

Investment
Cost Effectiveness Analysis
(for the 5 years ending December 31, 2014)

South Carolina Retirement Systems
Investment Commission



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This benchmarking report compares your 2014 calendar year costs and 5-year return performance to CEM's extensive pension database.

- 171 U.S. pension funds participate. The median U.S. fund had assets of \$8.2 billion and the average U.S. fund had assets of \$20.9 billion. Total participating U.S. assets were \$3.6 trillion.

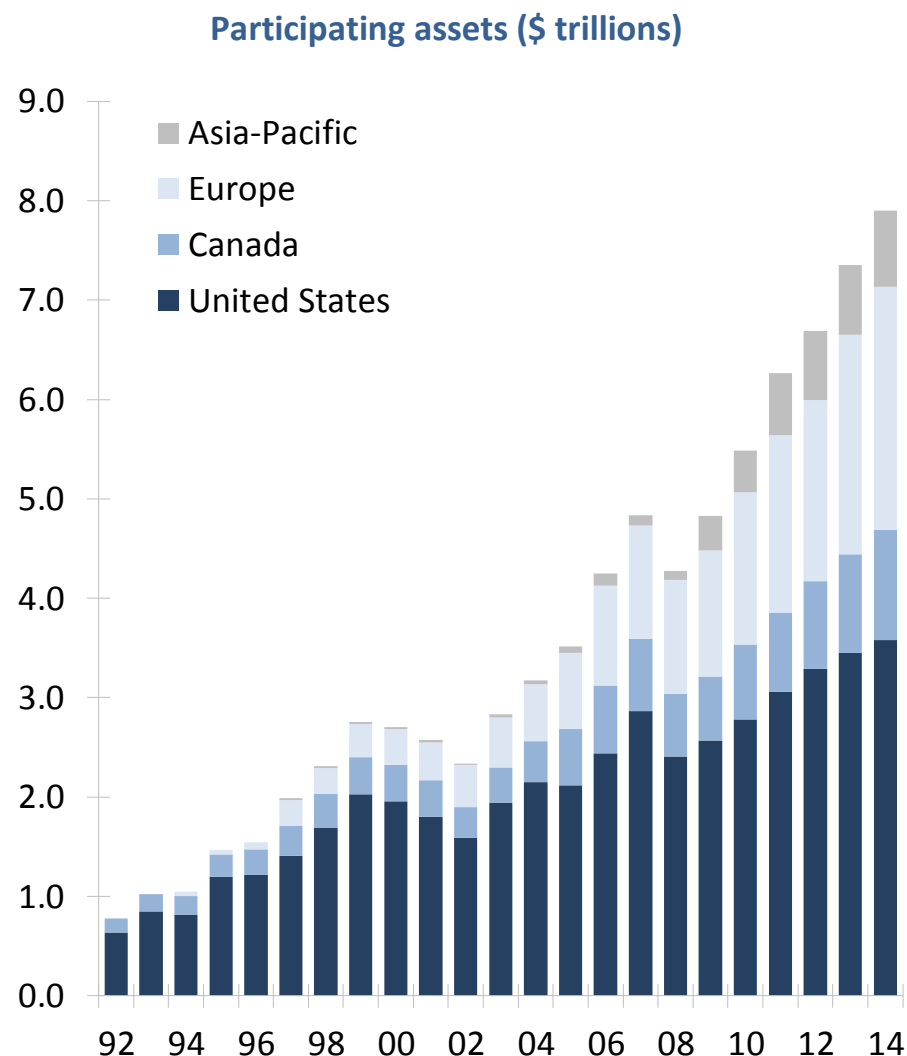
- 84 Canadian funds participate with assets totaling \$1,106 billion.

- 67 European funds participate with aggregate assets of \$2.5 trillion. Included are funds from the Netherlands, Norway, Sweden, Finland, Ireland, Denmark and the U.K.

- 8 Asia-Pacific funds participate with aggregate assets of \$763 billion. Included are funds from Australia, New Zealand, China and South Korea.

- 2 Gulf region funds participate.

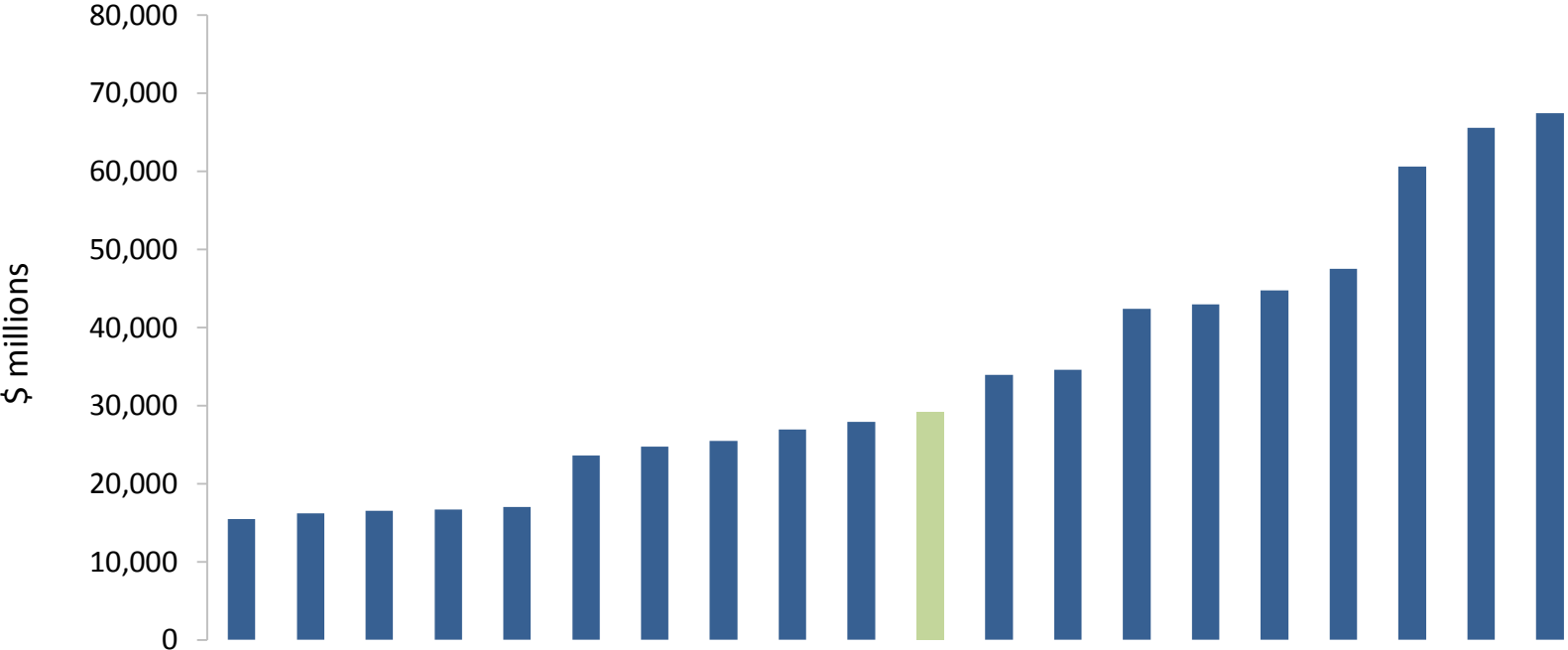
The most meaningful comparisons for your returns and value added are to the U.S. Public universe which consists of 58 funds.



The most valuable comparisons for cost performance are to your custom peer group because size impacts costs.

Peer group for South Carolina Retirement Systems Investment Commission

- 20 U.S. public sponsors from \$15 billion to \$67 billion
- Median size of \$29 billion versus your \$29 billion



To preserve client confidentiality, given potential access to documents as permitted by the South Carolina Freedom of Information Act, we do not disclose your peers' names in this document.

What gets measured gets managed, so it is critical that you measure and compare the right things:

1. Returns

Why do total returns differ from other funds? What was the impact of your policy mix decisions versus implementation decisions?

2. Net value added

Are your implementation decisions (i.e., the amount of active versus passive management) adding value?

3. Costs

Are your costs reasonable? Costs matter and can be managed.

4. Cost effectiveness

Net implementation value added versus excess cost. Does paying more get you more?

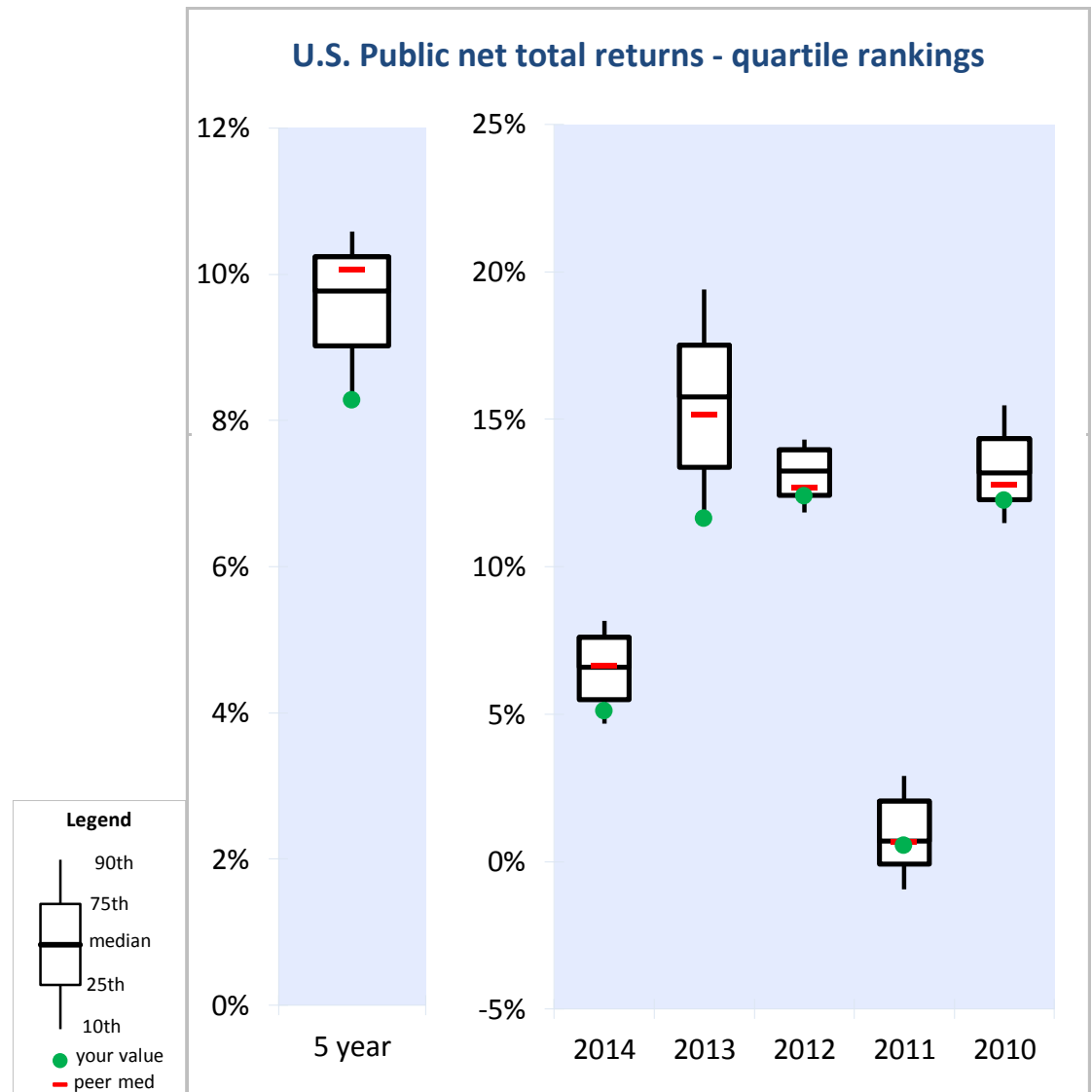
Your 5-year net total return of 8.3% was below the U.S. Public median of 9.8%.

Total returns, by themselves, provide little insight into the reasons behind relative performance. Therefore, we separate total return into its more meaningful components: policy return and value added.

	Your 5-year
Net total fund return	8.3%
- Policy return	7.3%
= Net value added	0.9%

This approach enables you to understand the contribution from both policy mix decisions (which tend to be the board's responsibility) and implementation decisions (which tend to be management's responsibility).

The median 5-year net total return of your peers was 10.1%.



Your 5-year policy return of 7.3% was below the U.S. Public median of 9.6%.

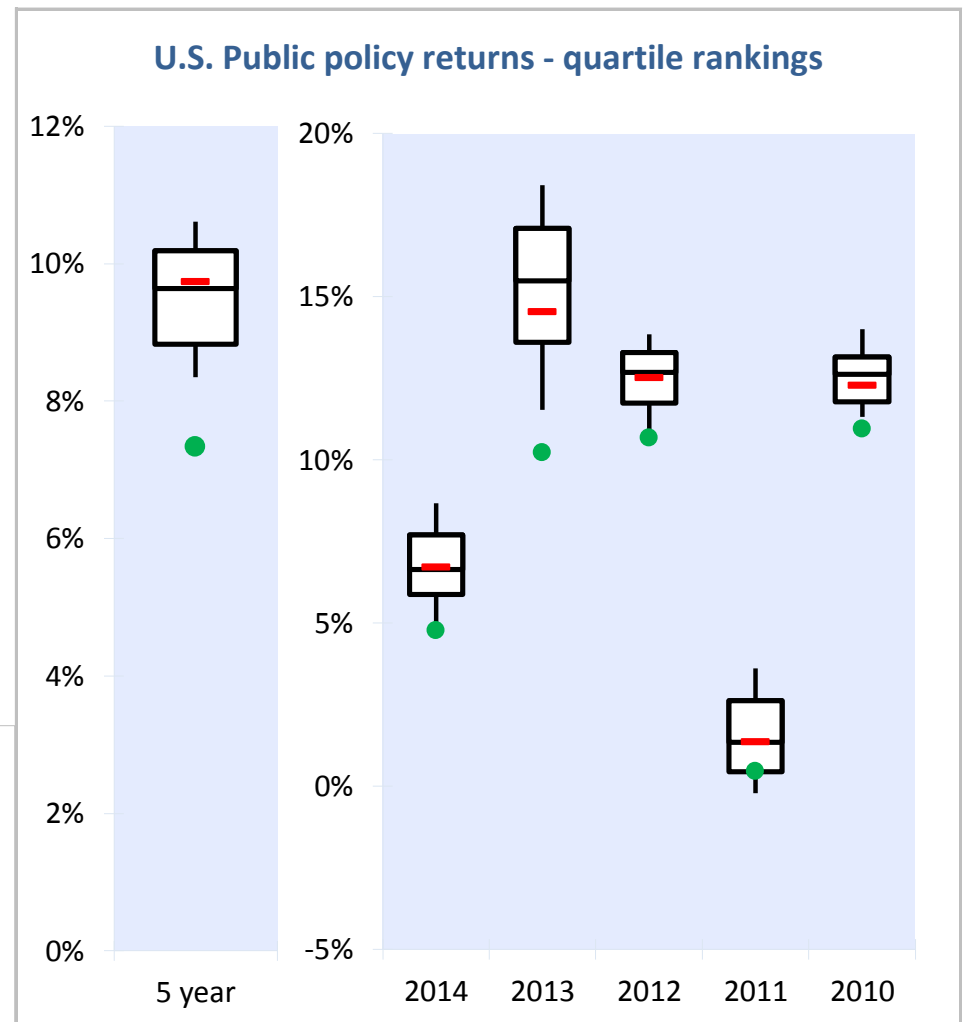
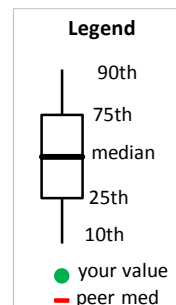
Your policy return is the return you could have earned passively by indexing your investments according to your policy mix.

Having a higher or lower relative policy return is not necessarily good or bad. Your policy return reflects your investment policy, which should reflect your:

- Long term capital market expectations
- Liabilities
- Appetite for risk

Each of these three factors is different across funds. Therefore, it is not surprising that policy returns often vary widely between funds.

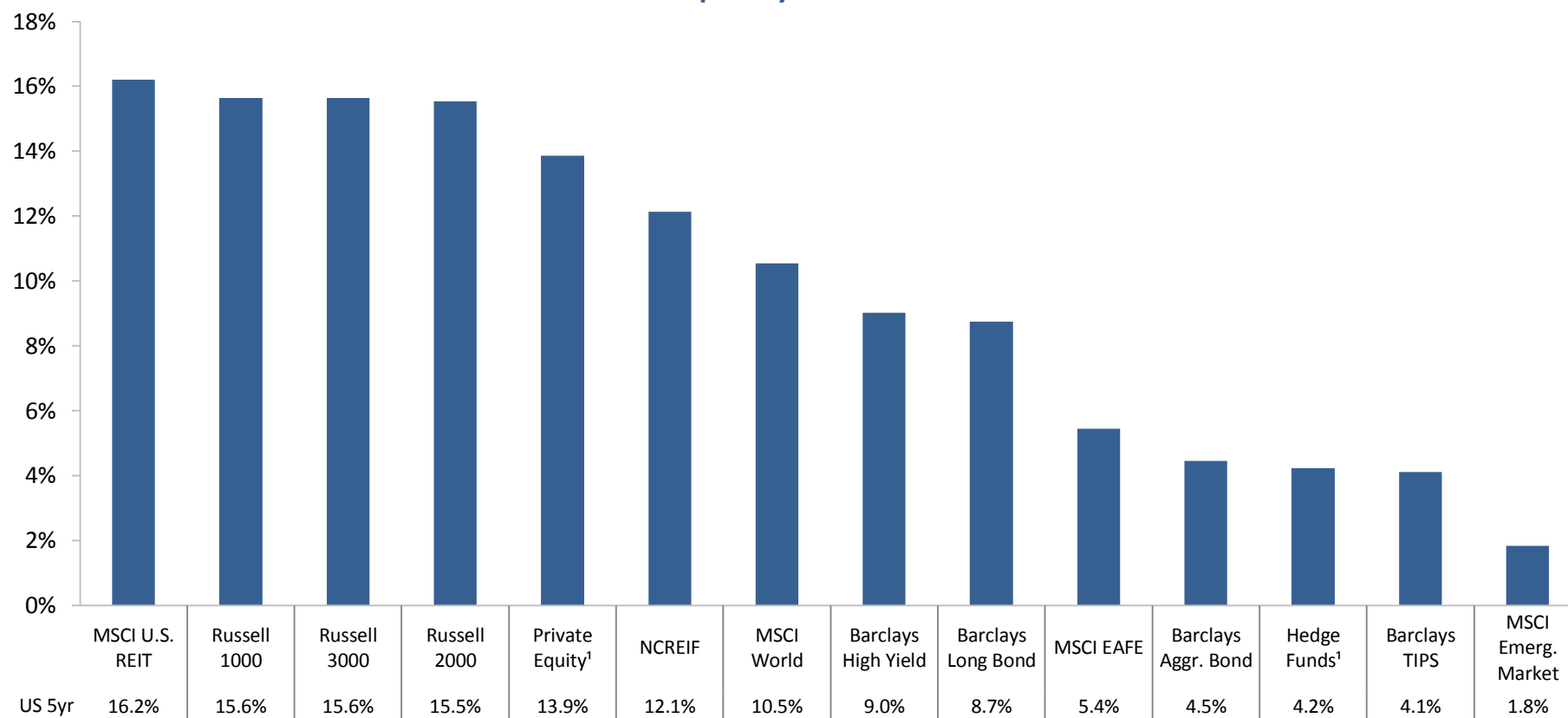
The median 5-year policy return of your peers was 9.7%.



To enable fairer comparisons, the policy returns of all participants except your fund were adjusted to reflect private equity benchmarks based on lagged, investable, public-market indices. If CEM used this same adjustment for your fund, your 5-year policy return would be 7.6%, 0.2% higher than your actual 5-year policy return of 7.3%. Mirroring this, your 5-year total fund net value added would be 0.2% lower. Refer to the Research section pages 6-7 for details.

Differences in policy returns are caused by differences in benchmarks and policy mix. The two best performing asset classes for the 5 years ending 2014 were REITS and large cap stock (Russell 1000).

5-Year returns for frequently used benchmark indices



1. The private equity benchmark is the average of the default private equity benchmark returns applied to U.S. participants. The hedge fund benchmark is the average benchmark return reported by U.S. participants.

Your 5-year policy return was below the U.S. Public median primarily because of:

- The negative impact of your lower weight in one of the better performing asset classes of the past 5 years: U.S. Stock (your 8% 5-year average weight versus a U.S. average of 25%).
- The negative impact of your higher weight in one of the poorer performing asset classes of the past 5 years: Cash (your 7% 5-year average weight versus a U.S. average of 0%).
- The negative impact of your higher weight in one of the poorer performing asset classes of the past 5 years: Global TAA (your 10% 5-year average weight versus a U.S. average of 1%).

5-Year average policy mix for calendar years 2010-2014

	Your Fund	Peer Avg.	U.S. Public Avg.
U.S. Stock	8%	24%	25%
EAFE Stock	5%	5%	6%
Emerging Market Stock	5%	1%	2%
ACWIxUS Stock	0%	11%	9%
Global Stock	12%	7%	7%
Total Stock	30%	49%	50%
U.S. Bonds	9%	21%	19%
High Yield Bonds	5%	2%	2%
Fixed Income - Emerging	5%	1%	1%
Global Bonds	3%	2%	2%
Cash	7%	1%	0%
Other Fixed Income	0%	3%	3%
Total Fixed Income	29%	30%	27%
Global TAA	10%	1%	1%
Hedge Funds ¹	6%	3%	4%
Commodities	3%	1%	1%
Real Estate incl. REITS	5%	8%	7%
Other Real Assets	0%	1%	1%
Private Equity	17%	9%	8%
Total	100%	100%	100%

¹ Does not include Absolute Return hedge fund investments used in Portable Alpha implementation.

Your policy asset mix has changed over the past 5 years. At the end of 2014 your policy mix compared to your peers and the U.S. universe as follows:

Policy asset mix

Asset class	Your fund		Peer avg.	U.S. Public avg.
	2010	2014	2014	2014
U.S. Stock	14%	0%	21%	22%
EAFE Stock	8%	0%	4%	5%
Emerging Market Stock	8%	0%	1%	2%
ACWIxUS Stock	0%	0%	10%	9%
Global Stock	0%	31%	12%	9%
Total Stock	30%	31%	48%	48%
U.S. Bonds	10%	7%	19%	16%
High Yield Bonds	3%	6%	2%	2%
Fixed Income - Emerging	3%	6%	1%	1%
Global Bonds	3%	3%	2%	2%
Cash	10%	5%	1%	-1%
Other Fixed Income	0%	0%	3%	5%
Total Fixed Income	29%	27%	27%	25%
Global TAA	10%	10%	1%	2%
Hedge Funds ¹	5%	8%	4%	5%
Commodities	2%	3%	1%	1%
Real Estate incl. REITS	6%	5%	8%	8%
Other Real Assets	0%	0%	2%	2%
Private Equity	18%	16%	9%	9%
Total	100%	100%	100%	100%

¹ Does not include Absolute Return hedge fund investments used in Portable Alpha implementation.

Net value added is the component of total return from active management. Your 5-year net value added was 0.9%.

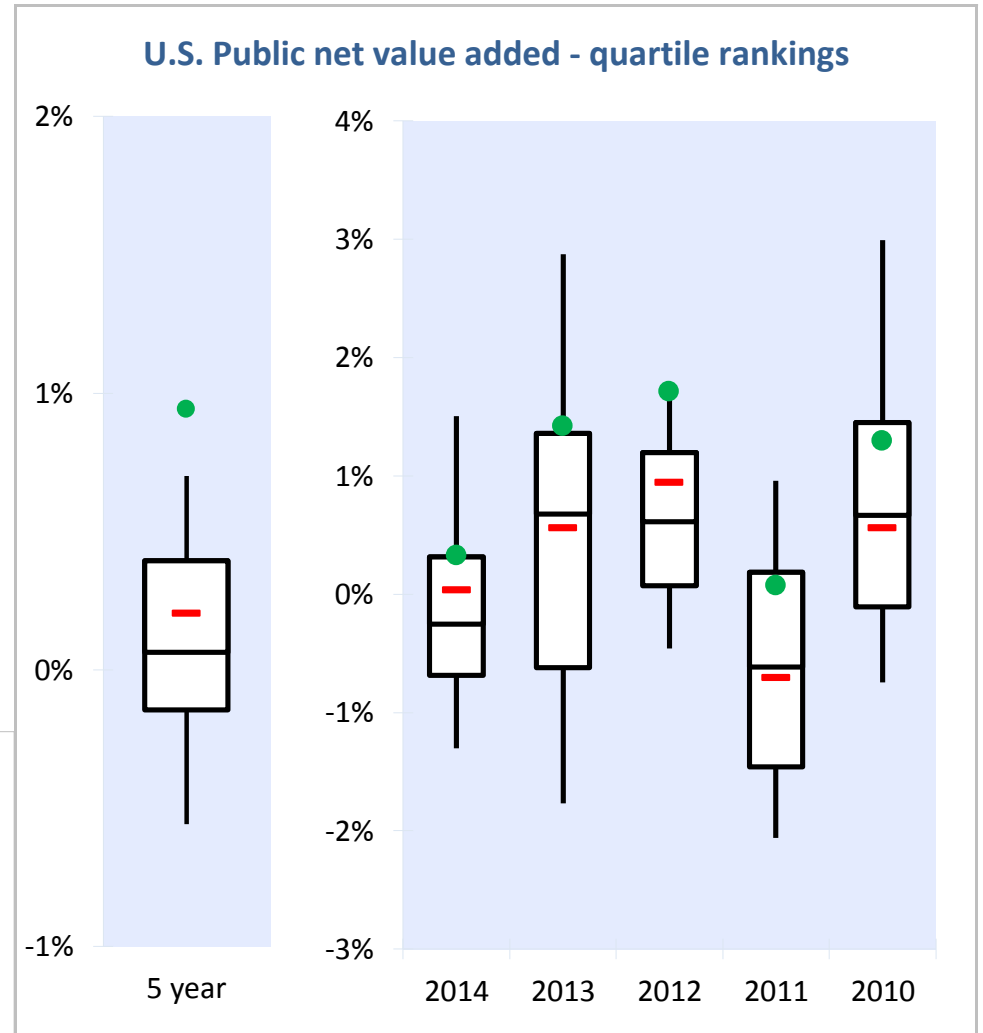
Net value added equals total net return minus policy return.

