

Asset managers: Institutional performance and factor exposures

Joseph Gerakos
Dartmouth College

Juhani Linnainmaa
University of Southern California and NBER

Adair Morse
UC Berkeley and NBER

The delegation of institutional capital

- Institutions delegated \$48 trillion of capital in 2012, which represented 29% of worldwide investable assets
 - \$5 trillion to institutional mutual funds
 - \$43 trillion to strategy-specific investment vehicles that hold the assets of a small number of clients
 - Asset managers combine strategy allocations for marketing purposes into fund-like structures which we call “asset manager funds”
- For comparison, retail mutual funds held \$27 trillion in 2012
- Yet minimal research on this form of intermediation
 - Asset manager funds do not fall under the disclosure rules of 1940 Investment Company Act

Prior work on asset managers

- Important large literature focuses on particular samples of institutions or subsets of asset classes
 - e.g., Ippolito and Turner (1987), Lakonishok, Shleifer, and Vishny (1992), Coggin, Fabozzi, and Rahman (1993), Blake, Lehmann, and Timmerman (1999), Del Guercio and Tkac (2002), Ferson and Khang (2002), Dyck and Pomorski (2012), Brown, Garlappi, and Tiu (2010), and Lerner, Schoar, and Wang (2008)
- A smaller literature studies asset managers specifically, focusing often on agency issues related to investment decision-making as well as performance
 - e.g., Coles, Suay and Woodbury (2000), Bange, Khang and Miller (2008), Goyal and Wahal (2008), Goyal, Busse and Wahal (2010), Lewellen (2011), and Jenkinson, Jones, and Martinez (2015)
- But data has hindered an aggregate look at asset manager holdings and performance across asset classes

- ① Profile of asset manager funds
 - Aggregate fees paid for this form of delegation
 - Extent of active management
- ② Gross alpha relative to the market
 - Adding-up implications
- ③ Performance from the perspective of institutions
 - [Sharpe](#) (1992) model to explain how asset managers achieve performance
- ④ Examine whether institutions could have done as well if they had managed capital in-house

- Consultants assist pension funds, endowments and other institutional investors in delegating investment mandates (strategy allocations) across asset managers
 - [Goyal and Wahal](#) (2008) document that a vast majority of institutions use consultants when delegating
- Asset managers promote their services to consultants by providing strategy-level information packaged into fund-like records
 - Quarterly AUM, client counts, and fee structure
 - Monthly performance

Our dataset

- 15,893 asset manager funds
- 3,318 asset management firms
- \$26 trillion in AUM as of 2012

Database quality, selection, and survivorship biases

- Business model of Consultant depends on data reliability
 - Regular audits
 - Managers are GIPS compliant
- Data free of incubation/survivorship biases:
 - Each investment product associated with a creation date
 - Dead products kept in the database

Tests following [Blake, Lehmann, and Timmermann \(1999\)](#)

- ① **Representativeness:** Do the data over- or underweight any asset classes?
- ② **Selection:** Are there differences in performance as a function of coverage?
- ③ **Robustness:** Additional tests to address lingering concerns

Independent variable	Dependent variable:			
	Net return		Net return minus benchmark	
Coverage (%)	0.00268 (1.35)	0.00077 (4.84)	0.00074 (2.97)	0.00077 (4.84)
Month \times Strategy FE	No	Yes	No	Yes
Adjusted R^2	0.03%	0.02%	0.01%	0.02%

- Coverage (%): percentage of AUM for which the manager provides returns data to the Consultant
- Selective reporting would imply that managers with greater Coverage (%) appear to have worse performance

Institutional assets (\$ in billions)

Table 1

Year	Pensions & Investments AUM	Worldwide investable assets	
		Total	% held by asset managers
2000	22,170	78,884	28.1%
2001	22,628	75,512	30.0%
2002	22,897	76,603	29.9%
2003	28,616	93,933	30.5%
2004	32,370	108,514	39.8%
2005	36,619	116,104	31.5%
2006	42,142	134,293	31.4%
2007	46,208	157,057	29.4%
2008	36,306	134,650	27.0%
2009	41,712	152,190	27.4%
2010	43,798	164,610	26.6%
2011	42,978	163,093	26.4%
2012	46,832	172,566	27.1%
Average	35,790	125,231	28.9%

