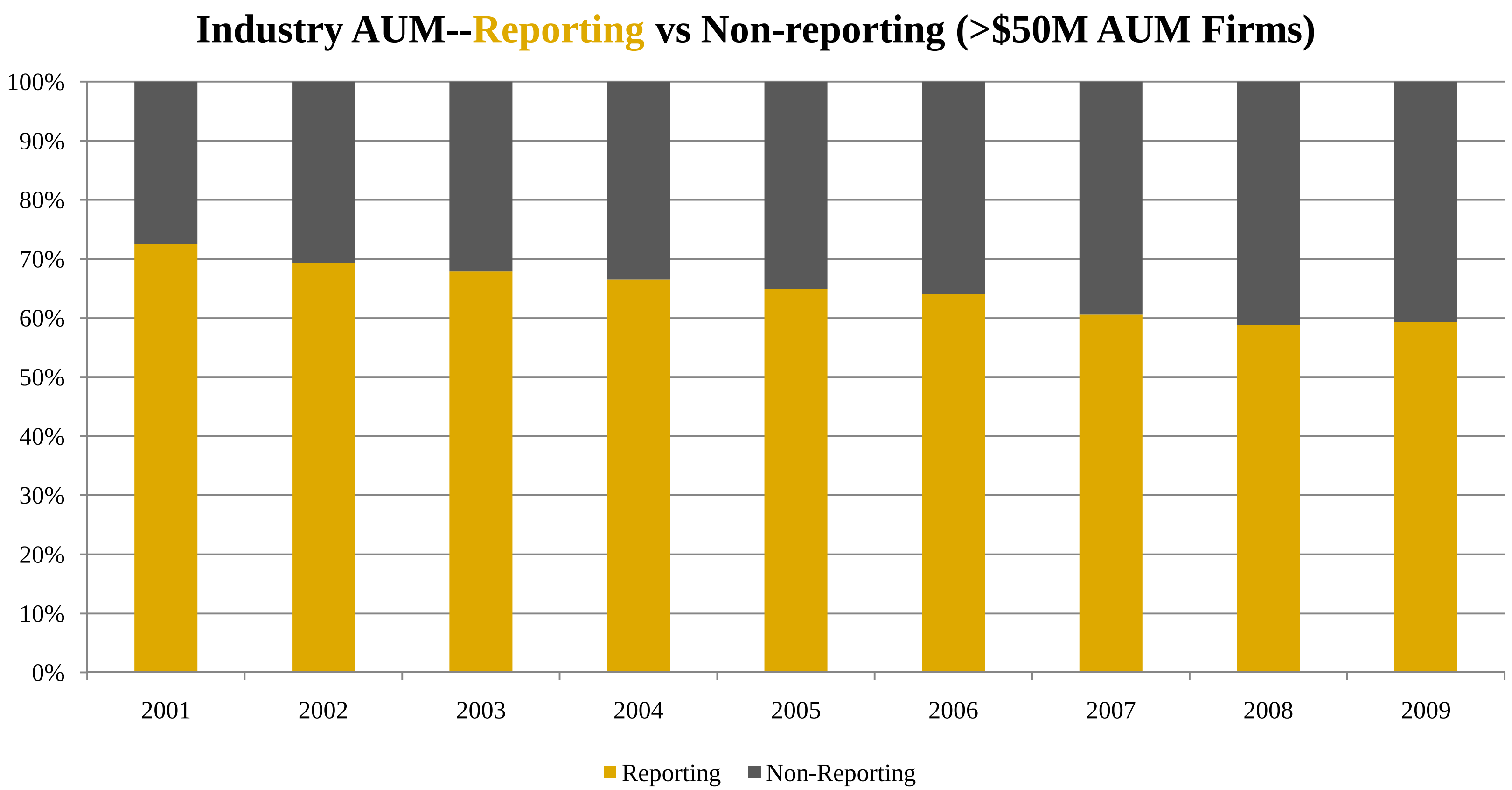
(source: Edelman, Fung and Hsieh, Institutional Quality Hedge Funds, Oxford-Man Institute, October, 2010)

Source	# of Firms	AUM ($b)
Reporting firms (public)	**2,328**	**1,188**
II 100 firm added	**48**	**517**
AR BDC firms added	**64**	**163**
Total	2,440	1,868
Non-reporting/Reporting	**4.81%**	**57%**
HFN Administrator Survey (AUA)		*2,172*

How representative of the industry are popular HF indices?