Value added for South Carolina Retirement Systems Investment Commission

Year	Net Return	Policy Return	Net value Added
2014	5.1%	4.8%	0.3%
2013	11.6%	10.2%	1.4%
2012	12.4%	10.7%	1.7%
2011	0.5%	0.5%	0.1%
2010	12.2%	10.9%	1.3%
5-year	8.3%	7.3%	0.9%

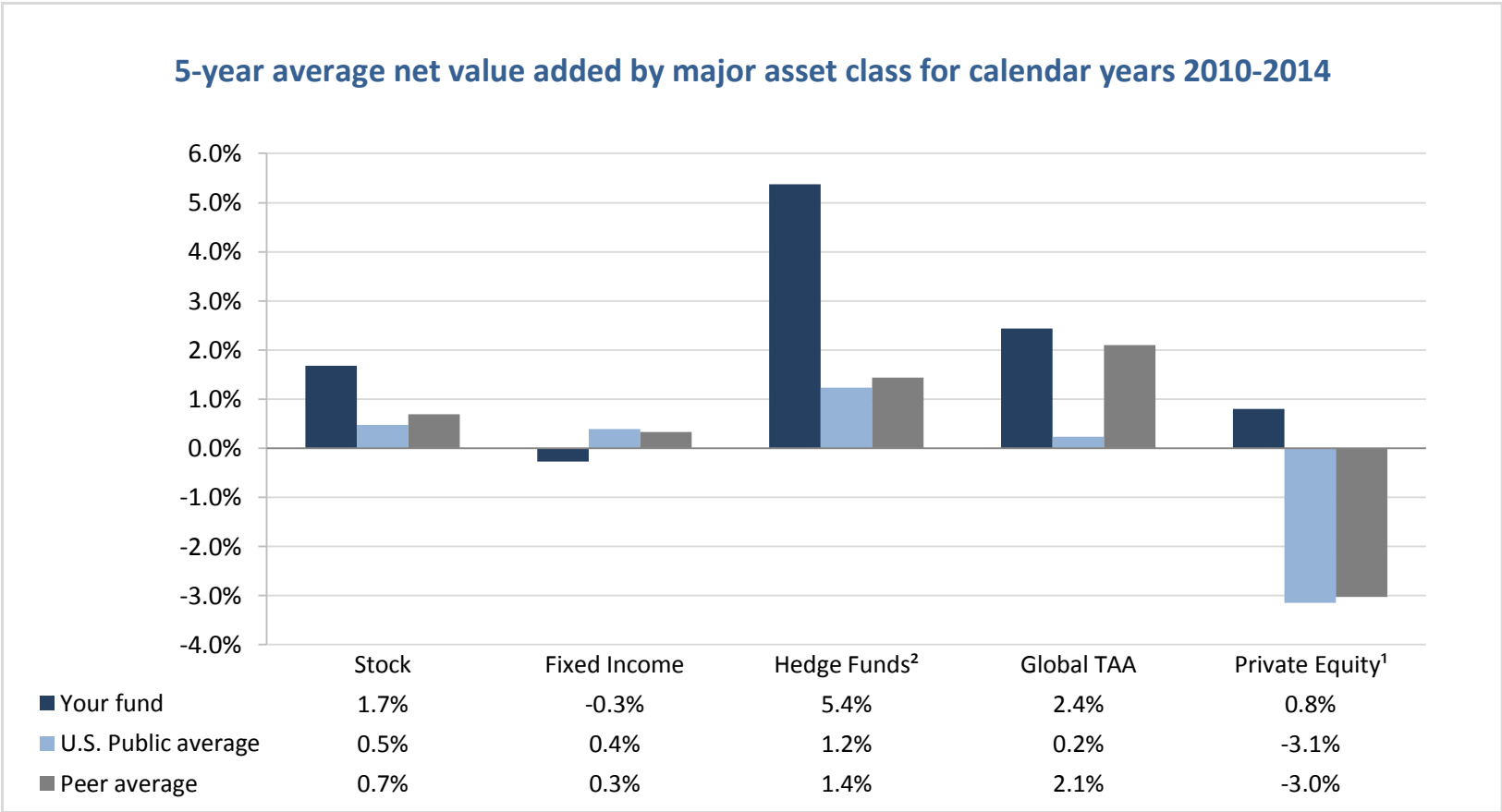
Your 5-year net value added of 0.9% compares to a median of 0.2% for your peers and 0.1% for the U.S. Public universe.

In dollars, your 0.9% 5-year value added translates into approximately \$1.5 billion of cumulative value added over 5 years, or \$1.4 billion more than if you had earned the U.S. Public median of 0.1%.



Your value added was impacted by your choice of benchmarks for private equity. CEM suggests using lagged, investable benchmarks for private equity (see Research section, pages 6-7, for reasons why). If your fund used the private equity benchmark suggested by CEM, your 5-year total fund value added would have been 0.2% lower.

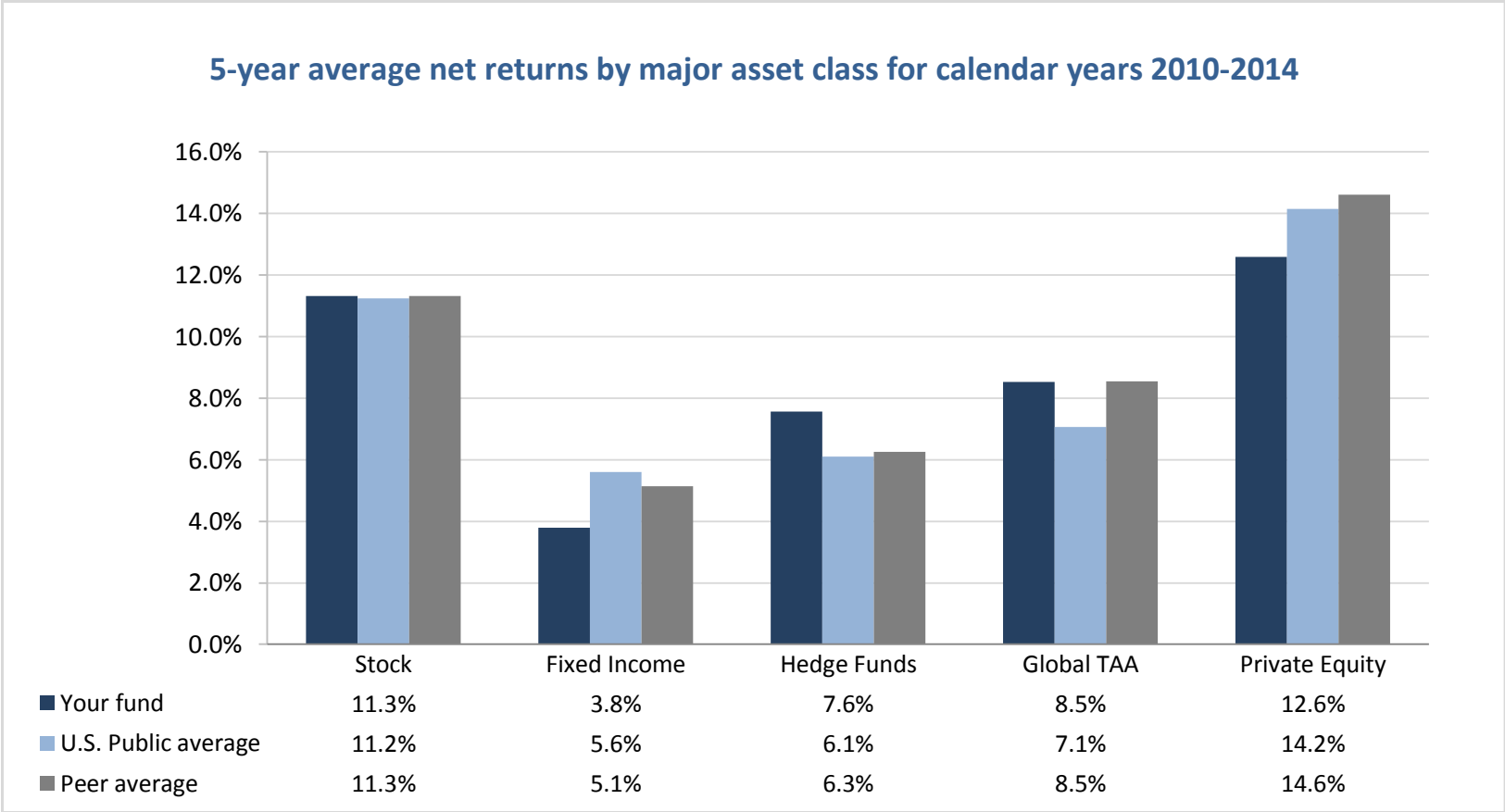
You had positive 5-year net value added in Stock, Hedge Funds, Global TAA and Private Equity.



1. To enable fairer comparisons, the private equity benchmarks of all participants, except your fund, were adjusted to reflect lagged, investable, public-market indices. If your fund used the private equity benchmark suggested by CEM, your fund's 5-year private equity net value added would have been -0.5%. Refer to the Research section, pages 6-7, for details as to why this adjustment makes for better comparisons. It is also useful to compare total returns. Your 5-year total return of 12.6% for private equity was below the U.S. average of 14.2%.

2. It is also useful to compare total returns for hedge funds. Your 5-year return of 7.6% for hedge funds was above the U.S. average of 6.1%.

You had higher 5-year net returns in Stock, Hedge Funds and Global TAA relative to the U.S. Public average.



Your total investment management of \$287.2 million per this report reconcile to your Comprehensive Annual Financial Report (CAFR) as follows:

Investment costs	\$000s
Investment cost per CAFR - June 2015	361.1
- Costs according to CEM definitions - Dec 2014	<u>275.0</u>
= Difference to be reconciled	86.1
CEM adds costs for:	
Private equity fund of funds: embedded fees ¹	-5.9
Hedge funds fund of funds: embedded performance fees ¹	-7.9
Hedge funds fund of funds: embedded fees ¹	-9.3
Difference between contractual fee and actual fees ²	<u>-3.5</u>
Total costs added	-26.6
CEM excludes:	
Private asset performance fees ³	83.1
Partnership operating expenses	35.9
Timing difference between 6 months ending Dec 2014 and June 2015	-6.3
Net difference	86.1

1. To allow costs comparisons between the different styles of hedge funds and private assets, CEM adds the manager fees of the underlying managers in fund of funds arrangements. For hedge funds only CEM adds a performance fee default to account for the performance fees of the underlying manager fees.

2. In order to avoid the inconsistent treatment of rebates by different funds, CEM compares private equity costs based on the management fees implied in each limited partnership contract.

3. CEM excludes private asset performance fees from benchmarking because only a limited number of participants are currently able to provide this data.

Your investment costs benchmarked in this report for calendar year 2014 were \$275.0 million or 94.1 basis points.

Asset management costs by asset class and style (\$000s)	Internal Mgmt		External Management			Total	
	Active	Overseeing of external	Passive fees	Active base fees	Perform. fees ³		
U.S. Stock - Broad/All	1	610	888	8,857		10,355	44.0bp
Stock - EAFE		187		5,121		5,308	73.6bp
Stock - Emerging		261		8,080		8,342	82.8bp
Stock - Global		341	248			589	4.5bp
Fixed Income - U.S.	44	601		4,031		4,675	18.3bp
Fixed Income - Emerging		306	306	2,629		3,240	27.5bp
Fixed Income - Global		280		3,172		3,452	32.0bp
Fixed Income - High Yield		306		6,589		6,894	58.5bp
Cash	568	554		1,657		2,779	5.3bp
Global TAA		567		12,450		13,017	59.5bp
Hedge Funds - Direct		351		26,098	30,515	56,964	420.4bp
Hedge Funds - Fund of Funds		617		46,037	32,665	79,319	333.2bp
Real Estate	8					8	2.6bp
Real Estate - LPs		279		14,727 ¹	44,656 ³	15,007	128.4bp
Diversified Private Equity	194 ⁴	417	1,633 ⁴	23,878 ¹	39,584 ³	26,123	138.4bp
Diversified Priv.Eq. - Fund of Funds		89		9,016 ²	2,565 ^{2 3}	9,106	253.9bp
Private Debt Limited Partnerships	3 ⁴	432	1 ⁴	23,944 ¹	30,833 ³	24,380	123.2bp
Overlay Programs		308		1,106		1,414	3.8bp
Total excluding private asset performance fees						270,971	92.7bp
Oversight, custodial and other costs ⁵							
Oversight of the fund						1,478	0.5bp
Trustee & custodial						426	0.3bp
Consulting and performance measurement						998	0.1bp
Audit						816	0.3bp
Other						287	0.1bp
Total oversight, custodial & other costs						4,005	1.4bp
Total investment costs (excl. transaction costs & private asset performance fees)						274,976	94.1bp

Footnotes

¹ Cost derived from the partnership level detail you provided. Costs are based on partnership contract terms.

² Default underlying costs were added to fund of funds. The defaults added were:

Diversified Priv.Eq. 165 bps base fees;

Refer to Appendix A for full details.

³ Total cost excludes carry/performance fees for real estate, infrastructure, natural resources and private equity. Performance fees are included for the public market asset classes and hedge funds.

⁴ These are fees and monitoring costs related to co-investments.

⁵ Excludes non-investment costs, such as preparing checks for retirees.

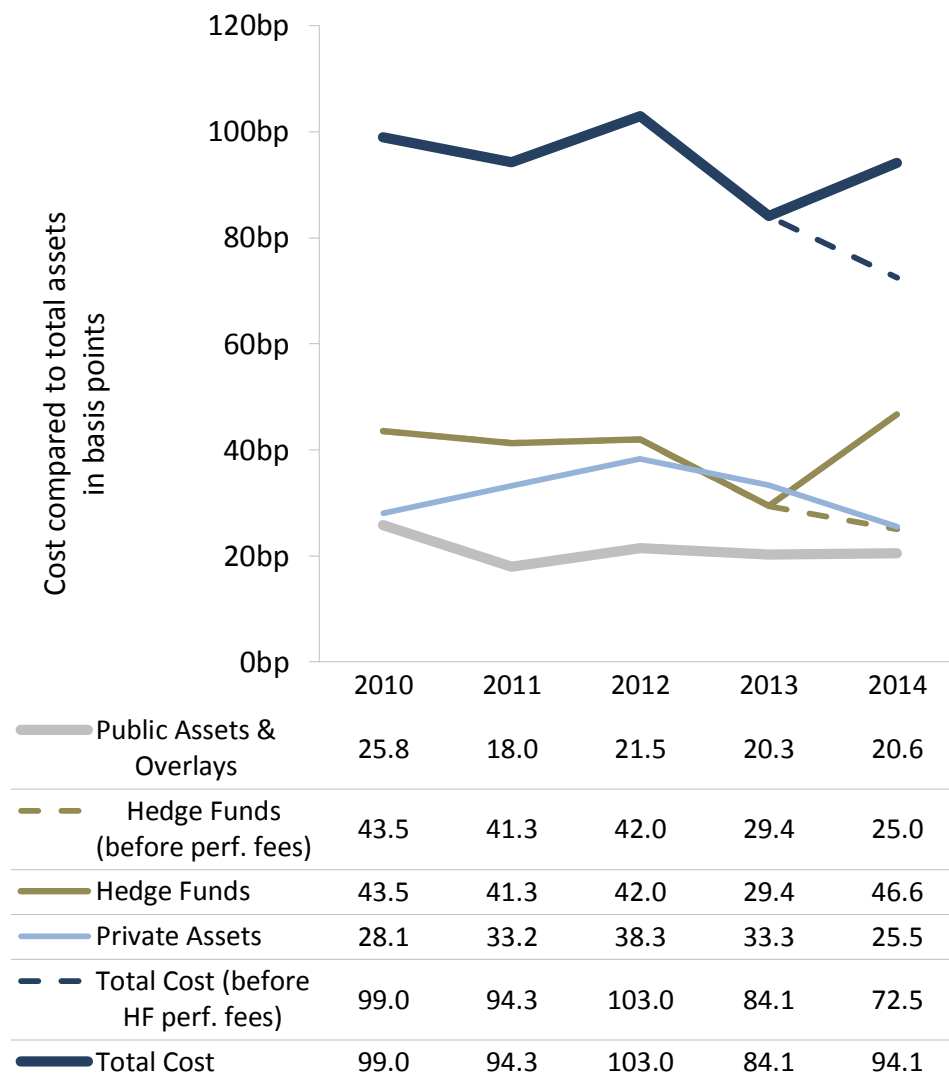
Your costs decreased between 2010 and 2014.

Your costs decreased primarily because:

- You decreased your investment in the highest cost asset classes. Your holdings of hedge funds and private assets decreased from 36% of assets in 2010 to 32% in 2014.
- You increased your use of lower cost passive and internal management from 17% of assets in 2010 to 28% in 2014.
- You decreased your use of funds of funds from 41% of hedge funds and private assets in 2010 to 28% in 2014. Funds of funds are higher cost than direct funds.

However, starting in 2014, CEM began including hedge fund performance fees in total costs. Prior year costs do not include hedge fund performance fees. Your cost in 2014 excluding hedge fund performance fees was 72.5 bps.

Trend in your major cost components



Your total investment cost of 94.1 bps was above the U.S. public median of 59.2 bps.

Differences in total investment cost are often caused by two factors that are often outside of management's control:

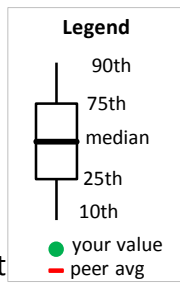
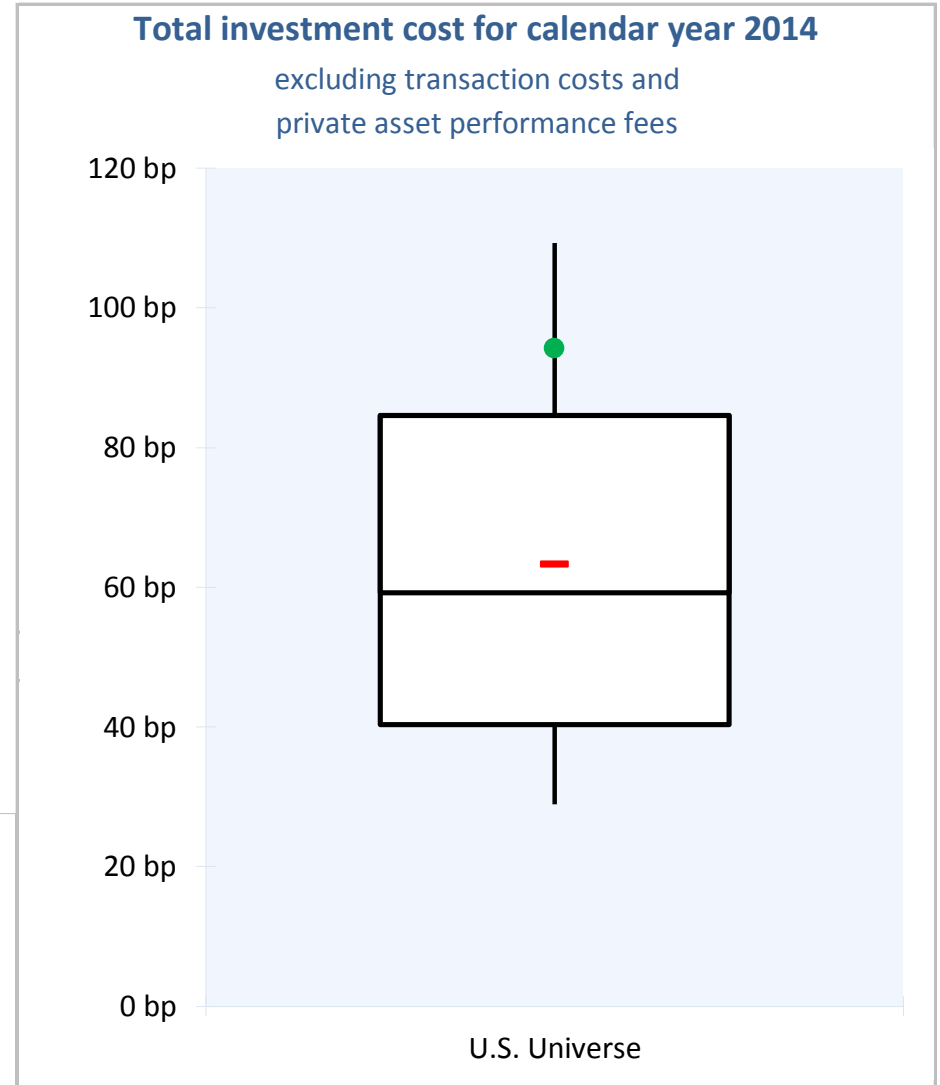
- Asset mix, particularly holdings of the highest cost asset classes: real estate (excl REITS), infrastructure, hedge funds and private equity. These high cost assets equaled 32% of your fund's assets at the end of 2014 versus a peer average of 22%.
- Fund size. Bigger funds have advantages of scale.

Asset mix is set by policy and may include high cost asset classes. Peers who do not have high cost asset classes in their policy mix will have lower total costs. Therefore, policy asset mix is a major driver of total cost.

Fund size is also a major driver of cost because funds with a larger size have scale advantages are often able to negotiate lower costs.

A total cost comparison to peers which is not adjusted for asset mix and fund size will not be an appropriate measure because of these factors. Used out of context, a total cost comparison could be misleading and lead to the wrong conclusion.

In order to provide plan sponsors with accurate feedback regarding reasonableness of costs, CEM takes asset mix and overall fund size into consideration. CEM calculates a benchmark cost for your fund that considers your unique asset mix and style. This analysis is shown on the following page.



Benchmark cost analysis suggests that, after adjusting for fund size and asset mix, your fund was high cost by 13.8 basis points in 2014.

Your benchmark cost is an estimate of what your cost would be given your actual asset mix and the median costs that your peers pay for similar services. It represents the cost your peers would incur if they had your actual asset mix.

Your total cost of 94.1 bp was above your benchmark cost of 80.4 bp. Thus, your excess cost was 13.8 bp, which was largely due to hedge fund performance fees related to hedge fund outperformance. (see next page)

Your cost versus benchmark

	\$000s	basis points
Your total investment cost	274,976	94.1 bp
Your benchmark cost	234,770	80.4 bp
Your excess cost	40,206	13.8 bp

Your fund was high cost because you had a higher cost implementation style and your strong hedge fund performance generated high performance fees.

Explanation of your cost status for calendar year 2014

	Excess Cost/ (Savings)	
	\$000s	bps
1. Higher cost implementation style		
• More fund of funds	7,972	2.7
• More external active management (less lower cost passive and internal)	2,453	0.8
• More overlays	1,966	0.7
• Other style differences	(19)	(0.0)
	<u>12,372</u>	<u>4.2</u>
2. Paying more than peers for some services		
• External investment management costs	6,469	2.2
• Hedge fund performance fees ¹	21,805	7.5
• Internal investment management costs	(109)	(0.0)
• Oversight, custodial & other costs	(331)	(0.1)
	<u>27,834</u>	<u>9.5</u>
Total excess cost	40,206	13.8

¹Your hedge funds outperformed their benchmark by 5.4% over 5-years compared to 1.2% for the U.S. public average. Your 5-year return of 7.6% for hedge funds was also above the U.S. average of 6.1%.