Consultant's database (\$ in billions)

Table 1

Year	AUM	% of P&I*	AUM with returns	
			Raw	Without backfill
2000	6,302	28.4%	5,286	3,102
2001	6,574	29.1%	5,467	3,671
2002	9,943	30.3%	6,014	4,155
2003	9,612	33.6%	8,167	6,129
2004	11,353	35.1%	10,065	7,950
2005	12,922	35.3%	11,858	9,392
2006	15,963	37.9%	14,894	12,246
2007	27,778	60.1%	24,843	21,595
2008	22,119	60.9%	18,491	16,116
2009	25,340	60.7%	21,372	19,513
2010	26,395	60.3%	23,174	21,607
2011	25,977	60.2%	23,004	21,978
2012 [†]	26,265	56.1%	23,293	22,932

[†] Year 2012 Consultant assets as of June 2012.

* Consultant's database covers 83% of asset manager firms.

Asset manager funds

Table 3 Panel A

Characteristic	Mean	SD	Percentiles		
			25	50	75
AUM (millions)	1,812.4	6,918.7	108.8	410.6	1,371.7
Clients	229.6	3,024.0	1.8	6.5	21.8
AUM per client (millions)	293.3	1,693.8	12.6	55.3	170.2

- Number of managers: 3,318
- Number of funds: 15,893
- Breakdown of assets:
 - 56% in fixed income vs. 44% in equities
 - 50% in U.S.

- [Philippon \(2014\)](#): Annual cost of financial intermediation is 1.9% of investable assets
- Using [Greenwood and Scharfstein \(2013\)](#): Securities intermediation accounts for \$726 billion
- Back of the envelope breakdown of fees paid in 2012 for securities intermediation:
 - \$87B for retail mutual funds ([French, 2008](#); [Bogle, 2008](#))
 - \$313B for worldwide individual trading ([Barber et al., 2009](#))
 - ??? for institutional asset management

Fees by asset class

Table 4 Panel A

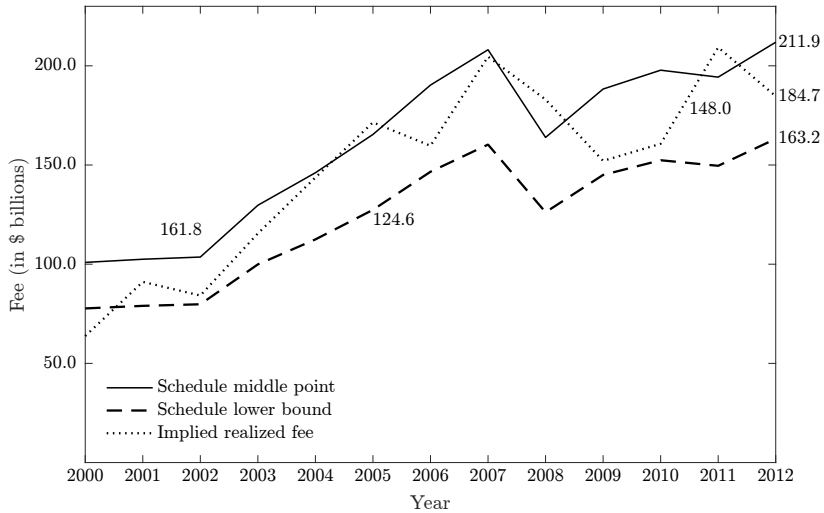
Asset class	Mean (bps)	
	Value weighted	Equal weighted
All	44.0	55.8
U.S. public equity	49.2	63.1
Global public equity	58.2	68.1
U.S. fixed income	28.7	29.5
Global fixed income	31.9	36.1

Aggregate fees

\$162 billion per year on average over the sample period

Aggregate fees

Figure 1



- **Gross alpha:** Subtract out asset class returns
 - U.S. equities, global equities, U.S. fixed income, global fixed income
- Cluster standard errors by month as if a value-weighted regression with beta equal to one