- Approximately 40% of the Institutional Investors' Annual Ranking of Top 100 Hedge Fund Firms are missing from major data bases—see Fung and Hsieh (FAJ, 2009, 65, no.3)
- The DJ CS indices are broader than the commercial data bases but cannot capture most of the missing large HF firms, why?
- An unintended consequence of more regulation? Is growing regulations make HF firms more cautious about disclosure?

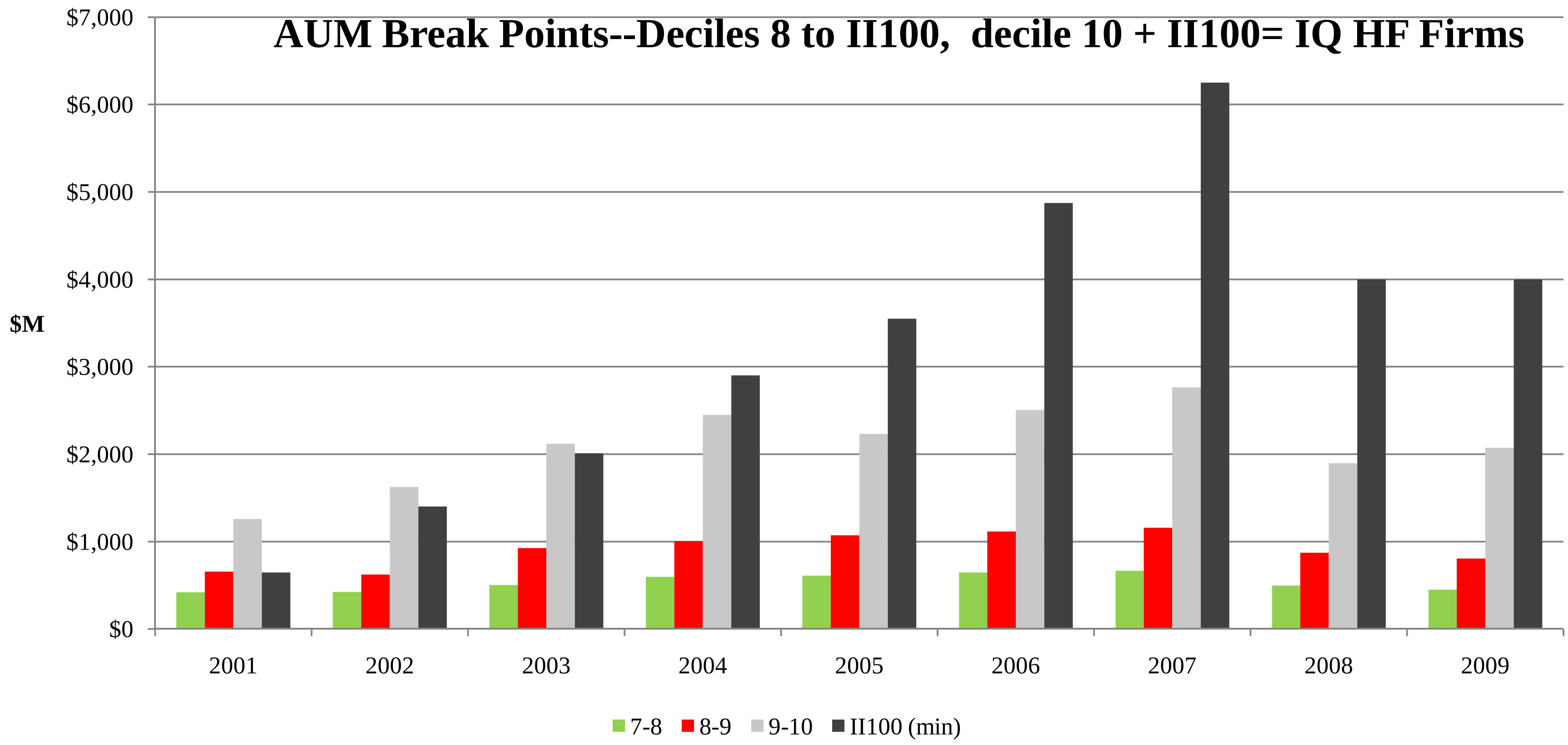
Hard-to-observe AUM relative to what we can see (2000 to 2009)