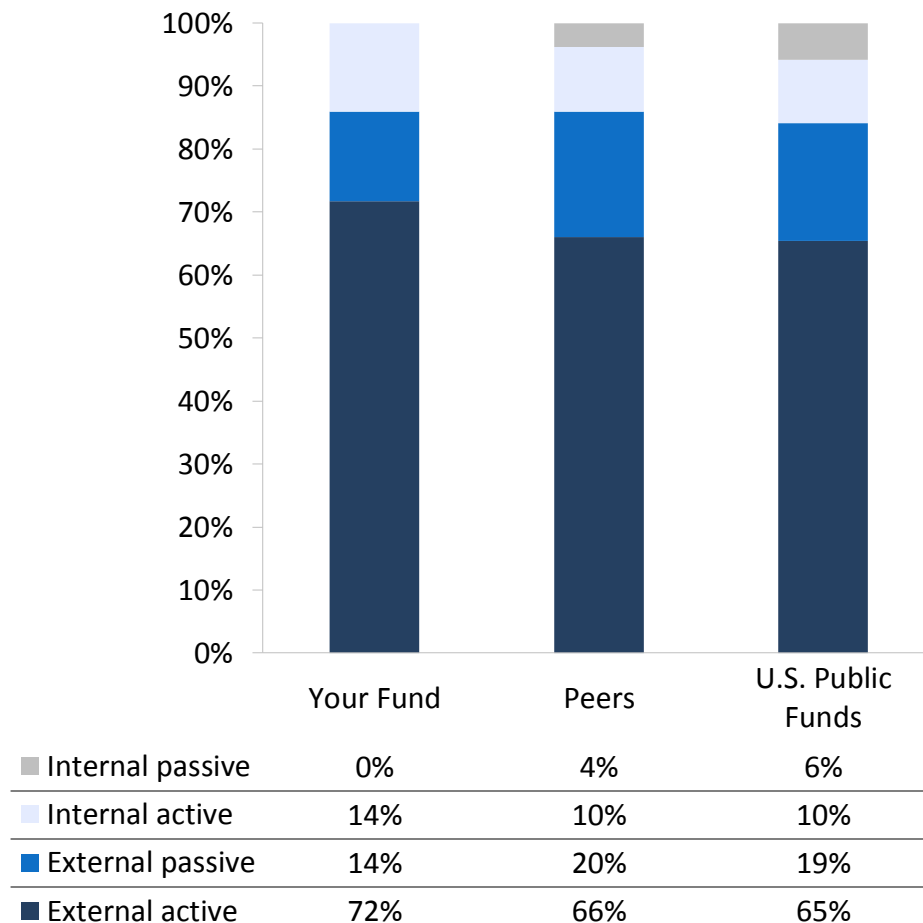
Differences in cost performance are often caused by differences in implementation style.

Implementation style is defined as the way in which your fund implements asset allocation. It includes internal, external, active, passive and fund of funds styles.

The greatest cost impact is usually caused by differences in the use of:

- External active management because it tends to be much more expensive than internal or passive management. You used more external active management than your peers (your 72% versus 66% for your peers).
- Within external active holdings, fund of funds usage because it is more expensive than direct fund investment. You had more in fund of funds. Your 28% of hedge funds, real estate and private equity in fund of funds compared to 15% for your peers.

Implementation style¹



1. The graph above does not take into consideration the impact of derivatives.

Differences in implementation style cost you 4.2 bp relative to your peers.

Calculation of the cost impact of differences in implementation style for calendar year 2014

Asset class	Your avg holdings in \$mils (A)	% External active			Premium vs passive & internal ¹ (C)	Cost/ (savings) \$000s bps (A X B X C)	
		You	Peer average	More/ (less) (B)			
U.S. Stock - Broad/All	2,355	58.1%	37.0%	21.1%	35.6 bp	1,773	
Stock - EAFE	721	100.0%	50.1%	49.9%	40.7 bp	1,466	
Stock - Emerging	1,007	100.0%	79.8%	20.2%	46.0 bp	937	
Stock - Global	1,316	0.0%	59.9%	(59.9%)	44.4 bp	(3,501)	
Fixed Income - U.S.	2,557	90.7%	66.9%	23.7%	14.3 bp	867	
Fixed Income - Emerging	1,180	43.1%	84.3%	(41.3%)	30.7 bp	(1,496)	
Fixed Income - Global	1,080	100.0%	100.0%	0.0%		0	
Fixed Income - High Yield	1,179	100.0%	90.6%	9.4%	Insufficient ²	0	
Global TAA	2,186	100.0%	100.0%	0.0%		0	
Real Estate ex-REITs	1,201	97.3%	96.0%	1.4%	68.8 bp	112	
Partnerships, as a proportion of external:	1,169	100.0%	54.1%	45.9%	42.8 bp	2,295	
Diversified Private Equity	2,995	100.0%	100.0%	0.0%		0	
Other private equity	1,979	100.0%	100.0%	0.0%		0	
Impact of less/more external active vs. lower cost styles						2,453	0.8 bp
		<u>Fund of funds % of LPs</u>			<u>vs. direct LP¹</u>		
Hedge Funds	3,736	63.7%	28.1%	35.6%	54.5 bp	7,257	
Performance Fee Impact:	3,736	63.7%	28.1%	35.6%	3.0 bp	399	
Real Estate ex-REITs - LPs	1,169	0.0%	1.5%	(1.5%)	Insufficient ²	0	
Diversified Private Equity - LPs	2,995	12.0%	10.0%	2.0%	53.9 bp	316	
Impact of less/more fund of funds vs. direct LPs						7,972	2.7 bp
		<u>Overlays and other</u>					
Impact of higher use of portfolio level overlays						1,966	0.7 bp
Impact of mix of internal passive, internal active, and external passive ³						(19)	(0.0) bp
Total impact of differences in implementation style						12,372	4.2 bp

Footnotes

1. The cost premium is the additional cost of external active management relative to the average of other lower cost implementation styles - internal passive, internal active and external passive.
2. A cost premium listed as 'Insufficient' indicates that there was not enough peer data to calculate the premium.
3. The 'Impact of mix of internal passive, internal active and external passive' quantifies the net cost impact of differences in cost between, and your relative use of, these 'low-cost' styles.

The net impact of paying more/less for external asset management costs added 2.2 bps.

Cost impact of paying more/(less) for external asset management for calendar year 2014

	Your avg holdings in \$mils (A)	Cost in bps			Cost/ (savings) in \$000s (A x B)
		Your Fund	Peer median	More/ (less) (B)	
U.S. Stock - Broad/All - Passive	984	11.6	1.7	9.9	978
U.S. Stock - Broad/All - Active	1,369	67.3	37.6	29.7	4,065
Stock - EAFE - Active	721	73.6	44.4	29.2	2,108
Stock - Emerging - Active	1,007	82.8	56.4	26.4	2,656
Stock - Global - Passive	1,316	4.5	5.4	(1.0)	(128)
Fixed Income - U.S. - Active	2,318	20.0	16.4	3.5	819
Fixed Income - Emerging - Passive	671	7.1	Insufficient		
Fixed Income - Emerging - Active	508	54.3	37.9	16.5	836
Fixed Income - Global - Active	1,080	32.0	30.9	1.1	114
Fixed Income - High Yield - Active	1,179	58.5	41.2	17.3	2,040
Global TAA - Active	2,186	59.5	58.9*	0.6	139
Hedge Funds - Active	1,355	195.2 ¹	132.8	62.4	8,458
Hedge Funds - Fund of Fund	2,381	196.0 ¹	187.3	8.6	2,058
Real Estate ex-REITs - Limited Partnership	1,169	128.4	119.7	8.7	1,014
Diversified Private Equity - Active	2,636	99.1 ²	165.0	(65.9)	(17,375)
Diversified Private Equity - Fund of Fund	359	253.9 ²	218.9	35.0	1,255
Private Debt Limited Partnerships - Active	1,979	123.2 ²	131.7	(8.5)	(1,681)
	<i>Notional</i>				
Derivatives/Overlays - Passive Beta	3,687	3.8	6.2*	(2.4)	(887)
Total impact of paying more/less for external management					6,469
Total in bps					2.2 bp

'Insufficient' indicates insufficient peer and universe data to do meaningful comparisons.

*Universe median used as peer data was insufficient.

¹ You paid performance fees in these asset classes. See next page for comparisons.

² You paid performance fees in these asset classes but they are not included in this analysis.

The net impact of paying more for hedge fund performance fees added 7.5 bps to your total costs.

Cost impact of paying more/(less) for private asset performance fees

	Your avg holdings in \$mils (A)	Cost in bps			Cost/ (savings) in \$000s (A X B)
		Your Fund	Univ. median	More/ (less) (B)	
Hedge Funds - Active	1,355	225.2	108.8	116.4	15,768
Hedge Funds - Fund of Fund	2,381	137.2	111.8	25.4	6,037
Total for private asset performance fees					21,805
Total in bps					7.5 bp

Your hedge funds outperformed their benchmark by 5.4% over 5-years compared to 1.2% for the U.S. public average. Your 5-year return of 7.6% for hedge funds was also above the U.S. average of 6.1%.

The net impact of differences in oversight, custodial & other costs saved 0.1 bps.

Cost impact of differences in oversight, custodial & other costs for calendar year 2014

	Your avg holdings in \$mils (A)	Cost in bps			Cost/ (savings) in \$000s (A X B)
		Your fund	Peer median	More/ (less) (B)	
Oversight	29,216	0.5	0.7	(0.2)	(635)
Consulting	29,216	0.3	0.3	0.0	16
Custodial	29,216	0.1	0.3	(0.1)	(371)
Audit	29,216	0.3	0.1	0.2	668
Other (legal)	29,216	0.1	0.1	(0.0)	(9)
Total					(331)
Total in bps					(0.1) bp

¹ Oversight of the fund includes staff salaries, direct expenses (travel, fees paid to directors, director's insurance, etc.) and related unallocated overhead pertaining to overseeing the fund assets. Include the costs of executives and their staff responsible for the total fund or responsible for overseeing multiple asset categories (for example, CEO, CIO office, Board of Director/Investment Committee etc.). Staff responsible for overseeing a single asset class category (i.e. private assets, stock, etc.) have their costs included with that asset category.

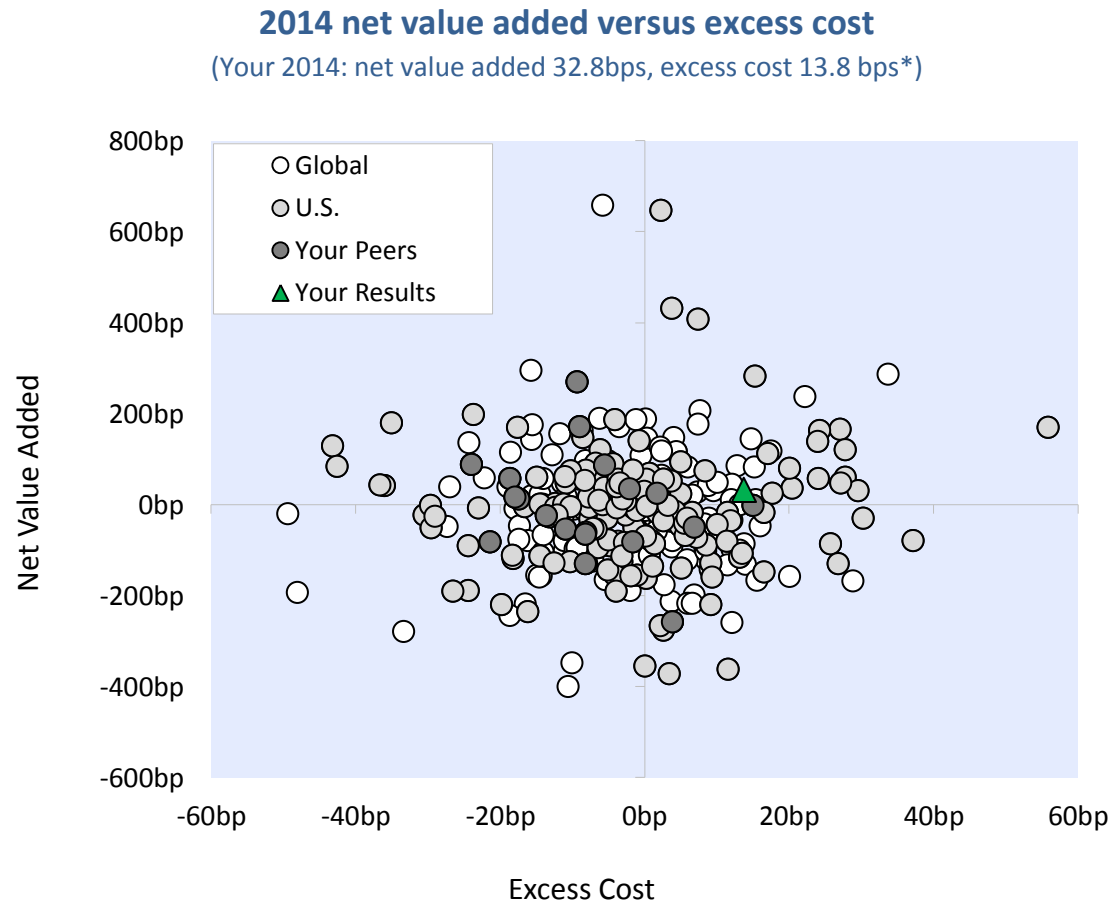
In summary, your fund was high cost because you had a higher cost implementation style and your strong hedge fund performance generated high performance fees.

Explanation of your cost status for calendar year 2014

	Excess Cost/ (Savings)	
	\$000s	bps
1. Higher cost implementation style		
• More fund of funds	7,972	2.7
• More external active management (less lower cost passive and internal)	2,453	0.8
• More overlays	1,966	0.7
• Other style differences	(19)	(0.0)
	<u>12,372</u>	<u>4.2</u>
2. Paying more than peers for similar services		
• External investment management costs	6,469	2.2
• Hedge fund asset performance fees ¹	21,805	7.5
• Internal investment management costs	(109)	(0.0)
• Oversight, custodial & other costs	(331)	(0.1)
	<u>27,834</u>	<u>9.5</u>
Total excess cost	40,206	13.8

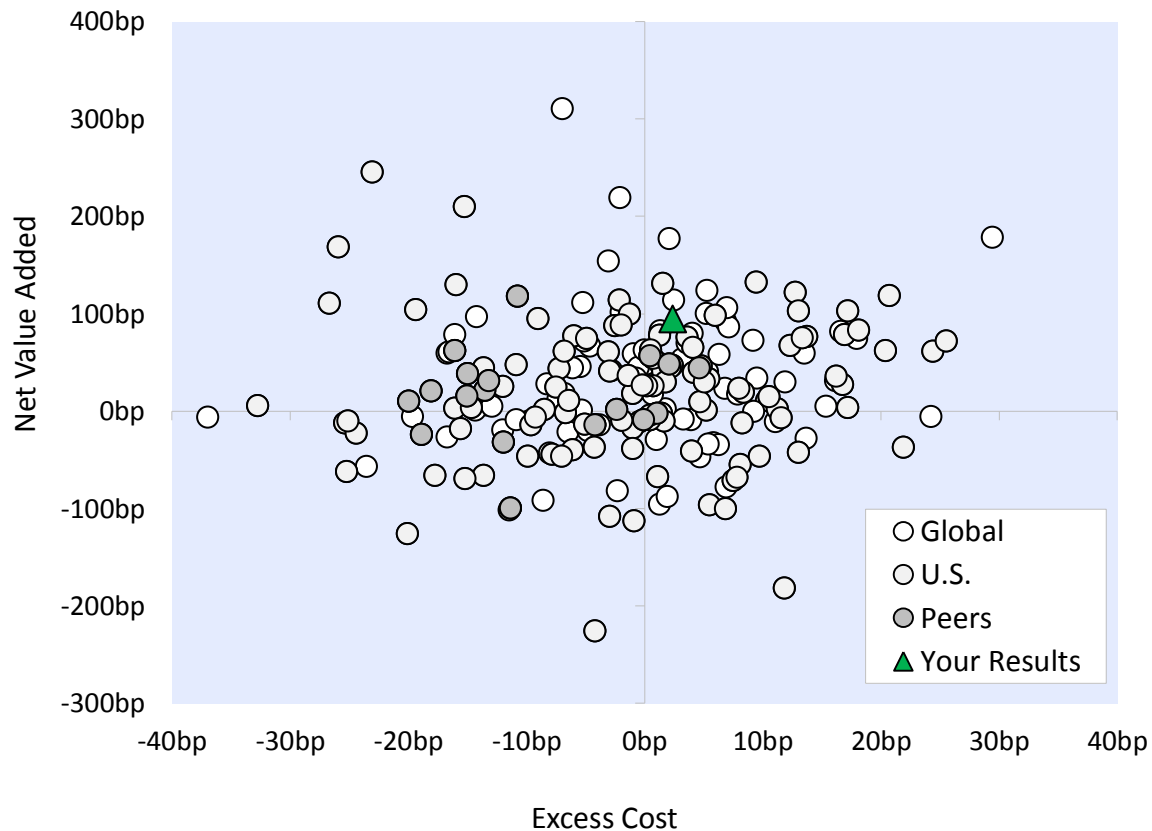
¹Your hedge funds outperformed their benchmark by 5.4% over 5-years compared to 1.2% for the U.S. public average. Your 5-year return of 7.6% for hedge funds was also above the U.S. average of 6.1%.

Your 2014 performance placed in the positive value added, high cost quadrant of the cost effectiveness chart.



Your fund achieved 5-year net value added of 94 bps and excess cost of 2 bps on the cost effectiveness chart.

5-Year net value added versus excess cost
 (Your 5-year: net value added 94 bps, excess cost 2 bps ¹)



1. Your 5-year excess cost of 2 basis points is the average of your excess cost for the past 5 years. 2010 and 2011 excess costs are calculated using regression analysis.

	2014	2013	2012	2011	2010	5-year
Net value added	33 bp	142 bp	172 bp	7 bp	130 bp	94 bp
Excess Cost	14 bp	2 bp	0 bp	-9 bp	6 bp	2 bp

Summary of key takeaways

Returns

- Your 5-year net total return was 8.3%. This was below the U.S. Public median of 9.8% and below the peer median of 10.1%.
- Your 5-year policy return was 7.3%. This was below the U.S. Public median of 9.6% and below the peer median of 9.7%.
- Your 5-year policy return was lower primarily because your policy mix had less allocation to better performing U.S. stock and greater allocation to less risky, lower performing cash than the U.S. Public and peer averages.

Value added

- Your 5-year net value added was 0.9%. This was above the U.S. Public median of 0.1% and above the peer median of 0.2%.
- In dollar terms, your 0.9% value added equals approximately \$1.4 billion over 5 years.

Cost and cost effectiveness

- Your investment cost of 94.1 bps was above your benchmark cost of 80.4 bps. This suggests that your fund was high cost compared to your peers.
- Your fund was high cost because you had a higher cost implementation style and your strong hedge fund performance generated high performance fees.
- Your fund achieved 5-year net value added of 94 bps and excess cost of 2 bps on the cost effectiveness chart.

2

Research and Trends

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The region with the highest net value added was Europe.

Value added by region¹ (period ending December 31, 2014)

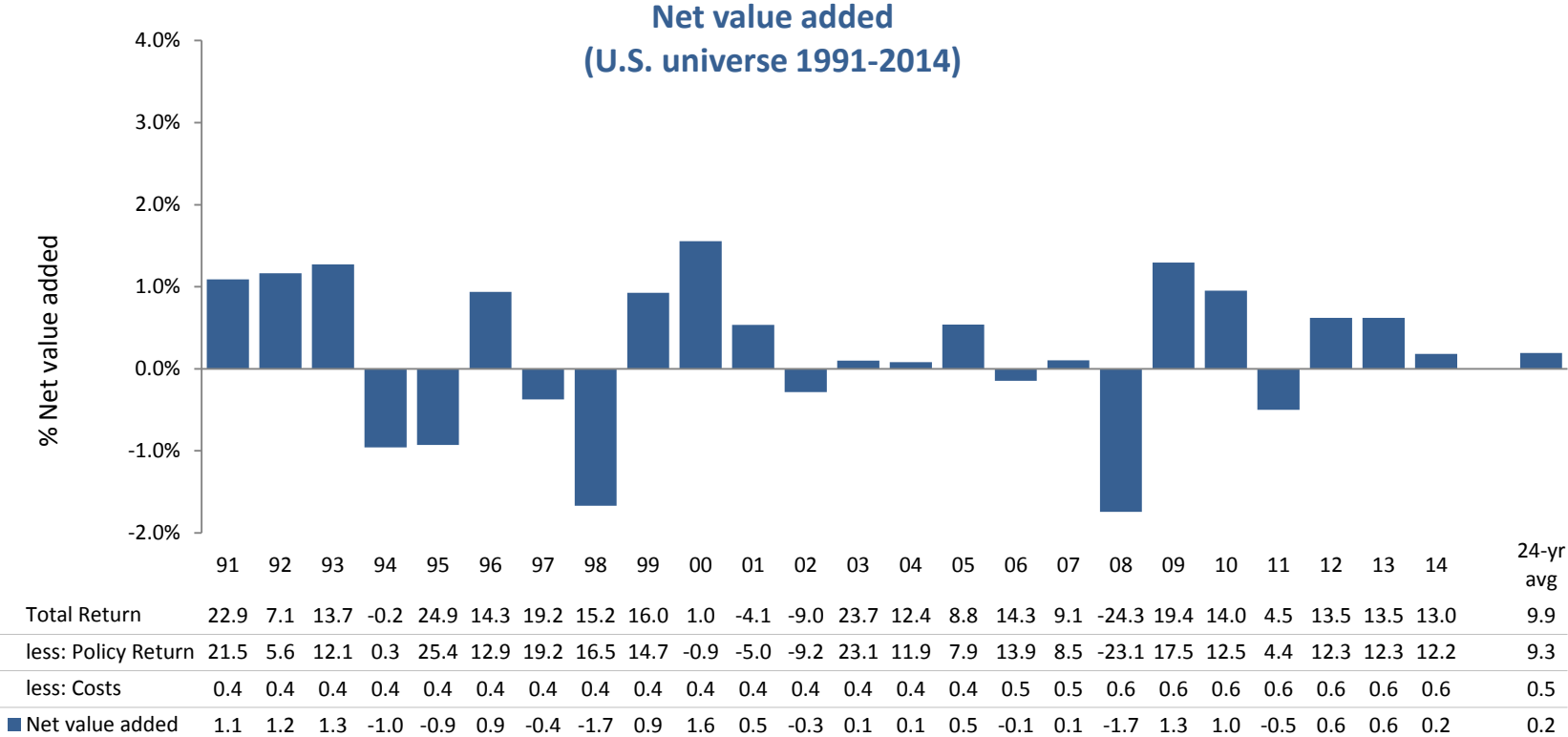
	All funds	U.S. funds	Canadian funds	European funds	Asia-Pacific funds
	24-year average ³	24-year average ³	24-year average ³	21-year ² average ³	15-year ² average ³
Total return	9.71%	9.95%	9.50%	7.79%	7.98%
- Policy return	9.12%	9.29%	8.99%	7.08%	7.80%
- <u>Costs</u>	<u>0.42%</u>	<u>0.47%</u>	<u>0.37%</u>	<u>0.30%</u>	<u>0.49%</u>
= Net value added	0.17%	0.19%	0.14%	0.42%	-0.31%
# of annual observations	7,126	4,059	2,267	674	109
Median fund size (\$ billion)	6.3	9.6	1.9	8.8	18.0

1. Only regions with more than four participating funds are separately disclosed. Funds from regions with fewer than four participating funds are included in Global/ All Funds.

2. The shorter time periods for European and Asia-Pacific funds reflect the dates that CEM started collecting data in those regions.

3. Averages are the arithmetic average of annual averages.

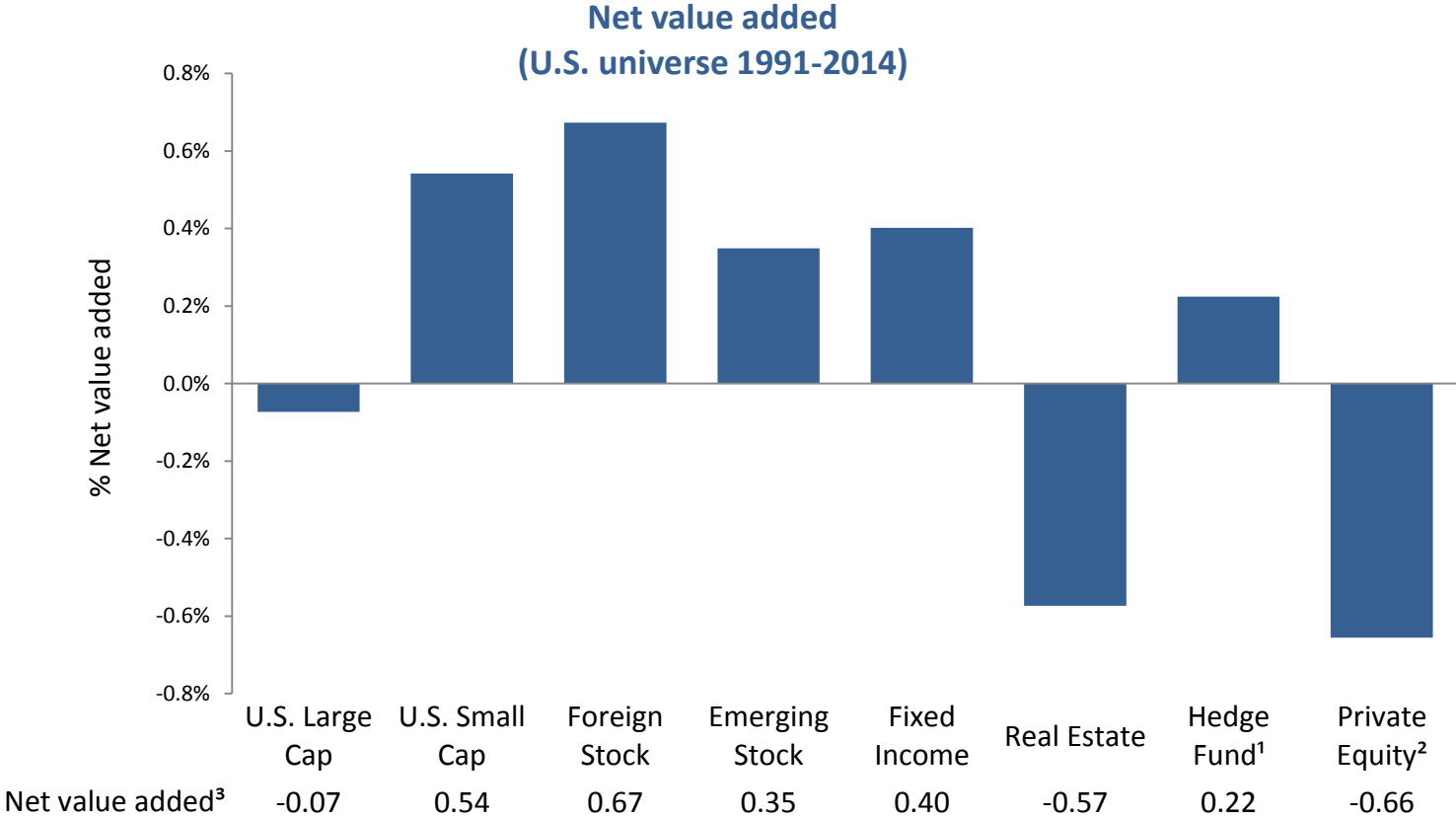
In the U.S., net value added averaged 0.2% over the past 24 years ending 2014.