Year	Gross returns			Net returns		Information ratio
	$\hat{\alpha}$	$t(\hat{\alpha})$	Tracking error	$\hat{\alpha}$	$t(\hat{\alpha})$	
All	1.31	3.21	8.62%	0.88	2.14	0.10

- Average dollar earns a return 131 basis points above the market
- Tracking error estimate suggests active management
 - [Petäjistö](#) estimates that the average tracking error for active retail mutual funds is 7.1%

Positive gross alpha results—asset class benchmarks

Table 5 Panel B

Year	Annualized gross alphas				Total gross alpha
	Public equity		Fixed income		
	U.S.	Global	U.S.	Global	
2000	4.34	-4.49	-1.54	7.20	1.12
2001	2.90	-4.57	-0.36	6.57	0.38
2002	0.12	9.57	-1.43	-7.39	1.57
2003	1.53	7.52	3.08	-6.50	3.09
2004	1.55	3.49	1.53	-2.77	1.79
2005	2.18	-8.36	0.93	12.37	-0.60
2006	-1.12	4.11	0.92	-4.23	0.84
2007	0.36	2.72	-1.00	-6.22	0.21
2008	1.01	1.95	-7.28	-3.86	-1.40
2009	0.42	1.94	8.53	3.23	3.66
2010	0.55	5.00	2.50	2.17	2.72
2011	-2.02	1.16	0.87	5.69	1.71
2012	-2.23	1.18	4.61	4.17	2.26
Average	0.86	1.65	0.72	0.67	1.02
Total	0.40	0.50	0.22	0.17	1.31

Implications of positive gross alpha results

The adding-up constraint

Asset managers achieve gross alpha of 131 basis points over the market

Translates into \$469 billion per year: \$162 billion for asset managers and \$307 billion for institutions

- Delegated institutional assets, on average, represent 29% of worldwide investable assets
⇒ *everyone else's* returns are 53 basis points lower before fees

Do asset manager funds take on more market risk?

Table 6

Asset class	Gross returns					Net returns		
	$\hat{\alpha}$	$t(\hat{\alpha})$	Tracking error	$\hat{\beta}$	R^2	$\hat{\alpha}$	$t(\hat{\alpha})$	IR
All	1.89	3.92	7.92%	0.93	69.9%	1.45	3.01	0.18
U.S. public equity	0.92	1.83	8.02%	1.00	85.6%	0.43	0.85	0.05
Global public equity	1.73	1.34	9.36%	1.05	77.1%	1.15	0.89	0.12
U.S. fixed income	0.95	1.86	4.07%	0.97	64.3%	0.66	1.30	0.16
Global fixed income	4.30	4.90	6.58%	0.47	35.1%	3.98	4.54	0.60

- Average betas below 1.0 → Alphas grow in size and significance
- Large tracking errors remain—[Del Guercio and Tkac \(2002\)](#) report median pension tracking errors to be 5.9%
- *Note:* 92 basis points gross alpha for U.S. public equity. In line with [Busse, Goyal, and Wahal's \(2010\)](#) insignificant gross alpha of 64 basis points.

Institutions typically use a two-step process

- First run portfolio choice models to determine strategy allocations
- Then, if allocation is to be externally managed, choose among asset manager funds

Performance assessment criteria

- Maximize net alpha relative to a strategy-level benchmark and subject to an acceptable tracking error

Performance: Institutional perspective

Table 7 Panel A

Asset class	Gross returns: Strategy benchmarking					Net returns		
	$\hat{\alpha}$	$t(\hat{\alpha})$	Tracking error	$\hat{\beta}$	R^2	$\hat{\alpha}$	$t(\hat{\alpha})$	IR
All	0.86	3.35	5.62%	0.94	82.3%	0.42	1.63	0.07
U.S. public equity	0.39	0.97	6.25%	0.98	89.8%	-0.10	-0.25	-0.02
Global public equity	0.58	1.26	6.02%	0.96	90.3%	0.00	0.01	0.00
U.S. fixed income	1.36	6.59	2.93%	0.84	73.5%	1.07	5.19	0.36
Global fixed income	1.29	3.15	4.92%	0.95	69.2%	0.97	2.37	0.20