Historical Performance pattern by AUM deciles (2000-2009)

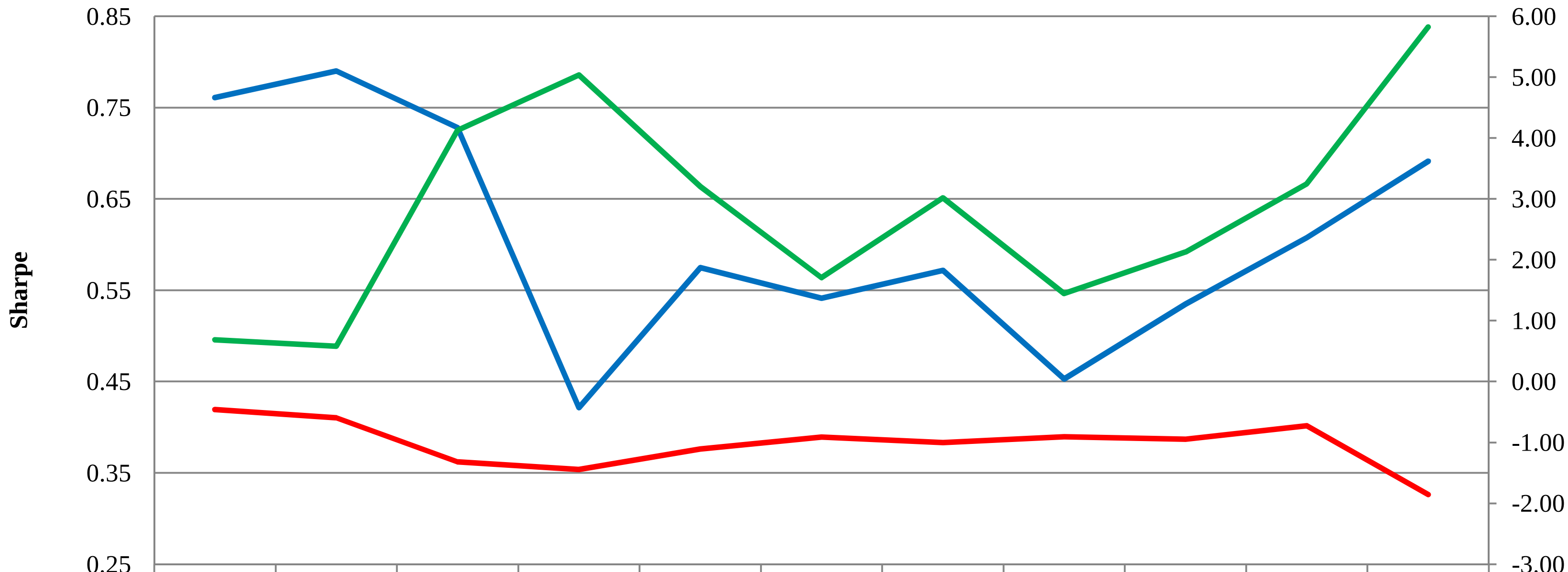
- Reporting firms: Each year end, merge 4 standard databases: Barclays, CISDM, HFR, Lipper/TASS. Group funds by firms ("public data"). Remove duplicate funds within firms. Sum AUM for each firm. Sort by AUM into deciles.
- Non-reporting firms: Add large firms and AUM in the *Institutional Investor* ("II 100") and Absolute Return-Alpha ("AR BDC") surveys of hedge fund firms not in these 4 databases into Deciles 9 and 10. [**Obtain returns from private sources**]
- Follow decile-portfolios for 1 year. Return correlation from one decile to the next is within 0.85 to 0.97

AUM Deciles Break Points (Deciles 7 to II100 firms)



Return Statistics (Deciles 1 to II100 firms)

