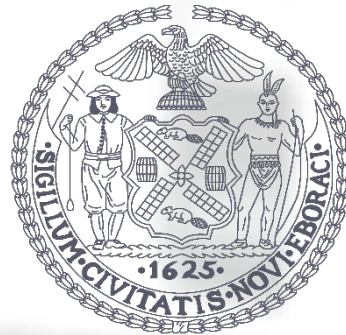


The Impact of Management Fees on Value

What's Left After Wall Street is Paid?



Scott C. Evans
Chief Investment Officer



Deciphering Added Value Over the Past 10 Years

We have estimated the 10 year cumulative dollar impact of fees using:

- Top down public fee rates from appendix of quarterly reports to trustees (for 2005-2013 data).
- Bottom up public fees from internal analysis by Bureau of Asset Management (for 2014 data).
- Estimated annualized net cash flows.



Deciphering Added Value Over the Past 10 Years

Combined Systems	12/31/2004 AUM* (\$ Mil)	12/31/2014 AUM (\$ Mil)	2014 Variance vs. Benchmark
Benchmark Portfolio <i>Adjusted for Estimated Cash Flows</i>	\$ 88,675	\$ 158,955	
Pension Funds - Gross <i>Before Public Market Fees, After Private Fees</i>	\$ 88,675	\$ 159,190	+ \$ 0.235 billion
Pension Funds - Net <i>After Estimated Public & Private Fees</i>	\$ 88,675	\$ 157,167	- \$ 1.788 billion

* AUM = Assets Under Management
All values are estimated.



External Managers Failed to Keep Up With the Benchmark Over the Past 10 Years

Net Value Added - Asset Allocation	\$0.725 billion
Net Value Added - External Managers	- \$2.513 billion
Net Value vs. Benchmark After Fees	- \$1.788 billion

All values are estimated.



Detail of Private Markets Impact

Net Value Added - Public Markets	\$0.040 billion
Net Value Added - Private Markets	- \$2.553 billion
Net Value vs. Benchmark After Fees	- \$2.513 billion

All values are estimated.



In Private Markets, Private Equity & Real Estate Have Lagged

Asset Class	Total Value Added
Opportunistic Fixed Income	\$0.061 billion
Hedge Funds	\$0.051 billion
Infrastructure	\$0
Private Real Estate	- \$0.934 billion
Private Equity	- \$1.734 billion
Net Value Added – Private Assets	- \$2.55 billion

All values are estimated.



Only Opportunistic Fixed Income Has Delivered Returns Above Public Market Equivalent (PME) Benchmark

	# of Funds *	Cum IRR*	PME IRR	% above PME
Private Equity Funds	181	9.6%	13.1%	25%
Private Real Estate Funds	47	6.9%	8.2%	28%
Opportunistic Fixed Income	14	13.0%	6.1%	86%

* Funds used across all five systems. Excludes results for funds in 2012, 2013 and 2014 vintages with less than 50% of assets drawn.



In Public Markets, We Were Narrowly in the Black

Net Value Added - Public Markets	\$0.040 billion
Net Value Added - Private Markets	- \$2.553 billion
Net Value Added After Fees	- \$2.513 billion

All values are estimated.



But We Paid Nearly All of the Value Created to Wall Street

Value Added Before Public Fees	\$2.063 billion
Present Value of Public Fees Paid	- \$2.023 billion
Net Value Added After Fees	\$ 0.040 billion

All values are estimated.