- Positive gross alpha (86 basis points) and net alpha (42 basis points)
- Tracking errors in line with [Del Guercio and Tkac's \(2002\)](#) estimates for pensions

Robustness: Sample selection and benchmarking

Table 7 Panel B

Sample selection:

Asset class	Gross returns					Net returns		
	$\hat{\alpha}$	$t(\hat{\alpha})$	Tracking error	$\hat{\beta}$	R^2	$\hat{\alpha}$	$t(\hat{\alpha})$	IR
No more than one year of historical data	0.80	3.03	5.33%	0.93	83.2%	0.35	1.34	0.07
Only post-2006 data	0.67	1.92	5.36%	0.94	80.7%	0.23	0.67	0.04
Strategy coverage $\geq 85\%$	0.74	1.76	5.74%	0.94	85.4%	0.18	0.44	0.03

Benchmarking:

- Instead of using selections by manager or consultant, we use modal benchmark for the strategy
 - However, this does not rule out gerrymandering
- Under gerrymandering, asset manager incentives would be to choose lower risk benchmarks to make performance look better
 - But strategy-level betas are below one and R^2 s are high

Performance: Mutual fund benchmarks

Table 8

	Asset class				
	All	Public equity		Fixed income	
		U.S.	Global	U.S.	Global
Difference in net returns	1.10 (2.43)	0.75 (1.28)	-1.23 (-1.16)	1.35 (1.92)	3.56 (2.85)
Difference in gross returns	0.50 (1.12)	0.22 (0.38)	-2.07 (-1.96)	0.69 (0.98)	3.35 (2.68)
Avg. number of asset manager funds	3,001.3	2,073.3	2,309.9	929.3	930.1
Avg. number of mutual funds	376.4	844.0	100.6	187.5	333.0

- Asset managers advertise themselves as providing multidimensional risk exposures—“smart betas” or “tactical betas”—for their clients
- Consider an investor who can trade factors $F_t^1, F_t^2, \dots, F_t^n$
- Run a constrained least squares regression:

$$r_{it} = b_1 F_t^1 + b_2 F_t^2 + \dots + b_n F_t^n + e_{it}$$

$$\text{s.t. } \sum b_i = 1, b_i \geq 0$$

- Recovers the long-only portfolio that best mimics each fund
- Compute returns on the style portfolio *out-of-sample*
- Compare fund returns against those of the style portfolio,

$$r_{it} - r_{it}^{style}$$

Smart beta: Weights

Table 10 Panel A

Factors	All U.S.	Eq Global Eq	U.S. FI	Global FI	
Asset-class benchmark	18.7				
Russell 3000		9.9			
MSCI World ex U.S.			20.8		
Barclays Capital U.S. Aggregate				25.0	
Barclays Capital Multiverse ex U.S.					27.2
Equity: US					
S&P 500/Citigroup Value	10.8	28.8	3.9	0.7	0.8
S&P 500/Citigroup Growth	9.2	22.8	7.4	0.5	0.6
S&P 400 Midcap	3.9	10.9	1.9	0.6	0.4
S&P Small Cap	6.1	14.4	3.3	0.9	1.6
Equity: Global					
S&P Europe BMI	10.1	2.1	32.2	0.7	1.2
MSCI Emerging Market Free Float Adjusted Index	6.8	3.6	18.1	1.2	1.6
FI: US					
U.S. 3 Month T-Bill	5.8	1.8	1.8	8.3	18.0
Barclays Capital US Intermediate Govt	4.4	0.3	0.8	12.1	6.5
Barclays Capital US Long Govt	5.2	1.0	2.5	8.3	12.1
Barclays Capital US Corp. IG	8.5	0.6	1.8	22.7	9.6
Barclays Capital US MBS	4.8	0.7	1.2	14.4	2.8
FI: Global					
Barclays Capital Euro Aggregate Govt	1.5	1.0	1.5	0.2	4.6
Barclays Capital Euro Aggregate Corp.	1.3	1.1	1.4	0.4	1.9
JP Morgan EMBI Global Diversified	3.0	1.0	1.3	4.0	11.3
Total	100.0	100.0	100.0	100.0	100.0