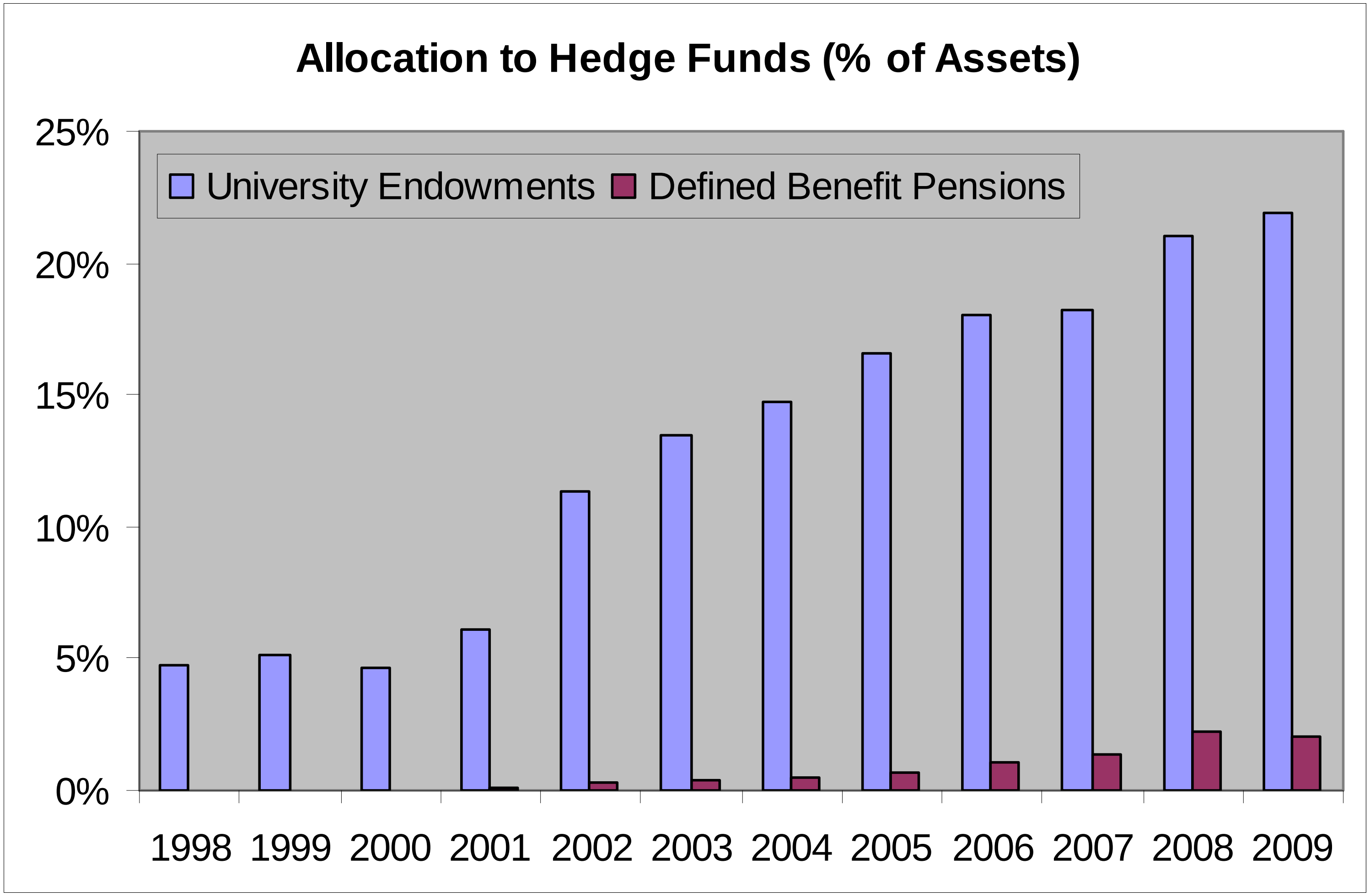
Return Statistics (2002-2009)
Correlation Range = 0.85 to 0.97



	D01	D02	D03	D04	D05	D06	D07	D08	D09	IQ-ex II100	II100
Sharpe	0.76	0.79	0.73	0.42	0.57	0.54	0.57	0.45	0.53	0.61	0.69
skew	-0.46	-0.60	-1.32	-1.45	-1.11	-0.91	-1.00	-0.90	-0.95	-0.73	-1.86
kurt	0.69	0.58	4.13	5.03	3.20	1.70	3.01	1.44	2.13	3.24	5.83