Total Return	22.9	7.1	13.7	-0.2	24.9	14.3	19.2	15.2	16.0	1.0	-4.1	-9.0	23.7	12.4	8.8	14.3	9.1	-24.3	19.4	14.0	4.5	13.5	13.5	13.0	9.9
less: Policy Return	21.5	5.6	12.1	0.3	25.4	12.9	19.2	16.5	14.7	-0.9	-5.0	-9.2	23.1	11.9	7.9	13.9	8.5	-23.1	17.5	12.5	4.4	12.3	12.3	12.2	9.3
less: Costs	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.5
■ Net value added	1.1	1.2	1.3	-1.0	-0.9	0.9	-0.4	-1.7	0.9	1.6	0.5	-0.3	0.1	0.1	0.5	-0.1	0.1	-1.7	1.3	1.0	-0.5	0.6	0.6	0.2	0.2

Value added analysis is based on 4,059 annual fund total performance observations from the CEM U.S. universe for the 24-year period ending 2014. The 24-year average is an arithmetic average of the annual averages.

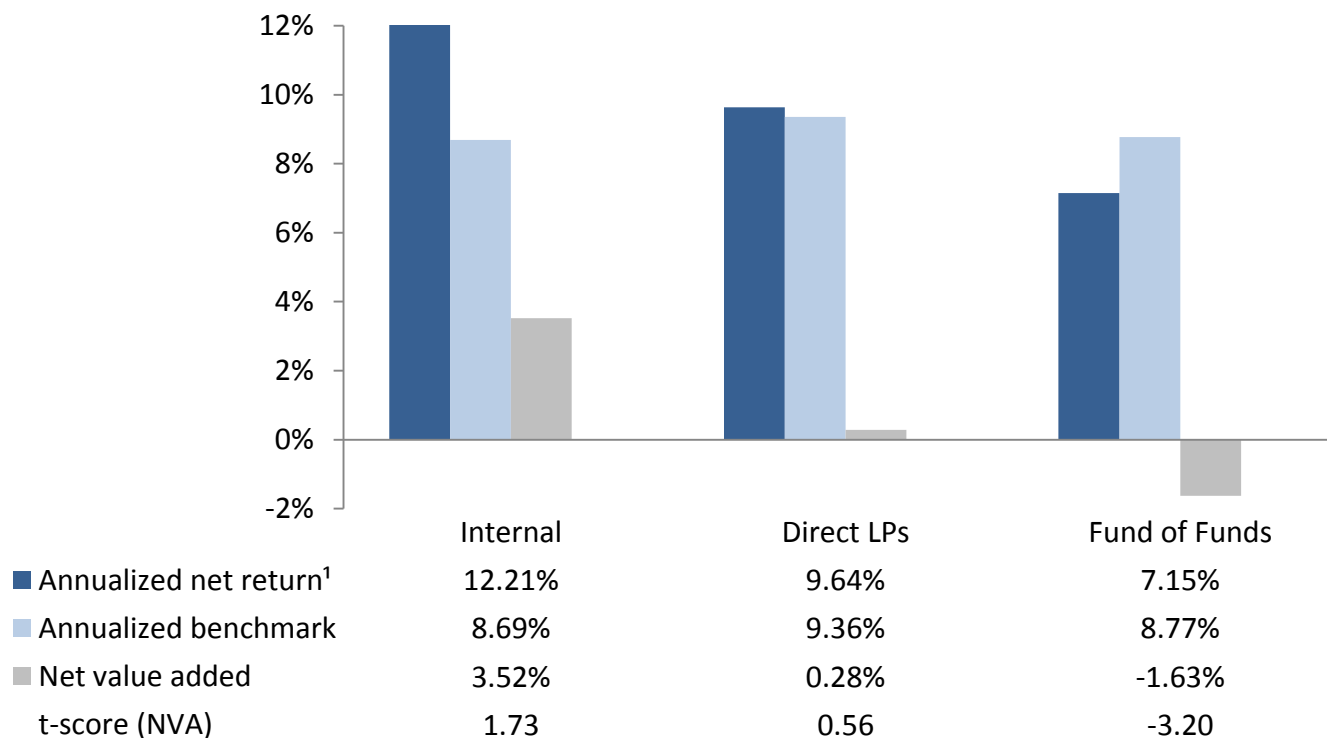
The asset class that had the highest net value added in the U.S. universe over the past 24 years was Foreign Stock.



1. Hedge Fund gross value added performance reflect data for the 15 year period from 2000 to 2014.
 2. The net value added calculation for private equity uses the average benchmark of all U.S. participants.
 3. Value added analysis is from 4,059 annual fund performance observations from the CEM U.S. universe for the 24-year period ending 2014. Value added reflects the asset weighted value added of all mandates in each asset category including indexed holdings. Averages shown above are the arithmetic average of the annual averages of all observations of funds with holdings in the asset category for each year.

Costs matter - Lower cost internal investment in private equity outperformed direct LPs. Direct LPs outperformed fund of funds.

Private equity net returns and value added (1996-2012)

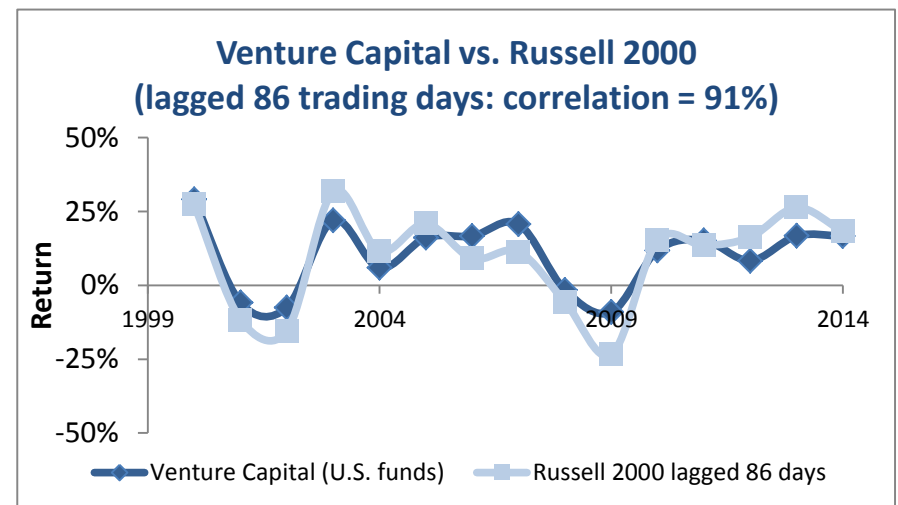
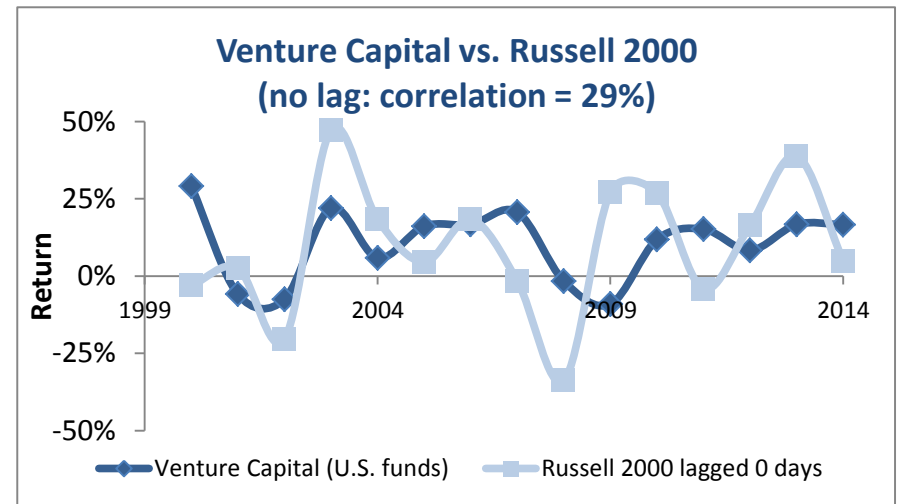


1. To compare the performance of private equity implementation styles over long periods, Monte Carlo simulations were used to capture differences in risk between styles. For details, see "How Implementation Style and Costs Affect Private Equity Performance", Alex Beath, Chris Flynn, and Jody MacIntosh, International Journal of Pension Management pp. 50, vol. 7, issue 1, Spring 2014.

Private equity benchmarks used by most funds are flawed.

A high proportion of the benchmarks used for illiquid assets by participants in the CEM universe are flawed. Flaws include:

- Timing mismatches due to lagged reporting. For example, as the graphs on the right demonstrate, reported venture capital returns clearly lag the returns of stock indices. Yet most funds that use stock indices to benchmark their private equity do not use lagged benchmarks. The result is substantial noise when interpreting performance. For example, for 2008 the Russell 2000 index return was -33.8% versus -5.6% if lagged 86 trading days. Thus if a fund earned the average reported venture capital return for 2008 of -1.6%, they would have mistakenly believed that their value added from venture capital was 32.2% using the un-lagged benchmarks versus 4.0% using the same benchmark lagged to match the average 86 day reporting lag of venture capital funds.
- Un-investable peer-based benchmarks. Peer based benchmarks reflect the reporting lags in peer portfolios so they have much better correlations than un-lagged investable benchmarks. But their relationship statistics are not as good as for lagged investable benchmarks.
- Aspirational premiums (i.e., benchmark + 2%). Premiums cannot be achieved passively, and evidence suggests that a fund has to be substantially better than average to attain them. More importantly, when comparing performance to other funds, they need to be excluded to ensure a level playing field.



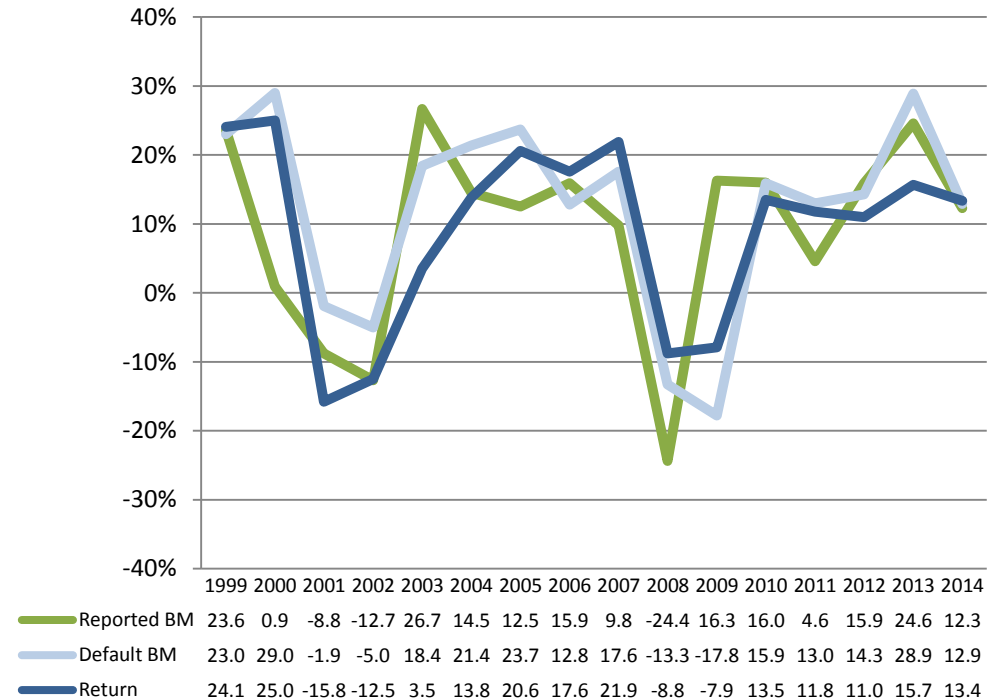
To enable fairer comparisons, CEM uses default private equity benchmarks.

Benchmarks used for private equity by most participants in the CEM universe are flawed (see previous page). So to enable fairer comparisons, CEM replaced the reported private equity benchmarks of all funds except yours with defaults. The defaults are:

- Investable. They are comprised of lagged small cap benchmarks.
- Custom lagged for each participant. Your default benchmark had a lag of 64 trading days. Different portfolios had different lags. CEM estimated the lag on private equity portfolios with multi-year histories by comparing annual private equity returns to public market proxies with 1 day of lag, 2 days of lag, 3 days of lag, etc. At some number of days lag, correlation between the two series is maximized. The median lag was 96 trading days (i.e., approximately 135 calendar days or 4.4 calendar months)
- Regional mix adjusted based on the average estimated mix of regions in private equity portfolios for a given country.

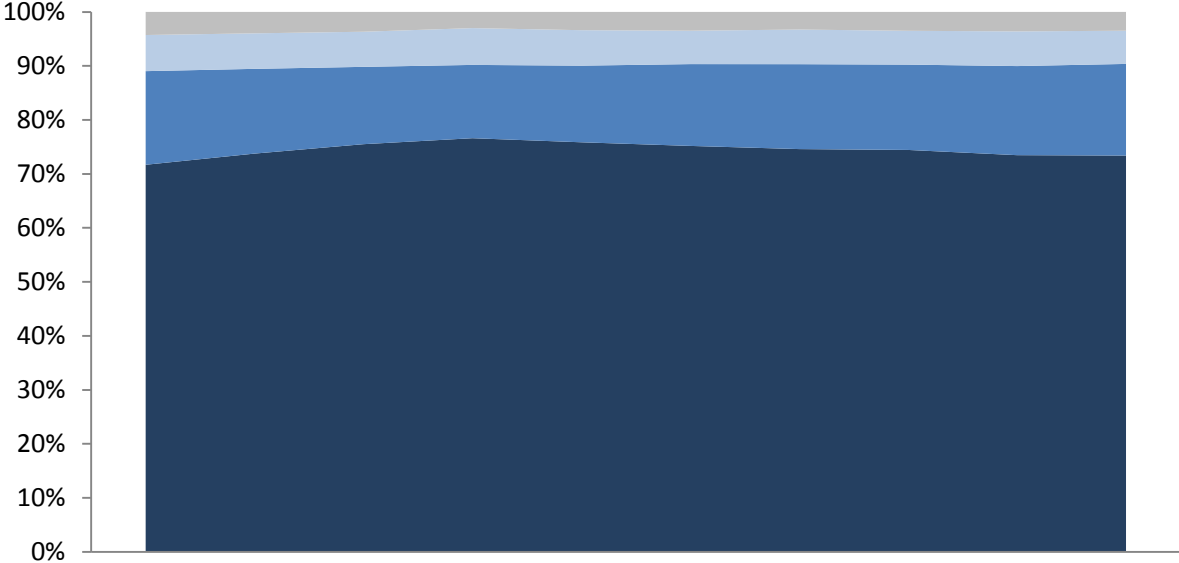
The result is the default benchmarks are superior to most self-reported benchmarks. Correlations improve to a median of 82% for the default benchmarks versus 43% for self-reported benchmarks. Other statistics such as volatility were also much better.

Private equity returns versus reported and default benchmark returns - Global median



For U.S. plans, external active management increased from 72% to 73% over the past 10 years.

Implementation style by year - U.S.

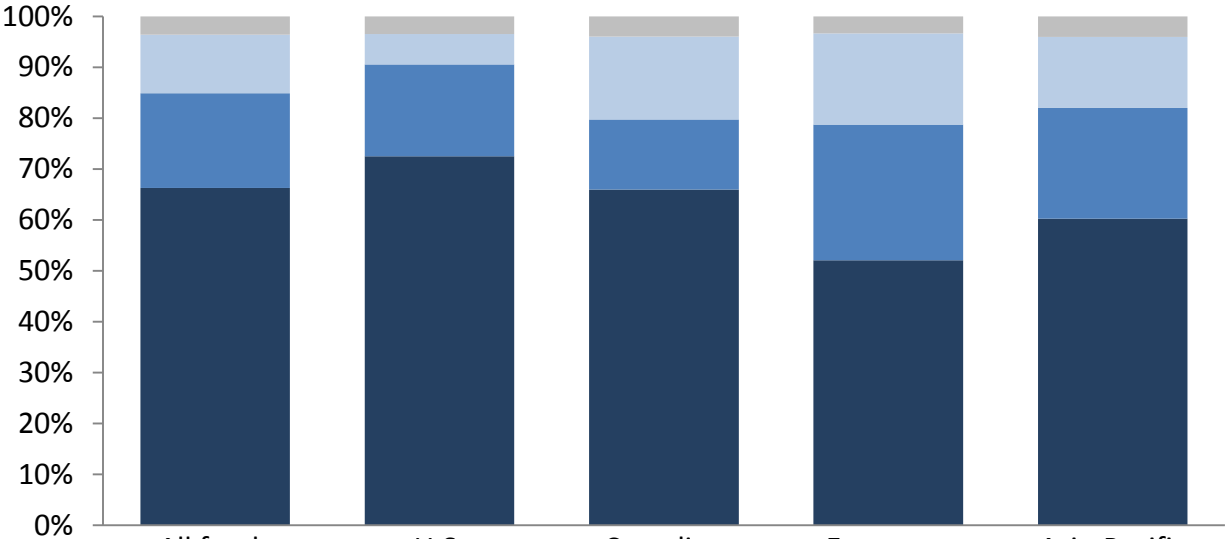


	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
■ % Internal passive	4%	4%	4%	3%	3%	3%	3%	3%	4%	3%
■ % Internal active	7%	7%	7%	7%	7%	6%	6%	6%	6%	6%
■ % External passive	17%	16%	14%	14%	14%	15%	16%	16%	17%	17%
■ % External active	72%	74%	76%	77%	76%	75%	75%	74%	73%	73%

• This analysis is based on 68 U.S. funds with 10 consecutive years of data.

U.S. funds have more externally managed active assets than funds in most other regions.

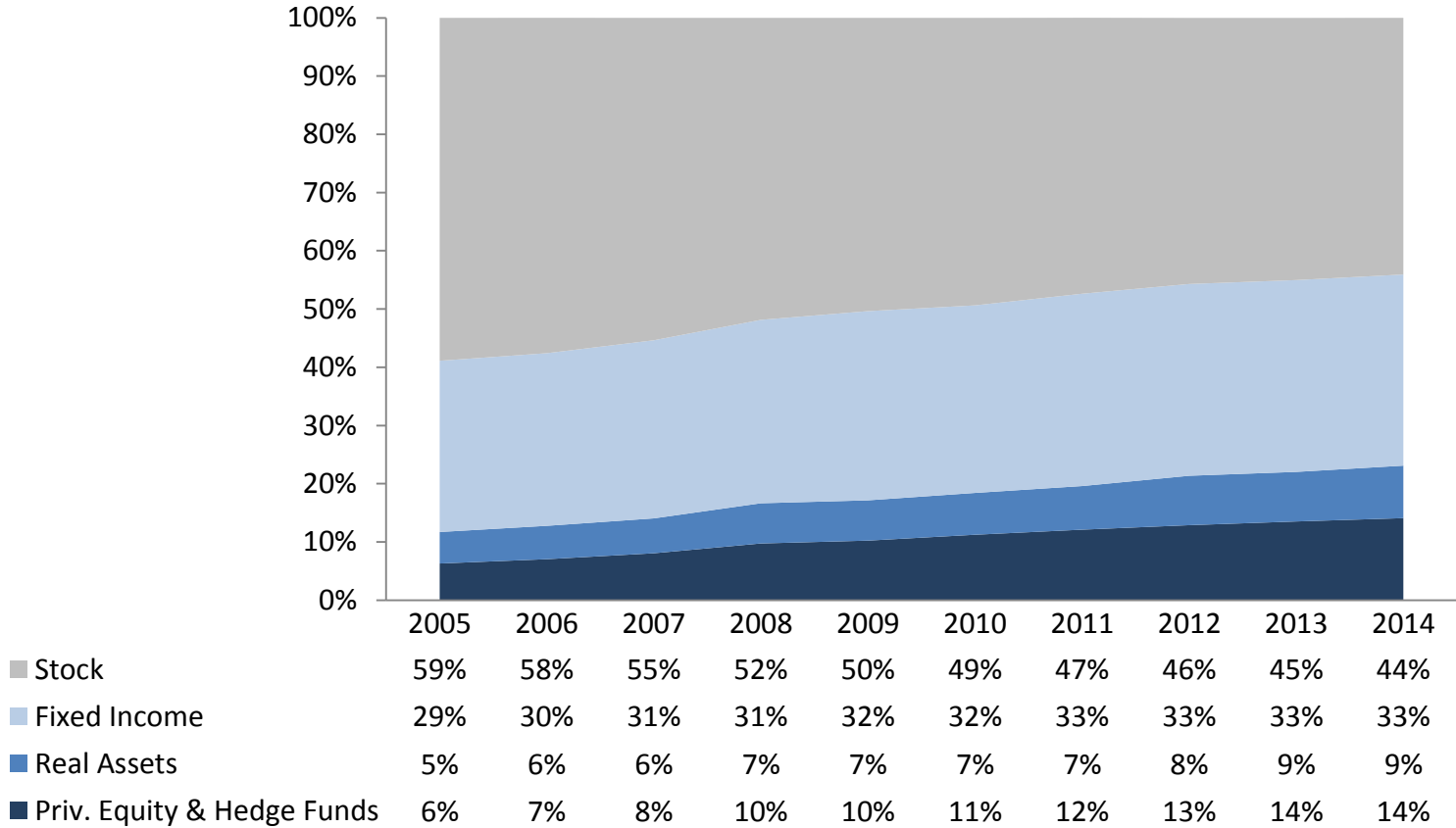
Implementation style by region - 2014 average



■ % Internal passive	4%	3%	4%	3%	4%
■ % Internal active	12%	6%	16%	18%	14%
■ % External passive	19%	18%	14%	27%	22%
■ % External active	66%	73%	66%	52%	60%
Number of funds	330	171	84	67	5
Median fund in \$ billions	6.3	9.6	1.9	8.8	18.0

For U.S. plans, combined policy weights for real assets, private equity and hedge funds increased from 11.7% in 2005 to 23.1% in 2014.

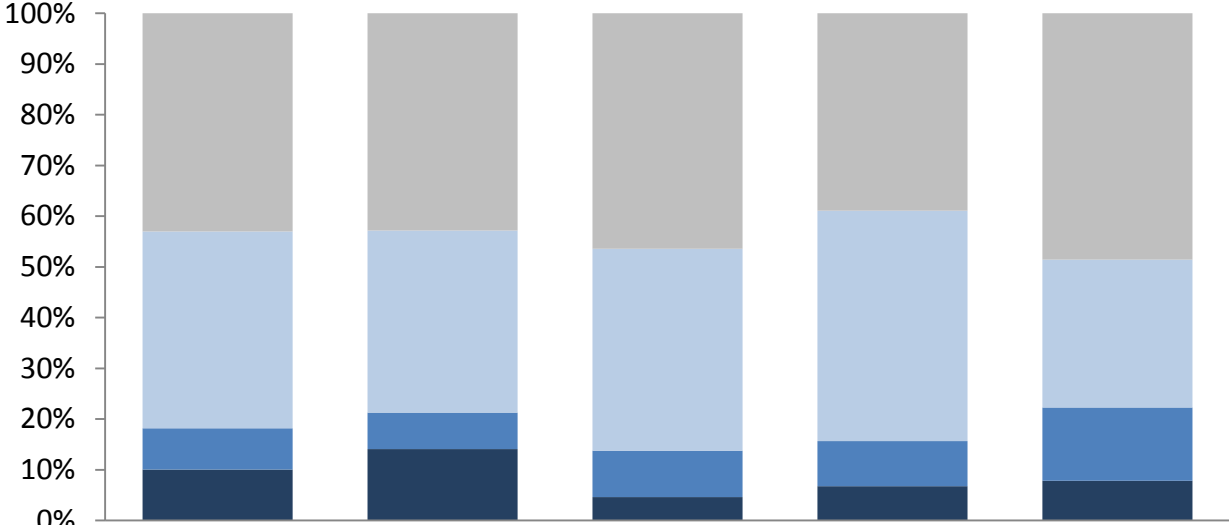
Policy mix by year - U.S.



• This analysis is based on 68 U.S. funds with 10 consecutive years of data.