Smart beta: Alpha estimates

Table 10 Panel B

Asset class	Gross returns				Net returns		
	$\hat{\alpha}$	$t(\hat{\alpha})$	Tracking		$\hat{\alpha}$	$t(\hat{\alpha})$	IR
			error	R^2			
All	-0.27	-0.77	5.76%	84.8%	-0.71	-2.00	-0.12
U.S. public equity	-0.67	-1.50	5.75%	89.9%	-1.16	-2.60	-0.20
Global public equity	-1.11	-1.50	7.23%	85.6%	-1.69	-2.29	-0.23
U.S. fixed income	0.46	1.24	2.98%	71.4%	0.17	0.45	0.06
Global fixed income	0.89	1.41	4.96%	60.9%	0.58	0.91	0.12

- Style portfolios explain how asset managers achieve the positive net alpha

Do investors pay for smart betas or alphas?

Are institutions willing to pay for successful smart beta strategies?

- Asset managers could also charge for the “unexplained” part of performance
- Or fees could be unrelated to performance altogether

Our test

- Regress fees on two return components:
 - ① Return on style portfolio
 - ② Residual return
- Use (asset class \times month) fixed effects to identify the relation from **within month**/**within asset class** variation in performance

Performance and fees

Table 8 Panel A

Dependent variable: Fees					
Sample set: All asset manager fund-month observations					
In asset class:	All	Public equities		Fixed income	
		U.S.	Global	U.S.	Global
Style portfolio return	6.01 (5.51)	10.34 (4.32)	5.02 (3.69)	1.02 (0.64)	2.71 (1.30)
Residual return	1.34 (2.67)	1.34 (1.13)	1.04 (2.45)	3.09 (2.52)	2.78 (2.34)
Month-asset class FEs	Yes	Yes	Yes	Yes	Yes
<i>N</i>	619,703	232,894	202,734	104,747	79,328
Adjusted R^2	0.2%	0.3%	0.1%	0.1%	0.1%

- Our performance results:
 - ① Asset managers earn substantial alphas relative to strategy benchmarks
 - ② These alphas reflect returns on tactical factor loadings
- **Revealed-preference argument:** institutional investors use asset managers → they must see some value
- **What would institutional investors do if left on their own?**
 - ① If they could trade tactical factors on their own (at a reasonable cost), asset managers do not add value
 - ② If they would just hold the market, asset managers add value

What could institutions do on their own?

- Self-constructed portfolios
 - Collect factor ETF and institutional mutual fund data for the same factors as in the Sharpe analysis
 - Use asset class weights from Consultant data
 - Construct mean-variance optimal portfolios within asset class
- Compare performance
 - What cost would make institutions indifferent between delegating and managing in-house?

Asset manager funds vs. replicating portfolio

Panel A: Sharpe ratios and indifference costs of replicating portfolios

	Average return	SD	Sharpe ratio	Indifference cost (bps)
Asset managers				
Gross return	5.23%	10.38%	0.295	
Net return	4.79%	10.38%	0.252	
Replicating portfolio, gross return				
Standard MV portfolio	4.42%	14.49%	0.155	-202.3
MV portfolio with diagonal covariance matrix	6.43%	11.55%	0.369	85.5
MV portfolio with short-sale constraints	6.16%	11.71%	0.341	53.6

Panel B: Cost of the replicating portfolio (bps)

Vehicle	Fee
Institutional mutual funds	
Quartile 1	66.1
Median	88.5
Quartile 3	112.4
End-of-sample ETFs	24.0

- ① Delegated institutional assets represent **29%** of worldwide investable assets
- ② Institutions pay **\$162 billion** in aggregate fees annually
- ③ Delegated institutional capital predominantly **actively** managed
- ④ Aggregate gross alpha over the market: 131 basis points
 - **Everyone else's** returns are 53 basis points below the market per year—\$469 billion
- ⑤ From an institution's point of view, asset manager outperform strategy benchmarks by **86 basis points**
- ⑥ **Sharpe** (1992) model shows that outperformance due to **factor loadings**
- ⑦ During the sample period, institutions appeared close to **indifferent** between delegating and managing in-house
- ⑧ Now, low cost, liquid ETFs likely **erode** the comparative advantage of asset managers