Figure 1. Institutional Investors

(source: Edelman, Fung and Hsieh, Institutional Quality Hedge Funds, Oxford-Man Institute, October, 2010)



Performance Comparison—from *rising stars* to the IQ (Institutional Quality) HF Firms

Demand Side Effect

- Investors prefer large operating entities—note the rising presence of institutional investors from the turn of the century

Operational Characteristics

- IQ (D02) firms staying in the AUM decile is 85% (19%)
- IQ (D02) firms surviving in business
  $\geq$3 yrs is 86% (74%) $\geq$5 yrs is 81% (67%) $\geq$ 7 yrs is 77% (54%)

C. Investors' preference?

- Investors prefer large operating entities—note the rising presence of institutional investors from the turn of the century
- A recent study by Aggarwal and Jorion "The Performance of Emerging Hedge Funds and Managers", Journal of Financial Economics, May, 2010) shows that superior performance decays over time

How do popular HF Benchmarks compare to AUM deciles? (2002 to 2009)

Statistical Averages

	DJ CS	HFRI
Peer-Group Alpha		
D01	0.18	0.13
D02		0.11
D03		
D04		0.13
D05		
D06		0.15
D07		
D08	-0.21	
D09		
IQ-ex II100		0.09
II100	0.75	0.17
Rbar-sq	0.95	0.99

Investable Indices

	HFRX-GL	DJ CS All Hedge
Peer-Group Alpha	-0.25%	-0.22%
D01		
D02	-0.29	
D03		
D04		0.47
D05		
D06		
D07		
D08		
D09		
IQ-ex II100		
II100	0.75	0.72
	0.93	0.94

Benchmarking HF investments

Conventional HF indices assumes (through its weighting scheme) particular portfolio construction strategies—do they reflect your investment mandate?

- Perhaps more troubling is the implicit assumption on the liquidity of HFs (unrealistic notification and redemption process)

Passive Rule-based construction of investable indices have generally not done well—why?

- Limited capacity from large IQ managers may be a source of the problem, but what about the lack of liquidity?

Estimating the value of HF liquidity

- Value of liquidity in hedge fund investing = opportunity cost (unable to access opportunities).

- Occurs whenever the duration of the opportunity is less than the usual redemption terms. *"If only I could rebalance my portfolio….?"*

- One example of this is if there is momentum in the performance of certain styles— short-term performance persistency