U.S. funds have less fixed income but more private equity than funds in other regions.

Policy asset mix by region - 2014 average



■ Stock	43%	43%	46%	39%	49%
■ Fixed Income	39%	36%	40%	45%	29%
■ Real Assets	8%	7%	9%	9%	14%
■ Priv. Equity & Hedge Funds	10%	14%	5%	7%	8%
Number of funds	330	171	84	67	5
Median fund in \$ billions	6.3	9.6	1.9	8.8	18.0

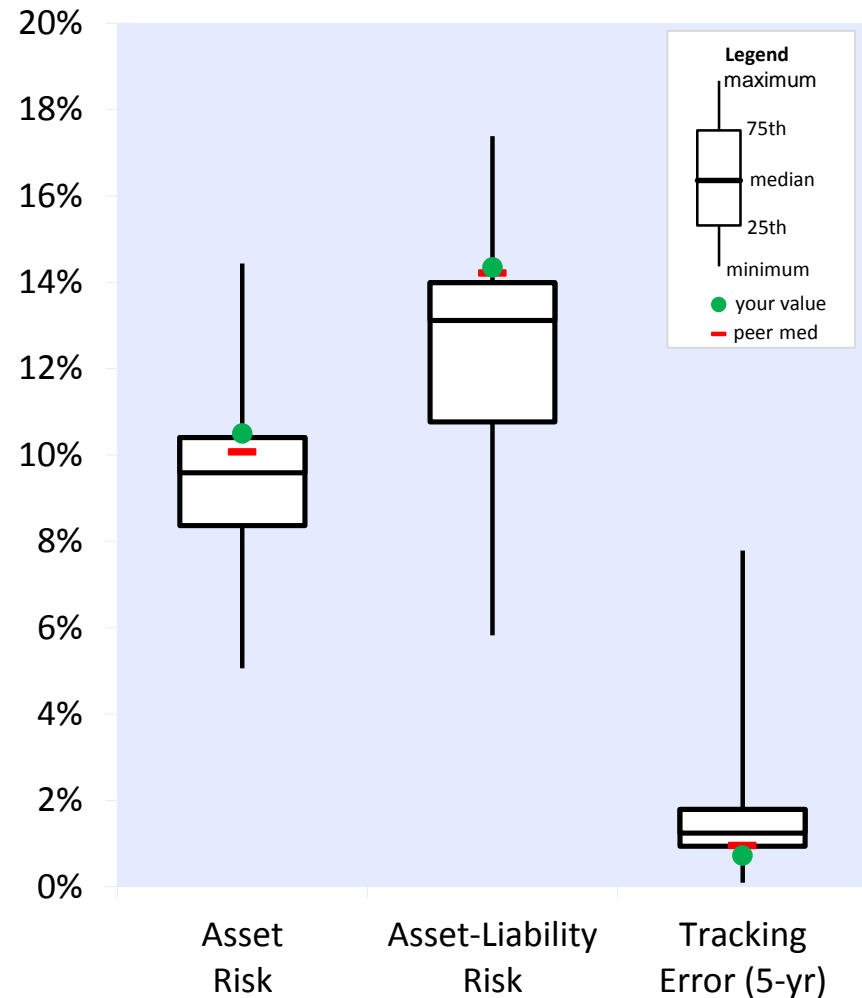
Risk by type

Your asset risk of 10.5% was above the U.S. median of 9.6%. Asset risk is the standard deviation of your policy return. It is based on the historical variance of, and covariance between, the asset classes in your policy mix.

Asset-liability risk is the standard deviation of funded status caused by market factors. It is a function of the standard deviations of your asset risk, your marked-to-market liabilities and the correlation between the two.

Your tracking error of 0.7% was below the U.S. median of 1.2%. Tracking error is the risk of active management. It equals the standard deviation of your annual net value added.

U.S. risk levels at December 31, 2014

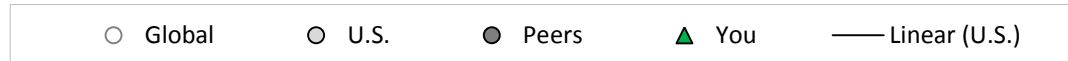
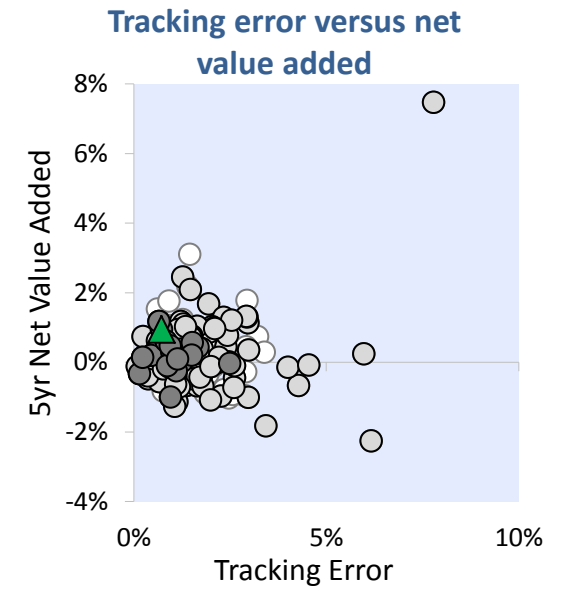
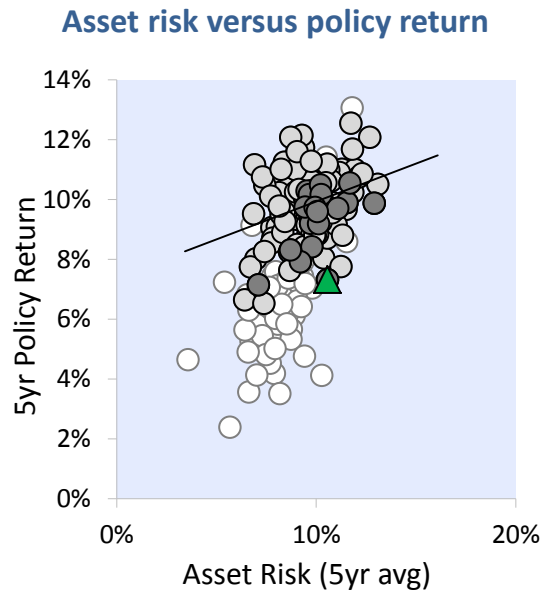
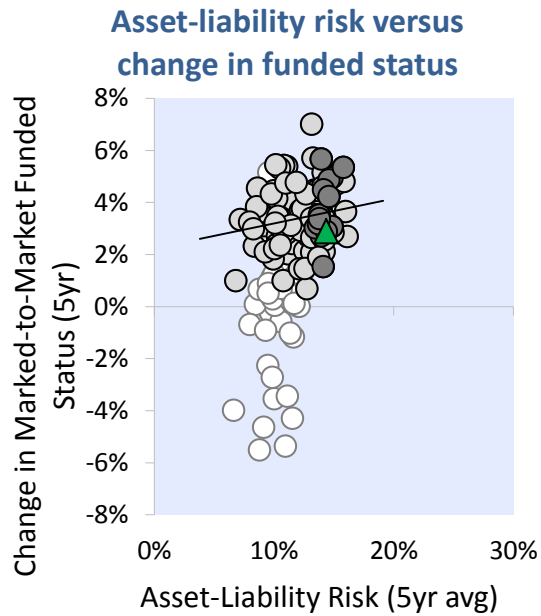


Risk versus return

Higher asset-liability risk was associated with positive changes in marked-to-market funded status.

Higher asset risk was associated with higher policy returns.

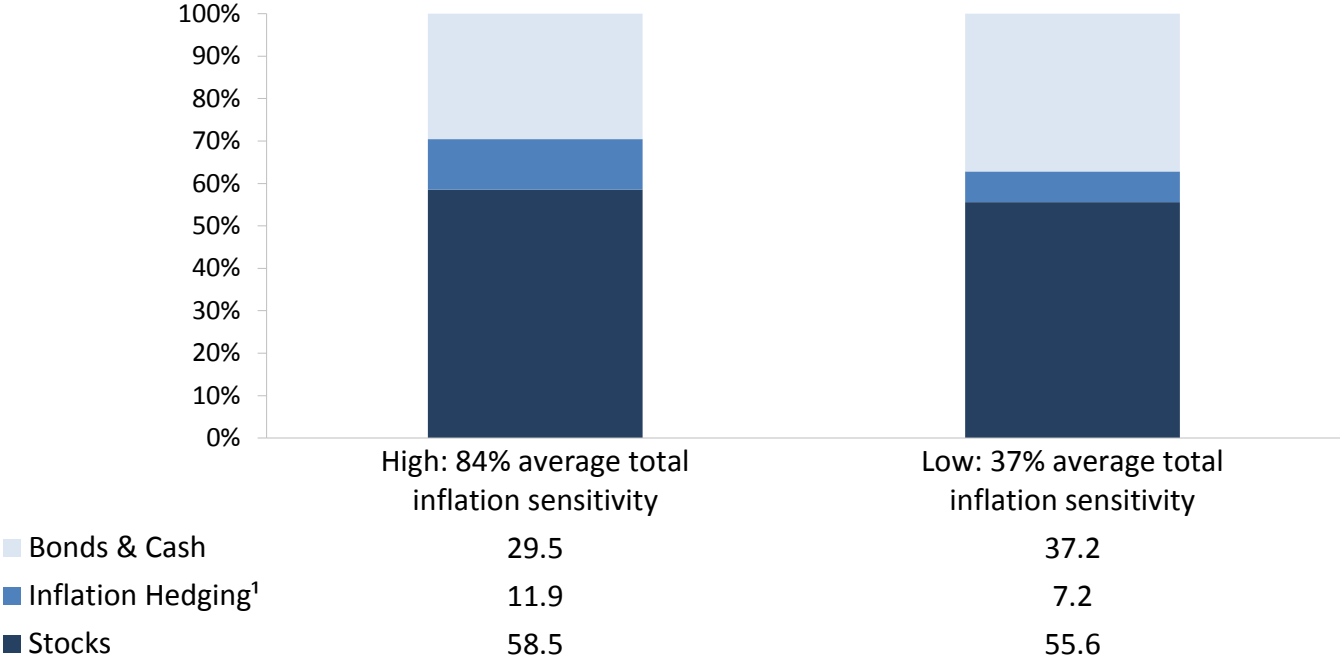
There was no meaningful relationship between tracking error and net value added.



Impact of inflation sensitivity on policy asset mix decisions

One would expect plans with more inflation sensitivity to have more inflation hedging assets and fewer nominal bonds than plans with less inflation sensitivity. Although this is true, the difference is small: inflation hedging assets represent 11.9% of assets at plans with high inflation sensitivity versus 7.2% at plans with lower inflation sensitivity.

**Average policy asset mix:
Plans with above vs. below average inflation sensitivity**

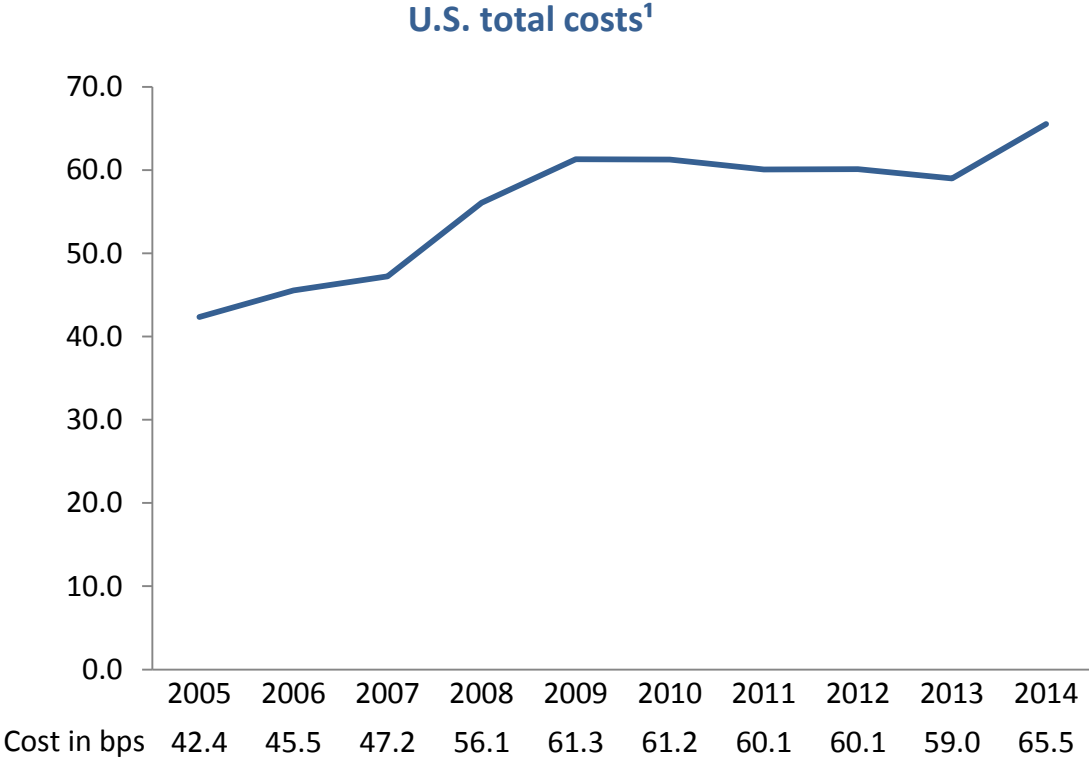


1. Inflation hedge assets include inflation-indexed bonds, commodities, real estate & REITs, infrastructure and natural resources.

U.S. fund costs have grown by 23 basis points on average over the last 10 years.

Reasons for the increase in costs include:

- Allocation to the more expensive asset classes - hedge funds, real assets and private equity- increased from 6% to 12% on average.
- Use of the most expensive implementation style, external active management, increased from 72% to 73% on average.



1. This analysis is based on 68 U.S. funds with 10 consecutive years of data.

U.S. defined benefit plans have outperformed defined contribution plans.

U.S. defined benefit plans have outperformed defined contribution plans.

DB versus DC return and value added - U.S.

	18-yr average ending 2014 ²		
	DB	DC	Difference
Total return	8.00%	6.88%	1.12%
- Policy return ¹	7.44%	6.46%	0.98%
- Costs	0.49%	0.40%	0.09%
= Net value added	0.08%	0.01%	0.07%
Number of observations	3,234	2,143	

Differences in asset mix have been the primary reason for the outperformance of U.S. defined benefit plans.

DB versus DC asset mix - U.S.

Asset class (Ranked by returns)	Asset mix ³		Returns ⁴	
	DB	DC	DB	DC
Private Equity	4%	n/a	11.0%	n/a
Real Assets	5%	n/a	9.5%	n/a
Small Cap Stock	6%	8%	8.8%	9.8%
Employer Stock	0%	20%	n/a	8.6%
Fixed Income	31%	10%	7.5%	6.1%
Hedge Funds	2%	n/a	7.6%	n/a
Stock U.S. Large Cap or Broad	26%	30%	6.4%	7.9%
Stock Non U.S. or Global	23%	8%	4.5%	6.6%
Stable Value/GICs	n/a	17%	n/a	4.6%
Cash	2%	8%	2.6%	2.9%
Total	100%	100%	8.0%	6.9%
Number of observations	3,234	2,143		

1. DC policy return = weights of holdings X benchmarks

2. Returns are the geometric average of annual averages.

3. 18 years ending 2014. Equals arithmetic average of annual asset mix weights.

4. 18 years from 1997 to 2014. Returns are the geometric average of the annual averages for each asset class. Hedge funds were not treated as a separate asset class until 2000, so 60% stock, 40% bond returns were used as a proxy for 1997-1999.

n/a= insufficient data.

3

Description of peer group and universe

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Implementation style, actual mix and policy mix:	
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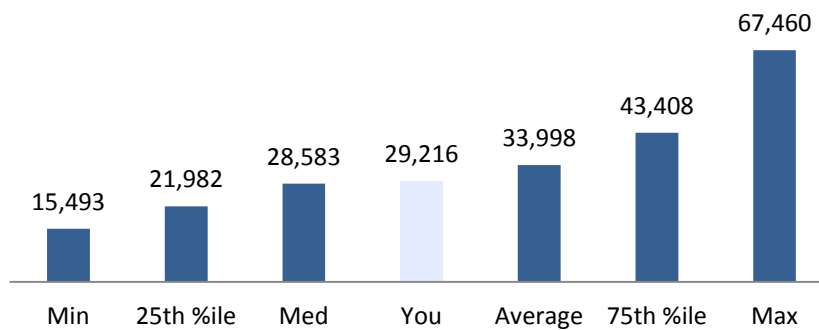
Peer group

Your peer group is comprised of 20 U.S. public funds, with assets ranging from \$15.5 billion to \$67.5 billion versus your \$29.2 billion. The median size is \$28.6 billion.

Your peer group is selected such that your fund size is usually close to the median of your peer group. Size is the primary criteria for choosing your peer group, because size greatly impacts how much you pay for services. Generally, the larger your fund, the smaller your unit operating costs (i.e., the economies of scale impact).

In order to preserve client confidentiality, we do not disclose your peers' names in this document due to the Freedom of Information Act.

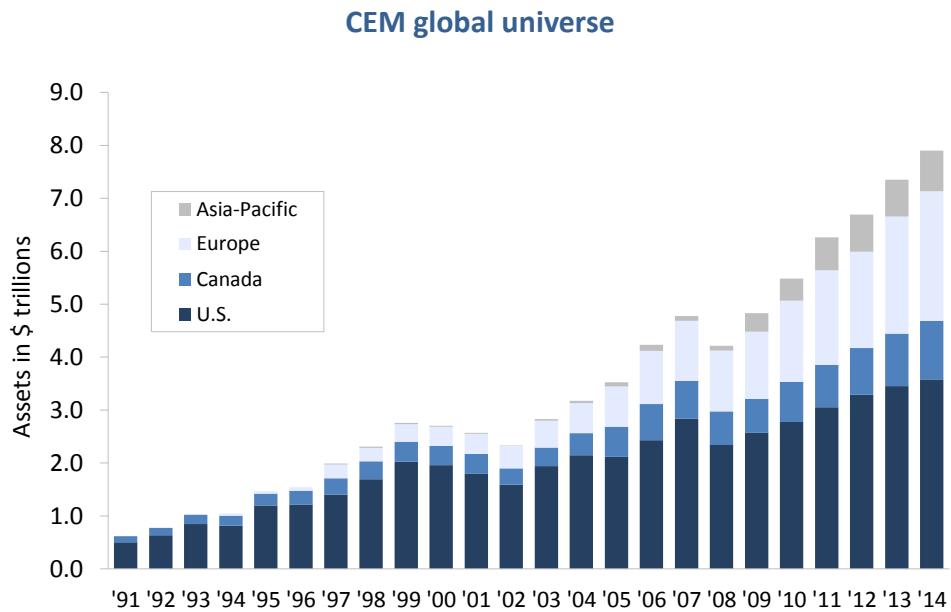
Total fund assets (\$ millions) - you versus peers



CEM global universe

CEM has been providing investment benchmarking solutions since 1991. The 2014 survey universe is comprised of 330 funds representing \$7.9 trillion in assets. The breakdown by region is as follows:

- 171 U.S. pension funds with aggregate assets of \$3.6 trillion.
- 84 Canadian pension funds with aggregate assets of \$1,106 billion.
- 67 European pension funds with aggregate assets of \$2.5 trillion. Included are funds from The Netherlands, Norway, Sweden, Finland, Denmark, UK, and Ireland.
- 8 Asia-Pacific pension funds with aggregate assets of \$763 billion.



Universe subsets

CEM's global survey universe is comprised of 330 funds with total assets of \$7.9 trillion. Your fund's returns and costs are compared to the following two subsets of the global universe:

- Peers - Your peer group is comprised of 20 U.S. public funds ranging in size from \$15.5 - \$67.5 billion. The peer median of \$28.6 billion compares to your \$29.2 billion.
- U.S. Public - The U.S. Public universe is comprised of 58 funds ranging in size from \$0.9 - \$295.0 billion. The median fund is \$16.6 billion.

Universe subsets by number of funds and assets

	Peer group ¹	U.S. by type				Global by Country				
		Corp.	Public	Other	Total	U.S.	Canada	Europe	Asia-Pacific	Total
<u># of funds</u>										
2014	20	98	58	11	171	171	84	67	8	330
2013	20	115	62	12	191	191	90	86	7	374
2012	20	122	67	13	202	202	89	78	12	381
2011	20	126	67	12	205	205	88	76	12	381
2010	19	123	72	12	207	207	96	55	9	367
<u># of funds with uninterrupted data for:</u>										
1 yr	20	98	58	11	167	171	84	67	8	330
2 yrs	20	92	51	10	153	154	78	56	6	294
3 yrs	20	87	50	10	147	147	73	40	6	266
4 yrs	20	85	48	9	142	142	64	23	6	235
5 yrs	19	78	44	8	130	130	62	20	4	216
6 yrs	17	75	40	7	122	122	57	15	4	198
<u>Total assets (\$ billions)</u>										
2014	680	1,036	2,369	112	3,578	3,578	1,106	2,451	763	7,898
2013	645	1,054	2,236	104	3,451	3,451	993	2,210	697	7,350
2012	581	1,010	2,236	95	3,288	3,288	881	1,822	700	6,692
2011	538	966	2,025	63	3,054	3,054	800	1,784	625	6,263
2010	485	910	1,804	63	2,777	2,777	756	1,530	419	5,483
<u>2014 asset distribution (\$ billions)</u>										
Avg	34.0	10.6	40.8	10.2	20.9	20.9	13.2	36.6	95.4	23.9
Max	67.5		295.0		295.0	295.0				
75th %ile	43.4		46.9		19.0	19.0				
Median	28.6		16.6		8.2	8.2				
25th %ile	22.0		6.2		3.0	3.0				
Min	15.5		0.9		0.4	0.4				

1. Peer group statistics are for your 2014 peer group only as your peer group may have included different funds in prior years.

Implementation style, actual mix and policy mix by universe subset

Implementation style, actual mix and policy mix - 2014 (as a % of year-end assets)

	Your fund ¹	Peer group	U.S. by type				Global by Country				
			Corp.	Public	Other	Total	U.S.	Canada	Europe	Asia-Pacific	Total
Implementation style											
External active	62.3	63.4	72.5	62.6	68.4	68.7	68.7	64.5	47.9	52.9	63.0
Fund of funds	9.3	2.4	4.4	2.7	4.5	3.8	3.8	1.5	4.2	2.1	3.2
External passive	14.2	20.2	16.9	18.8	21.5	18.0	18.0	13.8	26.7	15.6	18.6
Internal active	14.0	10.5	4.2	10.1	0.2	6.0	6.0	16.3	17.9	26.1	11.5
Internal passive	<u>0.0</u>	<u>3.6</u>	<u>2.0</u>	<u>5.8</u>	<u>5.4</u>	<u>3.5</u>	<u>3.5</u>	<u>4.0</u>	<u>3.3</u>	<u>3.3</u>	<u>3.6</u>
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Actual asset mix											
Stock	18.5	47.8	38.0	49.5	40.9	42.6	42.6	47.7	39.8	42.1	43.3
Fixed income	42.4	28.1	43.9	25.8	33.3	36.6	36.6	38.9	45.3	39.0	39.0
Global TAA	7.5	0.7	3.0	2.3	5.4	2.8	2.8	1.0	1.6	1.8	2.1
Real assets	3.8	9.4	4.8	9.2	9.7	6.7	6.7	8.1	8.0	10.6	7.4
Hedge funds	12.8	5.2	5.8	5.2	6.0	5.6	5.6	1.9	2.7	3.1	4.0
Private equity	<u>15.0</u>	<u>8.8</u>	<u>4.5</u>	<u>8.0</u>	<u>4.7</u>	<u>5.7</u>	<u>5.7</u>	<u>2.5</u>	<u>2.5</u>	<u>3.4</u>	<u>4.2</u>
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	99.9	100.0	100.0
Policy asset mix											
Stock	31.0	47.9	39.1	48.4	40.5	42.8	42.8	46.4	38.9	45.9	43.0
Fixed income	27.0	27.5	43.2	25.1	32.6	35.9	35.9	39.9	45.5	34.1	38.8
Global TAA	10.0	0.8	2.6	2.1	5.4	2.6	2.6	0.9	1.7	1.8	1.9
Real assets	8.0	10.5	4.7	10.6	11.1	7.2	7.2	9.1	8.8	12.4	8.2
Hedge funds	8.0	3.9	5.6	4.8	5.6	5.4	5.4	1.3	2.6	2.0	3.7
Private equity	<u>16.0</u>	<u>9.4</u>	<u>4.8</u>	<u>9.0</u>	<u>4.8</u>	<u>6.2</u>	<u>6.2</u>	<u>2.4</u>	<u>2.5</u>	<u>3.9</u>	<u>4.4</u>
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

1. Due to the fact that your fund provided average assets, the above tables show your implementation style and asset mix using average assets rather than year-end.