Style Momentum in Monthly Indices
Jan 1995 to Dec 2010

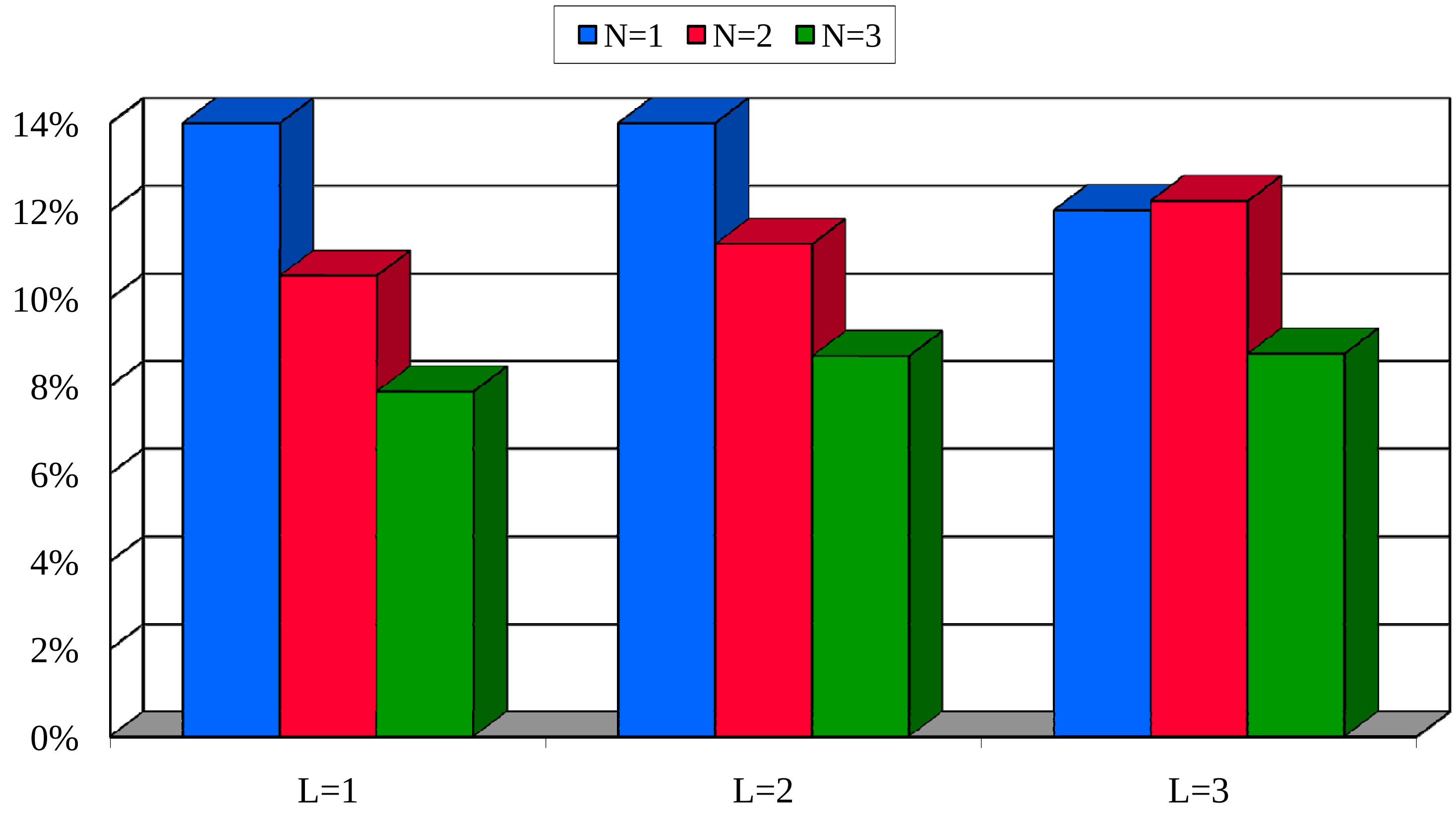
- Start with eight Dow Jones-Credit Suisse ("DJCS") monthly style indices: Convertible Arbitrage, Emerging Markets, Equity Market Neutral, Event Driven, Fixed Income Arbitrage, Global/Macro, Long/Short Equity, and Managed Futures

- Follow a standard model such as Jegadeesh and Titman (Journal of Finance, 1993) with a minor variation. Each month, rank styles based on previous L (=1,2,3) months of cumulative performance

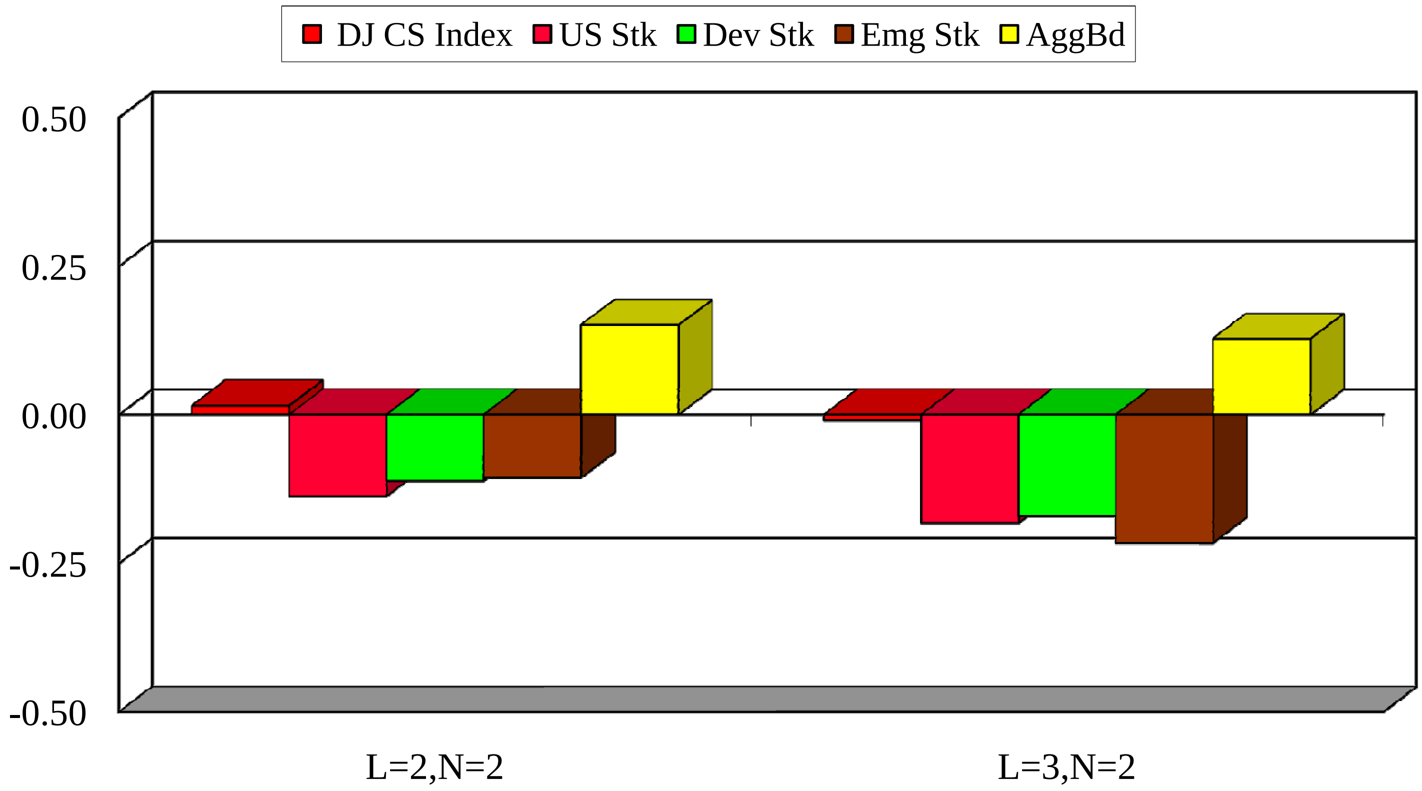
- Go long the top N (=1,2,3) styles and hold for one month

- Go short the bottom N (=1,2,3) styles and hold for one month

Average Annual Returns from Winners-Losers (1995-2010)



Correlation with Market Indices



Enhancing a Passive Investable HF Index (HFRX GL) with a momentum strategy overlay (2002 to 2009)