Implementation style, actual mix and policy mix trends

Implementation style, actual mix and policy mix - 2010 to 2014 (as a % of year-end assets)

	Your fund ¹					Peer average ²					U.S. Public average ²				
	2014	2013	2012	2011	2010	2014	2013	2012	2011	2010	2014	2013	2012	2011	2010
Implementation style															
External active	71.7	73.8	88.3	90.8	82.4	65.8	66.4	67.0	68.2	67.7	63.0	63.2	64.3	65.0	64.9
External passive	14.2	9.7	5.4	4.7	11.1	21.2	20.5	20.3	18.8	18.4	21.1	20.8	20.1	19.1	18.9
Internal active	14.0	16.4	6.3	4.5	6.5	9.3	9.1	9.1	9.5	9.9	10.4	10.3	10.0	10.5	10.4
Internal passive	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>3.6</u>	<u>4.0</u>	<u>3.6</u>	<u>3.4</u>	<u>3.9</u>	<u>5.5</u>	<u>5.6</u>	<u>5.6</u>	<u>5.5</u>	<u>5.8</u>
Total	100.0	99.9	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Actual asset mix															
Stock	18.5	13.5	16.2	12.8	9.2	48.5	50.0	47.8	47.3	50.0	49.2	50.8	49.2	49.4	52.7
Fixed income	42.4	44.4	34.9	34.0	45.5	27.7	28.1	30.2	31.8	31.9	26.4	26.7	28.6	29.7	29.5
Global TAA	7.5	6.5	10.2	10.0	8.8	0.7	0.7	0.9	0.9	0.8	1.9	1.7	1.6	1.4	1.3
Real assets	3.8	3.9	4.5	2.3	1.2	9.4	8.2	7.9	7.0	5.8	9.4	8.6	8.3	7.6	6.3
Hedge funds	12.8	16.2	17.9	22.2	19.2	4.9	4.5	4.3	4.3	3.3	5.4	4.9	4.4	4.2	3.2
Private equity	<u>15.0</u>	<u>15.4</u>	<u>16.2</u>	<u>18.7</u>	<u>16.1</u>	<u>8.8</u>	<u>8.4</u>	<u>8.8</u>	<u>8.8</u>	<u>8.1</u>	<u>7.7</u>	<u>7.4</u>	<u>7.8</u>	<u>7.7</u>	<u>7.1</u>
Total	100.0	99.9	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Policy asset mix															
Stock	31.0	31.0	30.0	30.0	30.0	48.2	49.0	48.7	49.5	48.8	48.1	48.7	49.6	50.4	51.8
Fixed income	27.0	27.0	32.0	29.0	29.0	26.9	28.1	29.6	30.4	32.4	25.5	26.9	27.9	28.8	29.6
Global TAA	10.0	10.0	10.0	10.0	10.0	0.9	0.9	0.9	0.9	0.9	1.5	1.7	1.6	1.4	1.2
Real assets	8.0	8.0	6.0	8.0	8.0	10.5	9.5	8.9	8.2	7.9	10.7	9.9	9.3	8.5	7.8
Hedge funds	8.0	8.0	5.0	5.0	5.0	4.1	3.6	3.2	2.9	2.3	5.1	4.0	3.4	3.1	2.3
Private equity	<u>16.0</u>	<u>16.0</u>	<u>17.0</u>	<u>18.0</u>	<u>18.0</u>	<u>9.5</u>	<u>9.0</u>	<u>8.7</u>	<u>8.1</u>	<u>7.7</u>	<u>9.1</u>	<u>8.8</u>	<u>8.2</u>	<u>7.7</u>	<u>7.3</u>
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

1. Due to the fact that your fund provided average assets, the above tables show your trend in implementation style and asset mix using average assets rather than year-end.

2. Trends are based on the 44 U.S. Public and 19 peer funds with 5 consecutive years of data ending 2014.

Implementation style by asset class

Implementation style impacts your costs, because external active management tends to be more expensive than internal or passive (or indexed) management and fund-of-funds usage is more expensive than direct fund investment.

Implementation style by asset class - 2014 (as a % of average assets)

	Your fund %				Peer average %				U.S. Public average %						
	External		Internal		External		Internal		External		Internal				
	Active	FOFs	Index	Active	Index	Active	FOFs	Index	Active	FOFs	Index	Active	Index		
U.S. Stock - Broad/All	58.1		41.8	0.1	0.0	37.0		52.6	4.5	5.9	25.0		56.4	4.5	14.1
U.S. Stock - Large Cap						27.6		40.7	18.7	13.0	42.2		33.5	7.2	17.1
U.S. Stock - Mid Cap						64.6		0.0	28.1	7.3	69.2		5.2	10.6	15.1
U.S. Stock - Small Cap						80.5		4.3	10.7	4.5	84.3		4.5	7.7	3.5
Stock - EAFE	100.0		0.0	0.0	0.0	50.1		40.5	5.0	4.4	58.3		28.6	5.5	7.7
Stock - ACWlxU.S.						68.6		31.4	0.0	0.0	68.1		31.1	0.8	0.0
Stock - Emerging	100.0		0.0	0.0	0.0	79.8		7.4	6.5	6.4	76.3		15.1	5.0	3.5
Stock - Global	0.0		100.0	0.0	0.0	59.9		18.0	11.0	11.0	52.7		18.9	24.3	4.1
Stock - Other						39.6		0.0	8.2	52.1	58.7		24.8	7.5	9.0
Total Stock	57.4		42.6	0.0	0.0	49.9		34.4	8.5	7.1	53.0		30.6	7.1	9.3
Fixed Income - U.S.	90.7		0.0	9.3	0.0	66.9		11.6	21.4	0.0	56.0		16.7	23.9	3.5
Fixed Income - U.S. Gov't						100.0		0.0	0.0	0.0	100.0		0.0	0.0	0.0
Fixed Income - U.S. Credit						100.0		0.0	0.0	0.0	100.0		0.0	0.0	0.0
Fixed Income - Long Bonds						0.0		0.0	0.0	0.0	77.6		0.0	0.9	21.5
Fixed Income - EAFE						0.0		0.0	0.0	0.0	90.6		0.0	9.4	0.0
Fixed Income - Emerging	43.1		56.9	0.0	0.0	84.3		14.1	1.6	0.0	93.8		5.5	0.6	0.0
Fixed Income - Global	100.0		0.0	0.0	0.0	100.0		0.0	0.0	0.0	74.7		0.0	25.3	0.0
Fixed Income - Inflation Indexed						49.7		31.0	12.7	6.7	40.2		29.9	10.9	18.9
Fixed Income - High Yield	100.0		0.0	0.0	0.0	90.6		0.0	9.4	0.0	93.4		2.7	3.9	0.0
Fixed Income - Mortgages						0.0		100.0	0.0	0.0	48.3		1.5	46.2	4.0
Fixed Income - Private Debt						71.5		0.0	28.5	0.0	88.5		0.0	11.5	0.0
Fixed Income - Other						98.8		1.2	0.0	0.0	93.2		0.6	4.2	2.0
Cash	40.9		0.0	59.1	0.0	45.1		0.0	54.9	0.0	33.3		0.0	66.7	0.0
Total Fixed Income	56.0		7.4	36.6	0.0	67.9		10.9	20.7	0.6	59.7		12.3	23.7	4.3
Commodities						100.0		0.0	0.0	0.0	92.0		0.0	3.9	4.1
Infrastructure			n/a	n/a	n/a	94.3	3.3	n/a	2.5	n/a	95.0	2.8	n/a	2.2	n/a
Natural Resources			n/a	n/a	n/a	99.1	0.0	n/a	0.9	n/a	99.8	0.0	n/a	0.2	n/a
REITs						77.0	0.0	10.0	13.0	0.0	72.3	0.0	15.1	6.2	6.4
Real Estate ex-REITs	97.1	0.0	n/a	2.9	n/a	95.0	0.5	n/a	4.5	0.0	94.5	0.4	n/a	5.1	0.0
Other Real Assets			n/a	n/a	n/a	100.0	0.0	n/a	0.0	n/a	100.0	0.0	n/a	0.0	n/a
Total Real Assets	97.1	0.0	0.0	2.9	0.0	93.9	0.0	1.2	4.9	0.0	93.4	0.0	1.3	4.5	0.8
Hedge Funds	36.3	63.7	n/a	0.0	n/a	71.9	28.1	n/a	0.0	n/a	72.9	27.1	n/a	0.0	n/a
Global TAA	100.0	0.0	n/a	0.0	n/a	100.0	0.0	n/a	0.0	n/a	99.2	0.0	n/a	0.8	n/a
Diversified Private Equity	82.4	17.6	n/a	0.0	n/a	87.3	12.7	n/a	0.0	n/a	76.7	23.3	n/a	0.1	n/a
Venture Capital			n/a	n/a	n/a	85.5	13.3	n/a	1.2	n/a	85.4	14.2	n/a	0.4	n/a
LBO			n/a	n/a	n/a	99.9	0.1	n/a	0.0	n/a	99.1	0.9	n/a	0.0	n/a
Private Debt Limited Partnerships	100.0	0.0	n/a	0.0	n/a	100.0	0.0	n/a	0.0	n/a	96.6	0.0	n/a	3.4	n/a
Total Private Equity	92.7	7.3	n/a	0.0	n/a	91.2	8.7	n/a	0.0	n/a	85.5	14.1	n/a	0.3	n/a
Total Fund - Avg. Holdings	62.4	9.3	14.2	14.1	0.0	63.8	2.2	19.9	10.3	3.8	62.7	2.7	18.7	10.0	5.9

Actual mix

Actual asset mix - 2010 to 2014 (as a % of year-end assets)

	Your fund % ¹					Peer average %					U.S. Public average %				
	2014	2013	2012	2011	2010	2014	2013	2012	2011	2010	2014	2013	2012	2011	2010
Employer Stock															
U.S. Stock - Broad/All	8.1	7.6	7.8	7.1	7.7	10.6	11.7	11.3	11.9	14.3	7.0	10.1	7.5	7.2	11.0
U.S. Stock - Large Cap						11.5	10.5	9.6	10.9	10.4	14.9	13.4	14.7	14.6	14.9
U.S. Stock - Mid Cap						0.8					0.7	0.1	0.1	0.1	0.1
U.S. Stock - Small Cap						2.6	3.6	3.2	3.7	4.1	3.3	4.1	4.4	4.6	5.0
Stock - EAFE	2.5	2.5	1.1			5.4	6.1	6.3	6.6	8.0	6.8	7.3	7.0	7.7	9.0
Stock - ACWIxU.S.						8.9	9.6	9.2	8.8	9.3	8.1	9.2	8.3	6.4	7.4
Stock - Emerging	3.4	3.4	7.4	5.7	1.5	2.6	2.7	3.1	2.3	1.9	3.2	3.0	3.4	2.9	2.6
Stock - Global	4.5					4.9	4.8	4.1	2.3	1.8	4.7	3.8	3.8	4.3	4.2
Stock - Other						0.4	0.3	0.4	0.4	0.2	0.9	0.8	0.6	0.5	0.2
Total Stock	18.5	13.5	16.2	12.8	9.2	47.8	49.3	47.2	46.8	50.0	49.5	51.8	49.7	48.2	54.3
Fixed Income - U.S.	8.8	8.2	10.7	9.0	9.9	17.2	17.7	19.8	21.1	22.3	14.5	15.9	17.5	18.4	19.4
Fixed Income - U.S. Gov't						0.4					0.1				
Fixed Income - U.S. Credit						0.1					0.1				
Fixed Income - Long Bonds											1.0	0.0	0.2	0.3	0.3
Fixed Income - EAFE								0.3	0.3	0.4	0.1	0.2	0.2	0.2	0.3
Fixed Income - Emerging	4.0	3.1	2.9	1.5	2.0	1.0	0.8	0.7	0.4	0.2	0.9	0.8	0.7	0.6	0.4
Fixed Income - Global	3.7	3.6	4.0	6.8	9.0	1.7	2.1	2.0	1.7	1.8	1.9	1.9	2.2	2.0	1.9
Fixed Income - Inflation Indexed						2.3	2.4	2.7	3.3	2.8	1.8	1.7	2.0	2.2	1.7
Fixed Income - High Yield	4.0	4.3	5.4	3.0	3.0	1.5	1.3	1.7	1.8	1.4	1.8	1.6	2.0	2.2	1.8
Fixed Income - Mortgages						0.0	0.0	0.1	0.3	0.2	0.2	0.2	0.2	0.3	0.2
Fixed Income - Private Debt						0.3	0.1	0.1			0.2	0.1	0.2	0.0	
Fixed Income - Other						1.0	0.9	0.6	0.7	0.3	0.7	0.7	0.6	0.7	0.5
Cash	21.9	25.2	11.9	13.6	21.6	2.7	3.1	2.4	2.2	2.4	2.6	2.7	1.9	1.9	1.7
Total Fixed Income	42.4	44.4	34.9	34.0	45.5	28.1	28.4	30.5	31.8	31.9	25.8	25.9	27.8	28.8	28.3
Commodities			1.0			0.3	0.3	0.4	0.2	0.2	0.5	0.5	0.6	0.6	0.6
Infrastructure						0.3	0.3	0.2	0.1	0.1	0.3	0.2	0.4	0.5	0.3
Natural Resources						0.5	0.3	0.3	0.1	0.0	0.6	0.4	0.4	0.3	0.2
REITs						1.1	1.0	1.0	0.9	1.0	0.8	0.7	0.7	0.8	0.7
Real Estate ex-REITs	3.8	3.9	3.5	2.3	1.2	6.8	6.0	6.1	5.7	4.5	6.6	6.2	6.3	6.2	5.1
Other Real Assets						0.5	0.4	0.2	0.1	0.0	0.5	0.4	0.3	0.3	0.1
Total Real Assets	3.8	3.9	4.5	2.3	1.2	9.4	8.3	8.0	7.1	5.8	9.2	8.5	8.6	8.6	7.0
Hedge Funds	12.8	16.2	17.9	22.2	19.2	5.2	4.8	4.6	4.5	3.3	5.2	5.2	4.8	5.2	3.3
Global TAA	7.5	6.5	10.2	10.0	8.8	0.7	0.7	0.8	0.8	0.8	2.3	1.2	1.4	1.4	1.1
Div. Private Equity	9.3	9.6	8.8	9.1	6.0	6.5	6.8	7.0	6.9	6.1	5.6	5.6	6.0	5.9	4.5
Venture Capital						0.2	0.1	0.2	0.2	0.1	0.3	0.4	0.3	0.2	0.2
LBO						1.4	0.9	1.0	1.0	1.0	1.4	1.1	1.1	1.2	1.0
Private Debt Limited Partnerships	5.7	5.8	7.3	9.6	10.1	0.6	0.6	0.8	0.8	0.8	0.8	0.4	0.4	0.5	0.3
Total Private Equity	15.0	15.4	16.2	18.7	16.1	8.8	8.5	8.9	8.9	8.1	8.0	7.4	7.8	7.8	6.0
Total Fund	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Count	1	1	1	1	1	20	20	20	20	19	58	62	67	67	72
Median Assets (\$ billions)	29.2	28.6	26.6	24.6	25.4	28.6	27.7	25.4	23.3	22.5	16.6	15.6	14.0	12.8	10.4

1. Your asset mix is based on average assets rather than year-end.

Policy mix

Policy asset mix - 2010 to 2014 (as a % of average assets)

	Your fund %					Peer average %					U.S. Public average %				
	2014	2013	2012	2011	2010	2014	2013	2012	2011	2010	2014	2013	2012	2011	2010
Employer Stock															
U.S. Stock - Broad/All			14.0	14.0	14.0	16.7	17.2	19.4	19.9	20.1	9.9	13.2	12.5	12.0	14.2
U.S. Stock - Large Cap						4.2	3.9	3.4	3.9	5.4	10.4	9.4	11.0	10.1	10.8
U.S. Stock - Mid Cap											0.3	0.1	0.0	0.0	0.0
U.S. Stock - Small Cap						0.3	1.1	1.0	1.3	1.5	1.7	2.1	2.6	3.0	3.3
Stock - EAFE			8.0	8.0	8.0	4.0	5.2	5.9	5.6	6.7	5.3	6.4	6.6	6.4	7.6
Stock - ACWixU.S.						10.2	10.2	11.4	12.9	10.1	9.0	8.1	9.0	9.2	8.7
Stock - Emerging			8.0	8.0	8.0	0.8	1.4	1.4	1.1	1.0	2.0	2.0	2.0	2.2	1.6
Stock - Global	31.0	31.0				11.6	9.4	5.7	4.2	4.0	9.4	8.4	6.3	6.3	5.9
Stock - Other						0.3	0.3	0.3	0.3	0.1	0.4	0.5	0.2	0.1	0.0
Total Stock	31.0	31.0	30.0	30.0	30.0	47.9	48.7	48.5	49.2	48.8	48.4	50.1	50.3	49.2	52.2
Fixed Income - U.S.	7.0	7.0	12.0	10.0	10.0	18.8	19.7	21.1	22.1	23.9	16.3	18.5	19.0	20.5	21.6
Fixed Income - U.S. Gov't															
Fixed Income - U.S. Credit															
Fixed Income - Long Bonds											1.6	0.4	0.2	0.3	0.3
Fixed Income - EAFE								0.3	0.3	0.5	0.1	0.2	0.1	0.2	0.4
Fixed Income - Emerging	6.0	6.0	6.0	3.0	3.0	0.7	0.8	1.3	0.7	0.2	0.8	0.7	0.8	0.7	0.3
Fixed Income - Global	3.0	3.0	1.0	3.0	3.0	2.3	1.4	1.2	1.4	1.5	2.0	1.4	2.0	1.4	1.7
Fixed Income - Inflation Indexed						2.1	2.5	2.4	3.2	3.1	2.8	2.6	1.8	2.2	1.7
Fixed Income - High Yield	6.0	6.0	6.0	3.0	3.0	1.9	2.3	1.9	1.4	1.5	2.0	2.1	1.8	1.9	1.4
Fixed Income - Mortgages								0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Fixed Income - Private Debt						0.3	0.0				0.1	0.1	0.0		
Fixed Income - Other						0.5	0.8	0.8	0.5	0.3	0.4	0.7	0.7	0.4	0.3
Cash	5.0	5.0	7.0	10.0	10.0	1.1	1.2	1.1	1.2	1.4	-0.9	-0.2	0.7	0.9	1.0
Total Fixed Income	27.0	27.0	32.0	29.0	29.0	27.5	28.6	30.0	30.8	32.4	25.1	26.5	27.2	28.5	28.8
Commodities	3.0	3.0	3.0	2.0	2.0	0.6	0.5	0.5	0.5	0.5	0.9	0.9	0.7	0.7	0.6
Infrastructure						0.3	0.3	0.2	0.0		0.4	0.5	0.6	0.5	0.5
Natural Resources						0.4	0.3	0.3	0.3		0.6	0.7	0.4	0.5	0.2
REITs						0.9	0.9	1.2	0.6	0.5	0.6	0.7	0.7	0.5	0.5
Real Estate ex-REITs	5.0	5.0	3.0	6.0	6.0	7.2	6.7	6.2	6.8	6.7	7.2	6.5	6.4	6.8	6.5
Other Real Assets						1.1	0.7	0.4		0.1	0.9	0.5	0.6	0.3	0.2
Total Real Assets	8.0	8.0	6.0	8.0	8.0	10.5	9.5	8.9	8.2	7.9	10.6	9.8	9.4	9.3	8.3
Hedge Funds	8.0	8.0	5.0	5.0	5.0	3.9	3.4	3.0	2.8	2.3	4.8	4.1	3.9	4.1	2.8
Global TAA	10.0	10.0	10.0	10.0	10.0	0.8	0.8	0.8	0.8	0.9	2.1	1.3	1.3	1.2	1.0
Div. Private Equity	9.0	9.0	8.5	10.0	10.0	8.1	7.4	7.0	6.4	6.7	7.3	6.8	6.6	6.4	6.0
Venture Capital						0.1	0.3	0.3	0.1		0.3	0.2	0.2	0.1	0.0
LBO						0.6	0.7	0.7	0.6	0.5	0.7	0.8	0.8	0.7	0.4
Private Debt Limited Partnerships	7.0	7.0	8.5	8.0	8.0	0.7	0.7	0.7	1.1	0.4	0.7	0.3	0.3	0.4	0.3
Total Private Equity	16.0	16.0	17.0	18.0	18.0	9.4	9.0	8.7	8.2	7.7	9.0	8.2	7.8	7.6	6.9
Total Fund	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Count	1	1	1	1	1	20	20	20	20	19	58	62	67	67	72

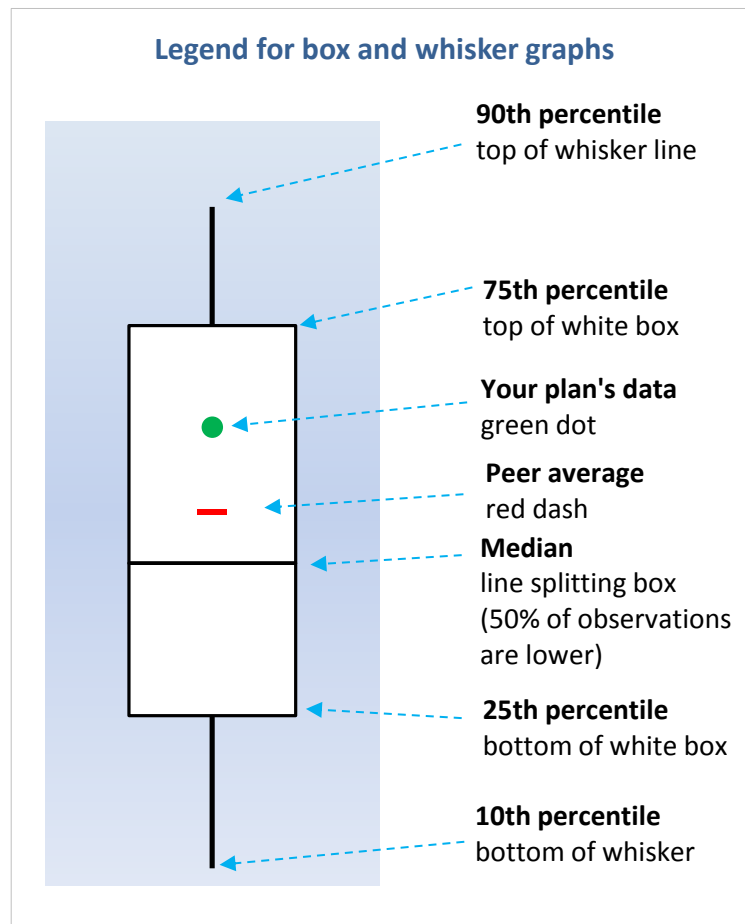
4

Returns, Benchmarks and Value Added

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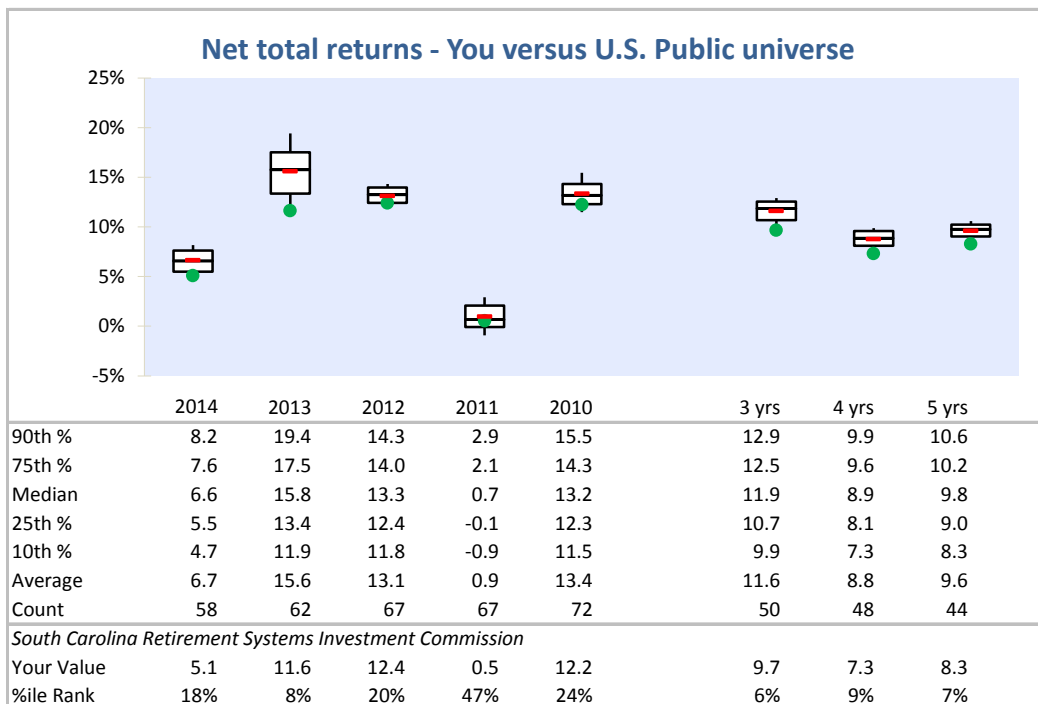
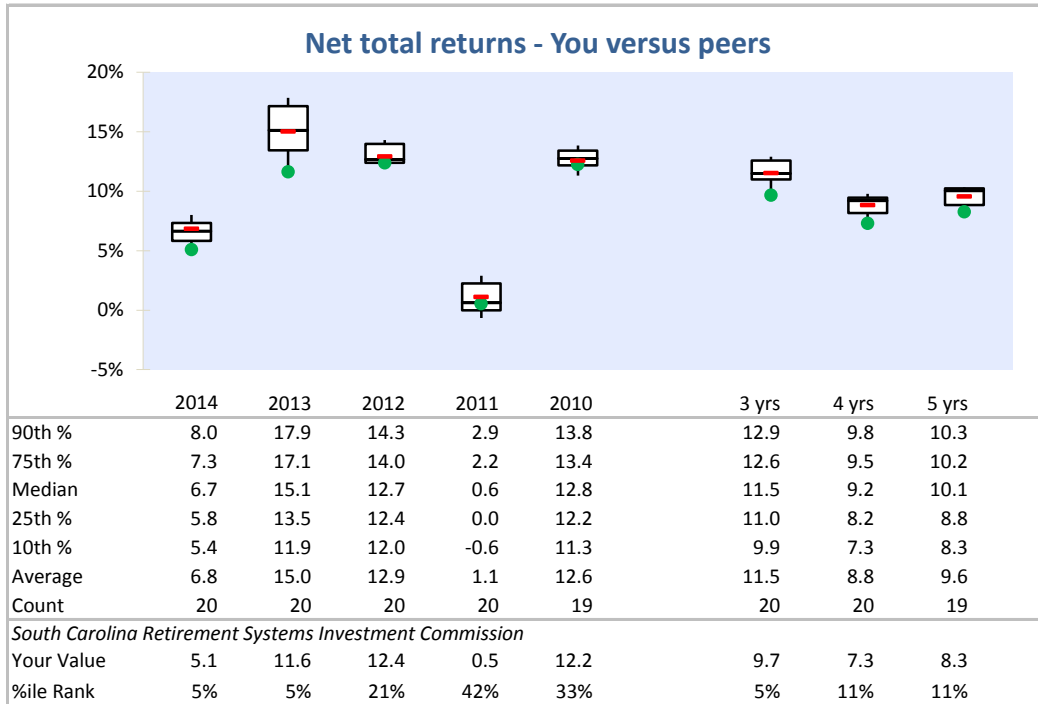
Interpreting box and whisker graphs

Box and whisker graphs are used extensively in this report because they show visually where you rank relative to all observations. At a glance you can see which quartile your data falls in.