Statistical Averages

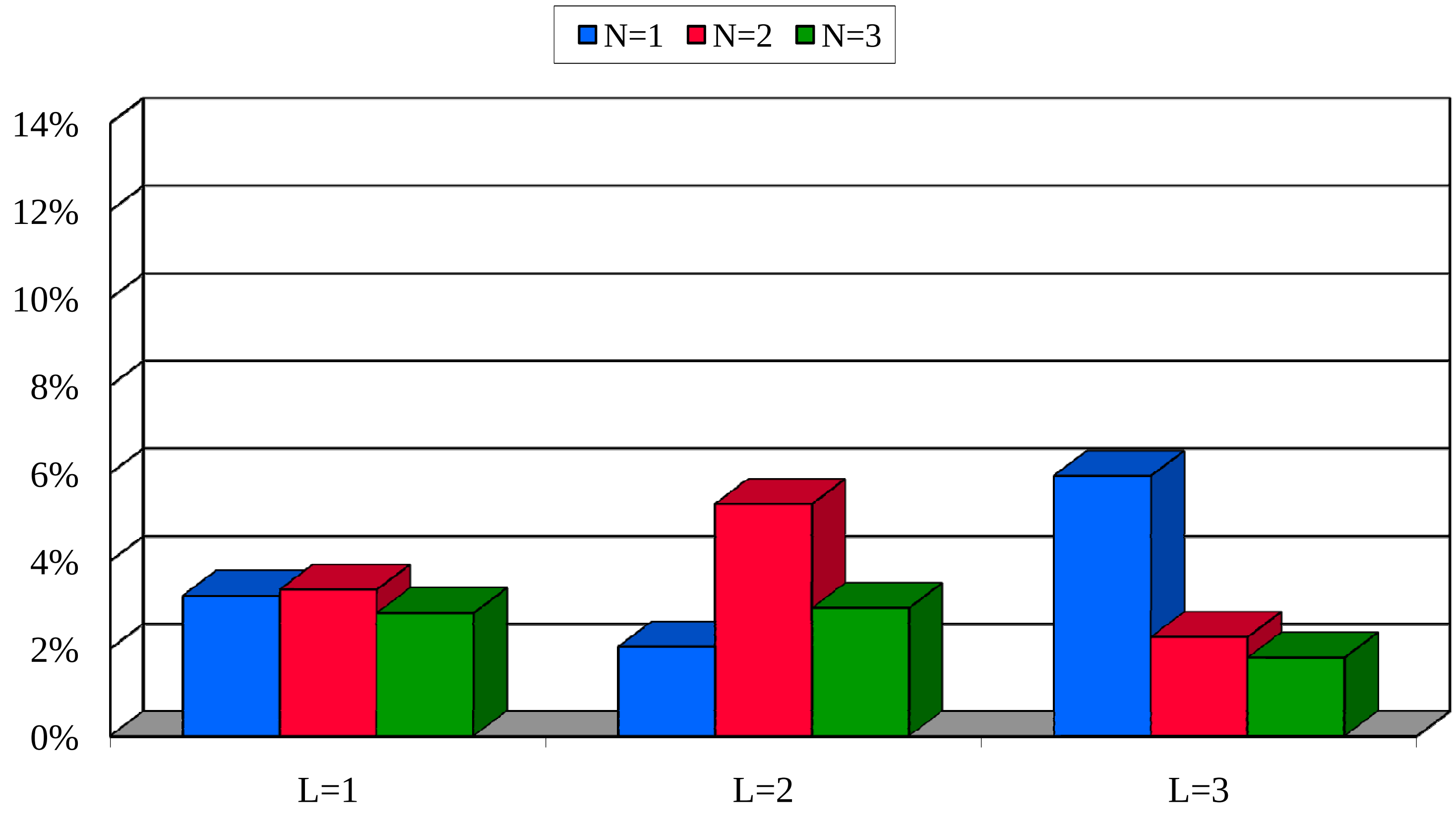
	II100	DJ CS	HFRI
mean	4.03%	4.83%	4.63%
stdev	5.83%	5.82%	6.49%
skew	-1.86	-1.61	-1.05
kurt	5.83	5.06	2.83
Return/Std	0.69	0.83	0.71
2008	-25.78%	-21.80%	-21.76%

HFRX GL plus Overlay

	II100	DJ CS	HFRI
HFRX with Overlay	**45.50%**	**59.00%**	**47.00%**
mean	4.21%	5.24%	4.32%
stdev	6.10%	6.32%	6.12%
skew	-0.81	-0.57	-0.78
kurt	1.44	0.66	1.32
Return/Std	0.69	0.83	0.71
2008	-15.87%	-12.62%	-15.51%

Average Annual Returns from Winners-Losers (1995-2010)

After Execution Delay = one month



The Hedge Fund Industry going forward:

- The Rich will get richer—looks like more consolidation of AUM into mega HF firms. The 2008 events and changes in regulation as well as the banking industry will push this concentration further
- Performance Evaluation—conventional HF indices may be a good starting point but more work needs to be done to reflect the capital formation trend in the industry
- In terms of research, data availability continues to be a problem and increasing regulation does not help (in terms of disclosure)
- Post 2008, there is no notable improvements in fees and/or liquidity terms—this puts more pressure on investors to develop more efficient tactical style allocation strategies or just hold a "*diversified*" portfolio of largely *homogenous* multi-strategy "*IQ*" funds

A few parting thoughts

Assume that the AUM consolidation continues (more than 85% in less than 15% of HF firms by the end of 2009).

- *Is there a need to increase regulation, increase oversight of Institutional Quality HF firms?*
- *Does the concentration of AUM in the hands of fewer and fewer HF firms increase or decrease systemic risk?*