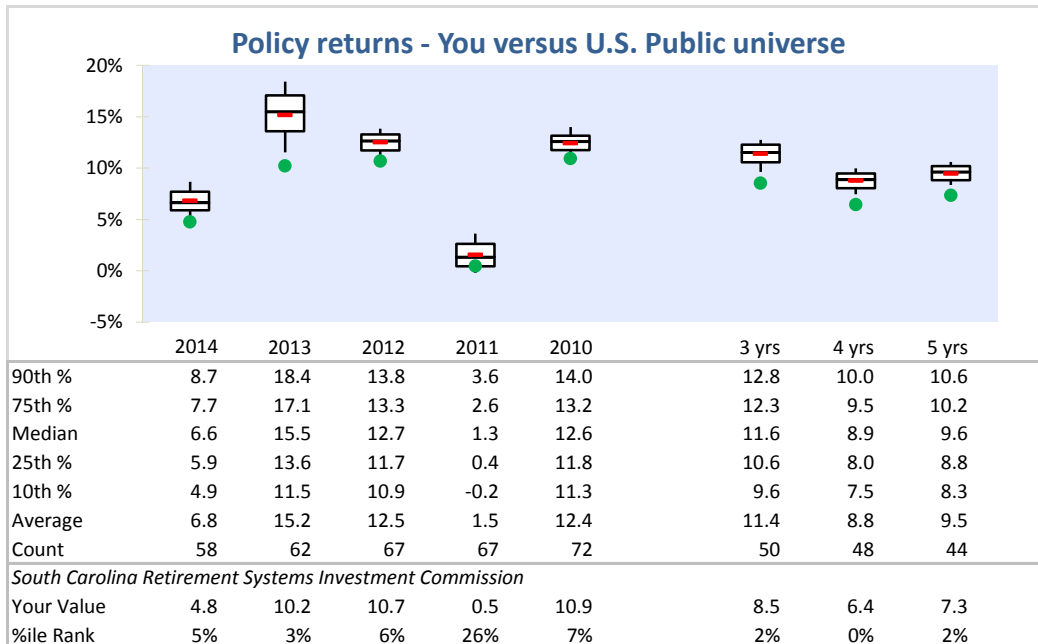
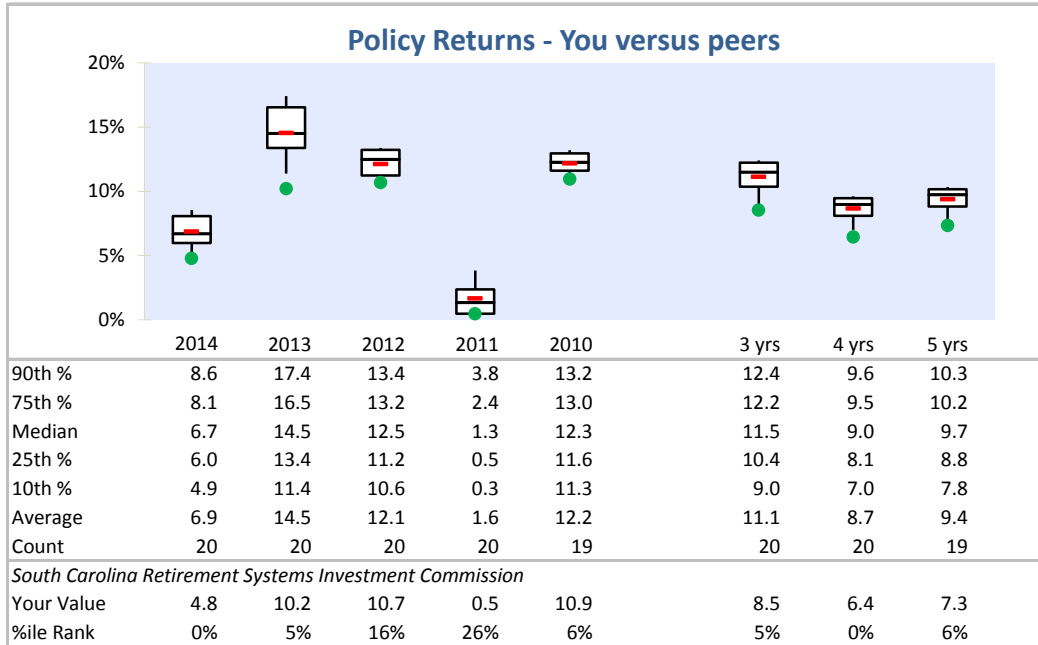
Net total returns

Your 5-year net total return of 8.3% was below the peer median and below the median of the U.S. Public universe. Comparisons of total return do not help you understand the reasons behind relative performance. To understand the relative contributions from policy asset mix decisions and implementation decisions we separate total return into its more meaningful components - policy return and implementation value added.



Policy returns

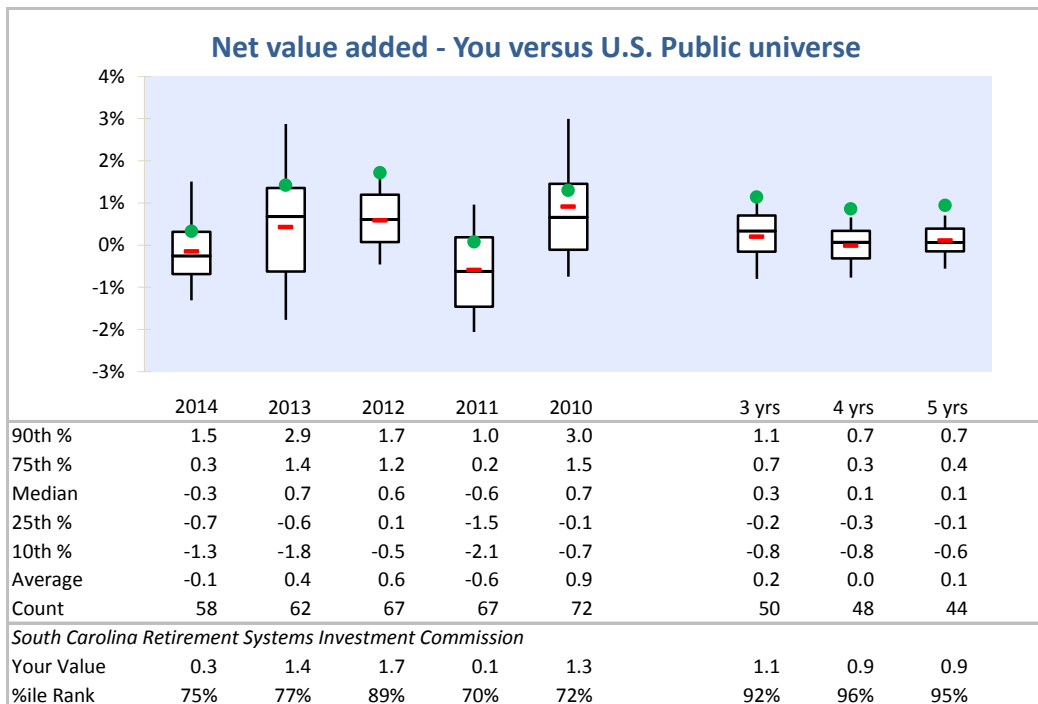
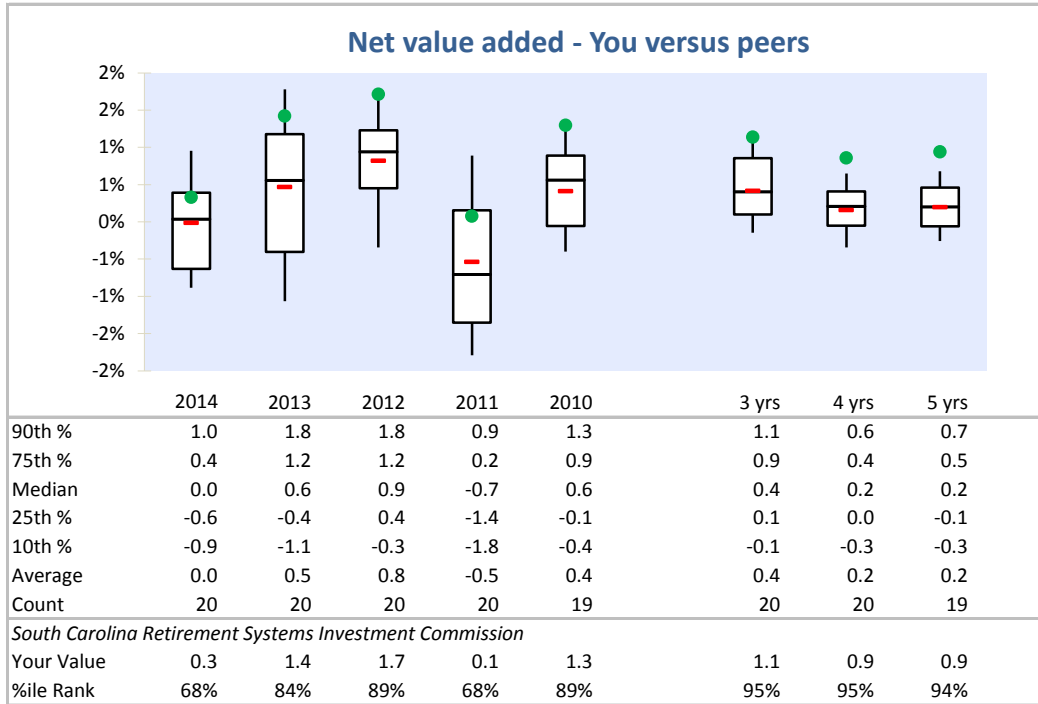
Your 5-year policy return of 7.3% was below the peer median and below the median of the U.S. Public universe. Policy return is the return you would have earned had you passively implemented your policy asset mix decision through your benchmark portfolios.



To enable fairer comparisons, the policy returns of all participants except your fund were adjusted to reflect private equity benchmarks based on lagged, investable, public-market indices. If CEM used this same adjustment for your fund, your 5-year policy return would be 7.6%, 0.2% higher than your actual 5-year policy return of 7.3%. Mirroring this, your 5-year total fund net value added would be 0.2% lower. Refer to the Research section pages 6-7 for details.

Net value added

Your 5-year net value added of 0.9% was among the highest in your peer group and among the highest in the U.S. Public universe. Net value added is the difference between your net total return and your policy return.



Net returns by asset class

Asset class	Your fund %						Peer average %						U.S. Public average %					
	2014	2013	2012	2011	2010	5-yr	2014	2013	2012	2011	2010	5-yr	2014	2013	2012	2011	2010	5-yr
U.S. Stock - Broad/All	8.6	35.6	18.0	0.1	25.4	16.9	10.4	34.5	16.4	0.8	17.9	15.5	11.0	32.8	16.2	0.7	17.5	15.2
U.S. Stock - Large Cap							13.1	32.7	16.1	2.4	14.9	15.5	12.7	33.6	16.2	1.4	15.2	15.4
U.S. Stock - Mid Cap							9.2						8.6	37.2	16.3	1.3	18.0	15.7
U.S. Stock - Small Cap							6.2	38.2	16.7	-2.9	26.8	16.1	5.1	39.0	16.0	-3.4	26.7	15.7
Stock - EAFE	-5.1	14.7	16.6				-3.7	22.8	16.7	-10.0	8.8	6.2	-3.8	23.2	16.8	-11.7	10.3	6.2
Stock - Emerging	-0.3	-3.2	19.4	-20.7	17.6	1.4	-2.0	-1.6	19.7	-18.5	20.9	2.6	-1.1	-1.1	18.7	-19.4	19.5	2.3
Stock - ACWIxU.S.							-3.4	18.5	18.0	-11.6	12.0	6.0	-3.4	18.6	17.8	-12.3	12.2	5.8
Stock - Global	4.1						5.1	26.3	16.1	-6.7	13.0	10.2	4.4	23.3	15.1	-7.2	12.9	9.2
Stock - Other							2.0	15.6	15.1	-12.0	19.5	7.4	5.1	19.3	11.7	-6.7	21.2	9.6
Stock - Total	4.0	18.9	18.6	-6.6	24.9	11.3	5.3	26.2	16.8	-4.8	15.6	11.3	5.1	26.3	16.7	-5.1	15.8	11.2
Fixed Income - U.S.	5.1	-1.7	5.9	9.8	7.3	5.2	5.9	-1.4	6.5	7.3	8.4	5.3	5.8	-1.5	6.8	8.4	8.7	5.6
Fixed Income - U.S. Gov't							1.0						1.0					
Fixed Income - U.S. Credit							4.4						6.3					
Fixed Income - EAFE									-0.2	6.2	7.6		-2.6	-3.1	0.9	6.4	7.0	1.6
Fixed Income - Emerging	0.1	-8.7	18.9	-0.2	13.0	4.1	1.0	-8.0	15.3	1.3	12.2	4.0	-0.4	-7.4	15.8	1.0	13.3	4.1
Fixed Income - Global	2.7	-1.5	10.9	2.8	10.5	5.0	5.6	-0.7	6.7	4.3	9.3	5.0	3.6	-0.4	8.0	5.2	8.4	4.9
Fixed Income - Long Bonds													23.0	4.7	10.2	28.3	12.2	15.4
Fixed Income - Inflation Indexed							4.7	-7.4	7.8	11.4	6.5	4.4	4.6	-6.6	7.9	13.2	6.8	5.0
Fixed Income - High Yield	1.2	6.5	11.9	0.4	16.2	7.1	2.4	6.8	13.7	4.0	13.9	8.1	3.7	7.1	15.7	3.7	14.2	8.8
Fixed Income - Mortgages							5.5	0.7	25.4	3.5	13.3	9.3	6.4	5.0	11.9	3.6	13.8	8.0
Fixed Income - Private Debt							3.8	8.4	1.3				0.0	6.8	7.5	3.5		
Fixed Income - Other							5.9	14.9	15.2	-1.2	12.2	9.2	5.5	7.8	13.1	1.9	19.5	9.4
Cash	0.2	1.1	1.0	1.0	0.5	0.8	0.2	0.1	0.6	0.6	0.7	0.5	0.3	0.4	0.9	1.3	0.7	0.7
Fixed Income - Total	1.5	-0.1	6.9	3.8	7.1	3.8	4.9	-0.9	7.3	6.5	8.2	5.1	5.4	-0.8	7.8	7.1	8.8	5.6
Commodities			-3.0				-15.2	-9.3	-1.3	-9.5	17.2	-4.2	-16.4	-4.4	0.9	-7.8	15.0	-3.1
Infrastructure							12.9	9.1	7.1	9.6	-3.7	6.9	13.4	9.7	6.2	1.8	6.2	7.4
REITs							19.0	4.9	20.6	-0.1	22.5	13.0	19.7	4.5	20.9	2.0	23.6	13.8
Natural Resources							10.2	9.5	5.2	3.1	5.2	6.6	10.9	6.6	1.8	3.0	2.4	4.9
Real Estate ex-REITs	19.5	21.1	9.9	4.4	2.1	11.1	12.9	11.5	8.8	13.3	6.9	10.7	12.7	12.4	10.4	13.5	8.0	11.4
Other Real Assets							5.9	12.3	2.5	1.7	3.0	5.0	7.8	10.1	4.0	2.7	6.5	6.2
Real Assets - Total	19.5	21.1	8.3	4.4	2.1	10.8	13.1	10.0	10.1	10.3	9.9	10.7	11.7	10.4	10.2	10.1	10.0	10.5
Hedge Funds	5.7	11.5	10.8	1.5	8.7	7.6	4.9	10.4	7.5	1.1	7.7	6.3	4.6	10.0	6.5	0.6	9.0	6.1
Global TAA	4.8	3.4	12.9	8.8	13.0	8.5	5.9	1.2	12.6	6.9	16.8	8.5	5.7	0.6	10.5	4.9	14.1	7.1
Diversified Private Equity	17.0	21.4	9.7	8.5	16.5	14.5	16.5	18.2	13.0	10.9	14.8	14.6	16.0	17.9	13.1	11.1	13.8	14.4
LBO							14.4	24.5	16.3	14.6	14.9	16.9	14.8	18.4	13.8	11.6	13.2	14.3
Venture Capital							11.5	17.3	3.3	18.3	17.2	13.4	16.3	17.4	9.0	18.9	12.3	14.7
Private Debt Limited Partnerships	10.5	15.5	13.9	0.2	13.7	10.6	10.5	14.6	16.9	4.5	13.3	11.9	13.6	17.9	8.5	2.1	17.1	11.7
Private Equity - Total	14.5	19.0	11.6	3.8	14.6	12.6	16.3	18.0	13.0	11.1	14.8	14.6	15.5	17.7	12.8	11.2	13.7	14.2
Total Fund Return	5.1	11.6	12.4	0.5	12.2	8.3	6.8	15.0	12.9	1.1	12.6	9.6	6.7	15.6	13.1	0.9	13.4	9.8

You were not able to provide full year returns for all of the components of returns shown in italics. The default is to set the unavailable return equal to the benchmark return.

Benchmark returns by asset class

Asset class	Your fund %						Peer average %						U.S. Public average %					
	2014	2013	2012	2011	2010	5-yr	2014	2013	2012	2011	2010	5-yr	2014	2013	2012	2011	2010	5-yr
U.S. Stock - Broad/All	12.6	33.6	16.0	2.1	15.1	15.4	12.8	33.2	16.3	1.3	16.5	15.6	12.7	32.7	16.3	1.2	16.8	15.5
U.S. Stock - Large Cap							13.3	32.7	16.3	1.6	15.9	15.5	13.2	32.9	16.2	1.6	15.8	15.5
U.S. Stock - Mid Cap							10.2						10.4	33.5	17.9	-1.7	26.6	16.7
U.S. Stock - Small Cap							6.7	38.0	16.9	-2.7	25.9	16.1	6.2	37.9	16.9	-3.2	25.8	15.8
Stock - EAFE	-4.9	22.8	17.3	-12.1	7.8	5.3	-3.9	23.2	17.4	-12.2	8.1	5.7	-4.1	21.9	17.2	-12.4	9.4	5.6
Stock - Emerging	-2.2	-2.6	18.2	-18.4	18.9	1.8	-2.1	-2.6	18.4	-18.5	19.1	1.8	-1.7	-1.3	18.2	-18.5	19.1	2.2
Stock - ACWIxU.S.							-3.8	15.6	17.0	-13.8	11.6	4.6	-3.7	16.3	17.0	-13.8	11.7	4.8
Stock - Global	4.2	22.8					4.5	23.8	16.3	-6.7	12.8	9.6	3.6	21.5	15.0	-7.3	12.9	8.7
Stock - Other							2.2	13.6	13.5	-14.2	21.2	6.5	2.9	18.3	11.8	-8.2	15.8	7.6
Stock - Total	4.2	22.8	16.9	-7.2	14.1	9.6	5.5	24.9	16.6	-5.6	14.2	10.6	5.3	25.2	16.6	-5.5	14.8	10.8
Fixed Income - U.S.	6.0	-2.0	4.2	7.8	6.5	4.5	5.9	-1.9	4.9	8.0	6.6	4.6	6.1	-2.1	4.9	8.1	6.7	4.7
Fixed Income - U.S. Gov't							0.8						0.8					
Fixed Income - U.S. Credit							5.8						5.9					
Fixed Income - EAFE									1.5	5.2	7.9		-3.1	-3.8	2.0	5.1	5.3	1.0
Fixed Income - Emerging	0.7	-7.1	17.2	7.4	12.2	5.7	0.2	-6.5	17.3	5.6	12.2	5.4	0.1	-6.4	16.8	3.8	12.5	5.0
Fixed Income - Global	7.6	-0.1	4.3	5.6	5.5	4.6	5.7	-1.3	5.8	6.7	6.9	4.7	4.0	-1.4	4.3	6.5	5.9	3.8
Fixed Income - Long Bonds													20.0	-6.4	4.6	25.4	9.4	10.0
Fixed Income - Inflation Indexed							4.8	-5.9	6.9	11.6	6.4	4.6	4.5	-5.8	7.4	12.7	6.1	4.8
Fixed Income - High Yield	3.4	3.7	14.2	5.0	15.1	8.1	2.6	6.8	14.5	5.4	14.9	8.7	2.8	6.7	13.8	5.2	14.3	8.5
Fixed Income - Mortgages								0.7	9.3	7.6	8.2		4.1	0.2	7.3	4.6	6.1	4.4
Fixed Income - Private Debt							8.3	9.5	11.9				4.6	7.2	6.1	3.9		
Fixed Income - Other							6.2	10.2	10.6	-0.4	8.5	7.0	6.0	5.2	9.2	3.4	15.7	7.8
Cash	0.5	0.1	0.4	0.6	1.0	0.5	0.1	0.2	0.1	0.3	0.1	0.2	0.2	0.3	0.4	0.3	0.2	0.3
Fixed Income - Total	3.4	-1.3	7.7	4.8	6.0	4.1	5.2	-1.5	6.0	7.6	6.9	4.8	7.6	-2.2	6.0	8.0	7.0	5.2
Commodities	-17.0	-9.5	-1.1	-13.3	16.8	-5.5	-13.6	-9.5	-1.0	-13.3	16.8	-4.8	-18.0	-4.2	1.3	-7.2	13.7	-3.4
Infrastructure							6.9	5.2	5.9	10.4	5.8	6.8	6.7	6.8	7.1	8.1	7.9	7.3
REITs							22.7	3.4	21.8	3.9	25.1	15.0	21.7	3.6	22.4	3.8	24.4	14.8
Natural Resources							4.4	6.4	6.9	9.0	5.9	6.5	6.8	7.9	7.2	4.9	3.5	6.0
Real Estate ex-REITs	13.2	13.8	10.5	14.3	13.1	13.0	11.5	12.0	10.7	15.5	11.2	12.2	12.0	11.6	11.1	15.1	10.7	12.1
Other Real Assets							6.2	11.0	4.9	8.8	7.9	7.7	7.5	9.9	5.6	9.2	5.7	7.6
Real Assets - Total	1.8	5.1	4.7	7.4	14.1	6.5	9.7	9.5	11.1	12.5	12.9	11.1	9.2	9.3	10.3	11.6	11.6	10.4
Hedge Funds	3.0	9.1	3.5	-8.9	5.2	2.2	4.3	8.2	5.5	1.2	5.0	4.8	4.1	9.1	6.1	-0.2	5.5	4.9
Global TAA	2.3	10.4	8.7	0.6	8.9	6.1	4.0	8.5	7.8	4.3	7.7	6.4	5.2	9.3	9.3	2.5	8.0	6.8
Diversified Private Equity ¹	18.0	25.1	10.7	8.6	15.4	15.4	20.0	27.7	10.9	13.7	18.1	17.9	16.5	30.3	13.5	12.0	15.7	17.4
LBO ¹							13.1	33.1	15.1	9.9	12.7	16.5	12.4	30.9	15.1	8.9	12.9	15.8
Venture Capital ¹							13.0	32.8	15.1	9.9	12.7	16.4	13.0	31.5	16.0	8.5	15.9	16.7
Private Debt Limited Partnerships ¹	5.4	6.5	9.3	4.3	10.2	7.1	15.9	23.0	10.6	8.4	13.0	14.1	13.6	29.4	14.7	9.1	12.4	15.6
Private Equity ¹ - Total	12.4	17.0	10.0	6.7	13.1	11.8	19.3	27.6	11.0	13.2	17.8	17.6	16.3	30.2	13.4	12.0	15.5	17.3
Total Policy Return	4.8	10.2	10.7	0.5	10.9	7.3	6.9	14.5	12.1	1.6	12.2	9.4	6.8	15.2	12.5	1.5	12.4	9.6

1. To enable fairer comparisons, the policy returns of all participants except your fund were adjusted to reflect private equity benchmarks based on lagged, investable, public-market indices. If CEM used this same adjustment for your fund, your 5-year policy return would be 7.6%, 0.2% higher than your actual 5-year policy return of 7.3%. Mirroring this, your 5-year total fund net value added would be 0.2% lower. Refer to the Research section pages 6-7 for details.

Net value added by asset class

Asset class	Your fund %						Peer average %						U.S. Public average %					
	2014	2013	2012	2011	2010	5-yr	2014	2013	2012	2011	2010	5-yr	2014	2013	2012	2011	2010	5-yr
U.S. Stock - Broad/All	-3.9	2.1	2.0	-2.0	10.4	1.5	-2.3	1.2	0.1	-0.5	1.3	-0.1	-1.7	0.1	-0.1	-0.5	0.7	-0.3
U.S. Stock - Large Cap							-0.2	0.0	-0.2	0.8	-1.0	-0.1	-0.5	0.7	0.0	-0.2	-0.3	-0.2
U.S. Stock - Mid Cap							-1.1						-1.8	3.7	-1.6	3.0	-8.6	-1.0
U.S. Stock - Small Cap							-0.5	0.2	-0.3	-0.2	0.9	0.0	-1.1	1.1	-0.8	-0.2	0.9	-0.1
Stock - EAFE	-0.2	-8.1	-0.7				0.3	-0.5	1.1	1.0	1.7	0.5	0.3	1.4	0.1	0.3	1.1	0.6
Stock - Emerging	1.9	-0.7	1.2	-2.3	-1.3	-0.4	0.0	1.0	1.4	0.1	1.8	0.8	0.6	0.2	0.6	-0.9	0.3	0.1
Stock - ACWIxU.S.							0.3	3.0	1.0	2.2	0.4	1.4	0.3	2.3	0.7	1.5	0.8	1.0
Stock - Global	0.0						0.6	2.3	-0.1	0.0	0.3	0.6	0.8	2.0	0.1	0.1	0.0	0.5
Stock - Other							-0.2	2.0	1.6	2.1	-1.7	0.9	2.3	0.4	-0.7	1.6	3.7	2.0
Stock - Total	-0.1	-3.9	1.6	0.5	10.7	1.7	-0.2	1.3	0.2	0.8	1.4	0.7	-0.1	1.1	0.1	0.4	1.0	0.5
Fixed Income - U.S.	-0.9	0.3	1.7	1.9	0.8	0.8	-0.1	0.5	1.6	-0.7	1.8	0.6	-0.3	0.5	2.0	0.3	2.0	0.9
Fixed Income - U.S. Gov't							0.2						0.2					
Fixed Income - U.S. Credit							-1.4						0.4					
Fixed Income - EAFE									-1.7	-0.2	-0.2		0.4	0.7	-1.1	1.0	1.7	0.6
Fixed Income - Emerging	-0.6	-1.6	1.7	-7.6	0.7	-1.6	0.6	-1.5	0.3	-4.3	-0.1	-1.4	-0.7	-1.0	-0.2	-3.0	0.8	-0.9
Fixed Income - Global	-4.9	-1.4	6.6	-2.8	5.0	0.4	-0.1	0.6	3.7	-2.4	2.4	0.3	-0.2	1.1	4.6	-1.3	3.0	1.1
Fixed Income - Long Bonds													4.6	4.8	5.6	0.2	2.9	5.3
Fixed Income - Inflation Indexed							-0.2	-1.5	0.9	-0.2	0.1	-0.2	-0.2	-1.0	0.5	0.5	0.7	0.2
Fixed Income - High Yield	-2.2	2.8	-2.3	-4.6	1.1	-1.1	-0.2	0.0	-0.7	-1.4	-1.0	-0.6	0.9	0.5	1.6	-1.6	0.0	0.3
Fixed Income - Mortgages								0.0	16.1	-4.0	5.1		3.2	4.8	4.5	-1.3	7.1	3.6
Fixed Income - Private Debt							-2.2	-1.0	-7.5				-4.5	-0.4	2.5	-0.4		
Fixed Income - Other							-0.3	2.1	1.0	-0.7	3.7	2.2	-0.5	2.2	3.2	-1.6	5.0	1.6
Cash	-0.3	1.0	0.7	0.4	-0.5	0.3	0.1	0.0	0.5	0.3	0.6	0.3	0.1	0.1	0.4	1.1	0.5	0.4
Fixed Income - Total	-1.9	1.1	-0.7	-1.0	1.1	-0.3	-0.4	0.5	1.2	-1.1	1.4	0.3	-2.2	1.2	1.9	-0.9	1.8	0.4
Commodities			-1.9				1.9	0.2	-0.3	3.8	0.3	0.5	1.2	-0.5	-0.3	-0.9	1.4	0.3
Infrastructure							6.1	3.8	1.3	-0.7	-9.4	0.1	6.6	2.9	-0.8	-6.4	-1.6	0.1
REITs							-3.7	1.4	-1.2	-4.1	-2.6	-2.0	-2.0	0.9	-0.8	-1.9	-0.8	-1.0
Natural Resources							5.8	3.2	-1.7	-5.9	-0.7	0.1	4.1	-1.6	-5.4	-1.8	-1.1	-1.1
Real Estate ex-REITs	6.4	7.3	-0.6	-9.8	-11.0	-1.8	1.5	-0.5	-1.9	-2.2	-4.3	-1.5	0.6	0.8	-0.7	-1.6	-2.7	-0.7
Other Real Assets							-0.3	1.3	-2.4	-5.3	-2.2	-2.7	0.3	-1.1	-2.0	-4.2	2.3	-1.4
Real Assets - Total	17.7	16.0	3.6	-3.0	-11.9	4.3	3.3	0.5	-1.0	-2.2	-2.9	-0.5	2.5	1.1	-0.2	-1.5	-1.6	0.1
Hedge Funds	2.7	2.4	7.3	10.4	3.5	5.4	0.6	2.1	2.0	-0.2	3.2	1.4	0.4	0.9	0.5	0.8	3.7	1.2
Global TAA	2.6	-7.0	4.2	8.3	4.2	2.4	1.8	-7.3	4.8	2.6	9.1	2.1	0.5	-8.7	1.2	2.4	6.1	0.2
Diversified Private Equity ¹	-1.0	-3.7	-0.9	-0.1	1.1	-0.9	-3.5	-9.4	2.1	-2.7	-3.3	-3.3	-0.5	-12.4	-0.4	-0.9	-1.8	-3.1
LBO ¹							2.3	-8.6	1.2	4.8	2.3	0.4	2.6	-12.6	-1.3	2.7	0.7	-1.5
Venture Capital ¹							0.0	-15.5	-11.8	8.4	4.6	-3.1	4.1	-14.1	-6.9	10.5	-3.0	-2.0
Private Debt Limited Partnerships ¹	5.1	9.0	4.6	-4.2	3.5	3.5	-5.3	-8.4	6.3	-1.8	-0.8	-2.2	0.0	-11.5	-6.2	-6.6	3.8	-4.0
Private Equity ¹ - Total	2.0	2.0	1.7	-2.9	1.5	0.8	-2.9	-9.6	1.9	-2.1	-3.0	-3.0	-0.8	-12.5	-0.6	-0.8	-1.8	-3.1
Total fund	0.3	1.4	1.7	0.1	1.3	0.9	0.0	0.5	0.8	-0.5	0.4	0.2	-0.1	0.4	0.6	-0.6	0.9	0.2

Total net value add is determined by both actual and policy allocation. It is the outcome of total net return (page 6) minus total benchmark return (page 7). Aggregate net returns are an asset weighted average of all categories that the fund has an actual allocation to. Aggregate benchmark returns are a policy weighted average and includes only those categories that are part of your policy fund's mix.

You were not able to provide full year returns for all of the components of returns of asset classes with values shown in italics. The default is to set the unavailable return equal to the benchmark return.

1. To enable fairer comparisons, the policy returns of all participants except your fund were adjusted to reflect private equity benchmarks based on lagged, investable, public-market indices. If CEM used this same adjustment for your fund, your 5-year policy return would be 7.6%, 0.2% higher than your actual 5-year policy return of 7.3%. Mirroring this, your 5-year total fund net value added would be 0.2% lower. Refer to the Research section pages 6-7 for details.

Most frequently used benchmarks by asset class - 2014 - Stock

How many of your peers use the most frequently used benchmarks by universe

Benchmark Description	Return ¹	# Using	
		Peers	US
<u>U.S. Stock - Broad/All</u>			
Russell 3000	12.6	9	47
S&P 500	13.7	2	5
Wilshire 5000	12.7	1	4
DJ US Total Stock Market	12.5		2
Other	13.0	2	16
Total	12.7	14	74
<u>U.S. Stock - Large Cap</u>			
S&P 500	13.7	4	40
Russell 1000	13.2	3	32
Russell 3000	12.5		11
Custom	13.2	1	5
Other	12.8	3	26
Total	13.2	11	114
<u>U.S. Stock - Small Cap</u>			
Russell 2000	4.9	5	62
RUSSELL 2500	6.9	2	13
Custom	7.3	1	7
Russell 2000 Index	4.9		3
Other	7.5	4	29
Total	5.9	12	114
<u>Stock - EAFE</u>			
MSCI EAFE Net	-4.9	5	39
Custom	-3.3	2	10
MSCI EAFE	-4.3		6
MSCI EAFE gross	-4.5	1	5
Other	-3.5	2	43
Total	-4.1	10	103
<u>Stock - Europe</u>			
MSCI ACWI	4.8		1
Total	4.8		1

Benchmark Description	Return ¹	# Using	
		Peers	US
<u>Stock - Emerging</u>			
MSCI Emerging Market net	-2.1	7	49
MSCI Emerging Market gross	-1.9	3	10
Custom	-1.0	1	9
MSCI Emerging Markets	-2.0		8
Other		3	43
Total	-1.2	14	119
<u>Stock - ACWIxU.S.</u>			
MSCI ACWI xUS net	-3.9	5	27
MSCI ACWI xUS gross	-3.5	1	7
MSCI ACWI xUS IMI net	-3.9	1	3
Custom	-3.4		2
Other	-3.5	5	43
Total	-3.6	12	82
<u>Stock - Global</u>			
MSCI ACWI net	4.2	3	16
MSCI World Net	4.8	1	15
Custom	2.9	1	8
MSCI ACWI	4.3		4
Other	4.6	3	38
Total	4.4	8	81
<u>Stock - Asia-Pacific</u>			
MSCI ACWI	4.8		1
Total	4.8		1

1. Return reflects the average return provided to CEM for the described benchmark. Often, different returns for the same described benchmark are provided due to revisions (particularly for real estate benchmarks), rounding and differences in calculation methodology (particularly for hedged returns).

Most frequently used benchmarks by asset class - 2014 - Fixed Income

Benchmark Description	Return ¹	# Using	
		Peers	US
<u>Fixed Income - U.S.</u>			
Barclays US Aggregate	6.0	11	57
Custom	9.7	1	9
Barclays US Universal	6.2	3	5
Barclays aggregate	6.0		3
Other	7.2	5	40
Total	6.7	20	114
<u>Fixed Income - EAFE</u>			
Barclays Global Aggregate ex US	-3.4		1
CalPERS Barclays International Fixe	-5.4		1
Citigroup Non-U.S. World Governr	-0.3		1
Custom	9.1		1
Total	0.0		4
<u>Fixed Income - Global</u>			
Barclays US Aggregate	6.0		6
Barclays Global Aggregate	3.4	2	5
Custom	1.2		2
77% Barclays Aggregate/23% Citigr	4.5		1
Other	2.6	5	21
Total	3.3	7	35
<u>Fixed Income - Emerging</u>			
Custom	-0.5	1	4
JP Morgan EMBI Global Diversified	7.4		4
JPM EMBI Global Diversified	6.0		3
JPMorgan GBI-EM Global Diversifie	-5.7	1	3
Other	1.1	8	34
Total	1.4	10	48

Benchmark Description	Return ¹	# Using	
		Peers	US
<u>Fixed Income - High Yield</u>			
Barclays US Corp High Yield			11
Custom		1	7
Barclays US Corp High Yield 2% Cap		1	4
Citigroup High Yield Bond			3
Other		7	51
Total		9	76
<u>Fixed Income - Inflation Indexed</u>			
Barclays US TIPS		5	20
Custom		1	2
50% BC Global Inflat Linked:US TIP:		1	1
67% Barclays Global Inflation-Linke			1
Other		4	18
Total		11	42
<u>Fixed Income - Mortgages</u>			
Custom			3
95% BC US Agg x-Tobacco x-firearn			1
Barclays Mortgage Index			1
Barclays Mortgage Index Lagged			1
Other		1	9
Total		1	15
<u>Fixed Income - Long Bonds</u>			
Custom			21
Barclays US Long G/C			14
Barclays Long Corporate			3
Barclays US Long Credit			3
Other			43
Total			84

Most frequently used benchmarks by asset class - 2014 - Hedge Funds and Real Assets²

Benchmark Description	Return ¹	# Using	
		Peers	US
<u>Global TAA</u>			
Custom	4.9		15
3 Month LIBOR + 200 bps	2.2		2
20% S&P 500; 40% Barclays Treasu	4.7		1
35.72% Russell 3000, 28.56% Barcl	4.6		1
Other	5.7	2	27
Total	5.2	2	46
<u>Hedge Funds</u>			
Custom	4.8	2	29
HFRI Fund of Funds Composite Ind	3.5		7
3 Month LIBOR + 200 bps	2.2		2
HFRI Equity Hedge Index	0.3		2
Other	3.3	10	69
Total	3.7	12	109
<u>Commodities</u>			
Dow Jones UBS Commodity Index	-17.0	3	15
Custom	-11.9		5
Bloomberg Commodity Index	-17.0	1	3
Goldman Sachs Commodities Index	-33.1		2
Other	-18.6	1	21
Total	-17.9	5	46
<u>REITs</u>			
Your REIT benchmark	18.5	6	27
Custom	17.3		7
Wilshire REIT	31.8	2	4
DJ Select Real Estate Securities	31.8		1
Other	23.6	3	17
Total	21.1	11	56

Benchmark Description	Return ¹	# Using	
		Peers	US
<u>Infrastructure</u>			
Custom	7.6	2	7
CPI + 5%	6.0	2	5
[Domestic CPI+4%]xw3 + Actual Re	8.0		1
Actual return	0.0		1
Other	6.6	3	21
Total	6.6	7	35
<u>Natural Resources</u>			
Custom	7.9	1	9
CPI + 5%	5.7	2	4
NCREIF TIMBERLAND	10.5		3
NCREIF Timberland Index	10.2		2
Other	6.0	5	28
Total	6.8	8	46
<u>Real Estate ex-REITs</u>			
Custom	10.6	4	21
NCREIF	11.7	2	20
NCREIF qtr lag	11.3	2	12
NCREIF ODCE	11.2	1	10
Other	11.5	11	76
Total	11.4	20	139

2. In order to eliminate the substantial noise caused by inconsistent and often inappropriate private equity benchmarks (see Research section page 6), the private equity benchmarks of all participants were adjusted to reflect investable private equity benchmarks based on lagged, small-cap stock. As a result of this adjustment, the most commonly used private equity benchmarks are not shown.

Your policy return and value added calculation - 2014

2014 Policy Return and Value Added

Asset class	Policy weight	Benchmark Description	Return	Net return	Value added
U.S. Stock - Broad/All		Russell 3000 (default)	12.6%	8.6%	-3.9%
Stock - EAFE		MSCI EAFE net (default)	-4.9%	-5.1%	-0.2%
Stock - Emerging		MSCI Emerging Market net (default)	-2.2%	-0.3%	1.9%
Stock - Global	31.0%	MSCI All Country world Index (Net)	4.2%	4.1%	0.0%
Fixed Income - U.S.	7.0%	Barclays US Aggregate	6.0%	5.1%	-0.9%
Fixed Income - Emerging	6.0%	50% JPM EMBI Global Diversified/50% JPM-GBI-EM C	0.7%	0.1%	-0.6%
Fixed Income - Global	3.0%	Barclays Global Aggregate (USDH)	7.6%	2.7%	-4.9%
Fixed Income - High Yield	6.0%	33%BarCapUS Corp High Yield 2% / 33%S&P LSTA Lev	3.4%	1.2%	-2.2%
Cash	5.0%	90 D T-Bill / BarCap 1-3 Gov Credit	0.5%	0.2%	-0.3%
Commodities	3.0%	Bloomberg Commodity Index	-17.0%		
Real Estate ex-REITs	5.0%	NCREIF ODCE Index + 75 bps	13.2%	19.5%	6.4%
Hedge Funds	8.0%	HFRI Fund Weighted Composite Index	3.0%	5.7%	2.7%
Global TAA	10.0%	50% MSCI World / 50% Citi WGBI	2.3%	4.8%	2.6%
Diversified Private Equity	9.0%	80% Russell 3000 / 20% MSCI EAFE + 300 Bps Quarte	18.0%	17.0%	-1.0%
Private Debt Limited Partnerships	7.0%	S&P/LSTA + 150 Bps 3 Month Lagged	5.4%	10.5%	5.1%
Total	100.0%				
Net Actual Return (reported by you)					5.1%
Calculated Policy Return = sum of (policy weights X benchmark returns)				4.8%	
Adjustment to reflect rebalancing and overlay impacts				0.0%	
Policy Return				4.8%	4.8%
Net Value Added (Net Return - Policy Return)					0.3%

Your policy return and value added calculations - 2010 to 2013

2013 Policy Return and Value Added

Asset class	Policy weight	Benchmark		Net return	Value added
		Description	Return		
U.S. Stock		Russell 3000 (def.	33.6%	35.6%	2.1%
Stock - EAFE		MSCI EAFE net (d	22.8%	14.7%	-8.1%
Stock - Emerging		MSCI Emerging IV	-2.6%	-3.2%	-0.7%
Stock - Global	31.0%	MSCI All Country	22.8%		
Fixed Income - U.S.	7.0%	Barclays US Aggr	-2.0%	-1.7%	0.3%
Fixed Income - Emerging	6.0%	JPM EMBI Global	-7.1%	-8.7%	-1.6%
Fixed Income - Global	3.0%	Barclays Global A	-0.1%	-1.5%	-1.4%
Fixed Income - High Yield	6.0%	Barclays US Corp	3.7%	6.5%	2.8%
Cash	5.0%	90 D T-Bill / Merr	0.1%	1.1%	1.0%
Commodities	3.0%	Dow Jones UBS C	-9.5%		
Real Estate ex-REITs	5.0%	NCREIF ODCE Ind	13.8%	21.1%	7.3%
Hedge Funds	8.0%	HFRI Fund Weigh	9.1%	11.5%	2.4%
Global TAA	10.0%	50% MSCI World;	10.4%	3.4%	-7.0%
Diversified Private Equity	9.0%	80% Russell 3000	25.1%	21.4%	-3.7%
Other Private Equity	7.0%	S&P/LSTA + 150 E	6.5%	15.5%	9.0%
Total	100.0%				
Net Return (reported by you)					11.6%
Calculated policy return (sum: Policy weights x benchmarks)				11.6%	
Adjustment to reflect rebalancing and overlay impacts				<u>-1.4%</u>	
Policy Return					<u>10.2%</u>
Net Value Added (Net Return - Policy Return)					1.4%

2011 Policy Return and Value Added

Asset class	Policy weight	Benchmark		Net return	Value added
		Description	Return		
U.S. Stock	14.0%	S&P 500	2.1%	0.1%	-2.0%
Stock - EAFE	8.0%	MSCI EAFE net	-12.1%		
Stock - Emerging	8.0%	MSCI Emerging IV	-18.4%	-20.7%	-2.3%
Fixed Income - U.S.	10.0%	Barclays US Aggr	7.8%	9.8%	1.9%
Fixed Income - Emerging	3.0%	JP Morgan EMBI I	7.4%	-0.2%	-7.6%
Fixed Income - Global	3.0%	Barclays Global A	5.6%	2.8%	-2.8%
Fixed Income - High Yield	3.0%	Barclays US Corp	5.0%	0.4%	-4.6%
Cash	10.0%	90 D T-Bill/Merril	0.6%	1.0%	0.4%
Commodities	2.0%	Dow Jones UBS C	-13.3%		
Real Estate ex-REITs	6.0%	NCREIF	14.3%	4.4%	-9.8%
Hedge Funds	5.0%	HFRX Global Hedj	-8.9%	1.5%	10.4%
Global TAA	10.0%	50% MSCI World;	0.6%	8.8%	8.3%
Diversified Private Equity	10.0%	Venture Economi	8.6%	8.5%	-0.1%
Other Private Equity	8.0%	1/3 Barcap High Y	4.3%	0.2%	-4.2%
Total	100.0%				
Net Return (reported by you)					0.5%
Calculated policy return (sum: Policy weights x benchmarks)				0.6%	
Adjustment to reflect rebalancing and overlay impacts				<u>-0.2%</u>	
Policy Return					<u>0.5%</u>
Net Value Added (Net Return - Policy Return)					0.1%

2012 Policy Return and Value Added

Asset class	Policy weight	Benchmark		Net return	Value added
		Description	Return		
U.S. Stock	14.0%	S&P 500	16.0%	18.0%	2.0%
Stock - EAFE	8.0%	MSCI EAFE net	17.3%	16.6%	-0.7%
Stock - Emerging	8.0%	MSCI Emerging IV	18.2%	19.4%	1.2%
Stock - Global					
Fixed Income - U.S.	12.0%	Barclays US Aggr	4.2%	5.9%	1.7%
Fixed Income - Emerging	6.0%	JPM EMBI Global	17.2%	18.9%	1.7%
Fixed Income - Global	1.0%	Barclays Global A	4.3%	10.9%	6.6%
Fixed Income - High Yield	6.0%	Barclays US Corp	14.2%	11.9%	-2.3%
Cash	7.0%	90 D T-Bill/Merril	0.4%	1.0%	0.7%
Commodities	3.0%	Dow Jones UBS C	-1.1%	-3.0%	-1.9%
Real Estate ex-REITs	3.0%	NCREIF	10.5%	9.9%	-0.6%
Hedge Funds	5.0%	HFRX Global Hedj	3.5%	10.8%	7.3%
Global TAA	10.0%	50% MSCI World;	8.7%	12.9%	4.2%
Diversified Private Equity	8.5%	80% Russell 3000	10.7%	9.7%	-0.9%
Other Private Equity	8.5%	1/3 Barcap High Y	9.3%	13.9%	4.6%
Total	100.0%				
Net Return (reported by you)					12.4%
Calculated policy return (sum: Policy weights x benchmarks)				10.6%	
Adjustment to reflect rebalancing and overlay impacts				<u>0.1%</u>	
Policy Return					<u>10.7%</u>
Net Value Added (Net Return - Policy Return)					1.7%

2010 Policy Return and Value Added

Asset class	Policy weight	Benchmark		Net return	Value added
		Description	Return		
U.S. Stock	14.0%	S&P 500	15.1%	25.4%	10.4%
Stock - EAFE	8.0%	MSCI EAFE net	7.8%		
Stock - Emerging	8.0%	MSCI Emerging IV	18.9%	17.6%	-1.3%
Fixed Income - U.S.	10.0%	Barclays US Aggr	6.5%	7.3%	0.8%
Fixed Income - Emerging	3.0%	JP Morgan EMBI I	12.2%	13.0%	0.7%
Fixed Income - Global	3.0%	Barclays Global A	5.5%	10.5%	5.0%
Fixed Income - High Yield	3.0%	Barclays US Corp	15.1%	16.2%	1.1%
Cash	10.0%	90 D T-Bill/Merril	1.0%	0.5%	-0.5%
Commodities	2.0%	Dow Jones UBS C	16.8%		
Real Estate ex-REITs	6.0%	NCREIF	13.1%	2.1%	-11.0%
Hedge Funds	5.0%	HFRX Global Hedj	5.2%	8.7%	3.5%
Global TAA	10.0%	50% MSCI World;	8.9%	13.0%	4.2%
Diversified Private Equity	10.0%	Venture Economi	15.4%	16.5%	1.1%
Other Private Equity	8.0%	1/3 Barcap High Y	10.2%	13.7%	3.5%
Total	100.0%				
Net Return (reported by you)					12.2%
Calculated policy return (sum: Policy weights x benchmarks)				10.6%	
Adjustment to reflect rebalancing and overlay impacts				<u>0.3%</u>	
Policy Return					<u>10.9%</u>
Net Value Added (Net Return - Policy Return)					1.3%

Profit/Loss on overlay programs

Overlay type	Your fund		Peer median				U.S. Public median			
	2014	2013	2014		2013		2014		2013	
	bps	bps	bps	#	bps	#	bps	#	bps	#
Int. Discretionary Currency							3	2	0	2
Ext. Discretionary Currency					-1	1	2	2	0	2
Internal Global TAA							0	1		
External Global TAA										
Internal PolicyTilt TAA										
External PolicyTilt TAA										
Internal Commodities										
External Commodities							0	2	-54	1
Internal Long/Short										
External Long/Short										
Internal Other							0	1	0	1
External Other							5	2	0	5
Total Profit/Loss					-1	1	1	7	0	9

Profit/loss in basis points was calculated using total fund average holdings. This was done to measure the impact of the program at the total fund level.

5

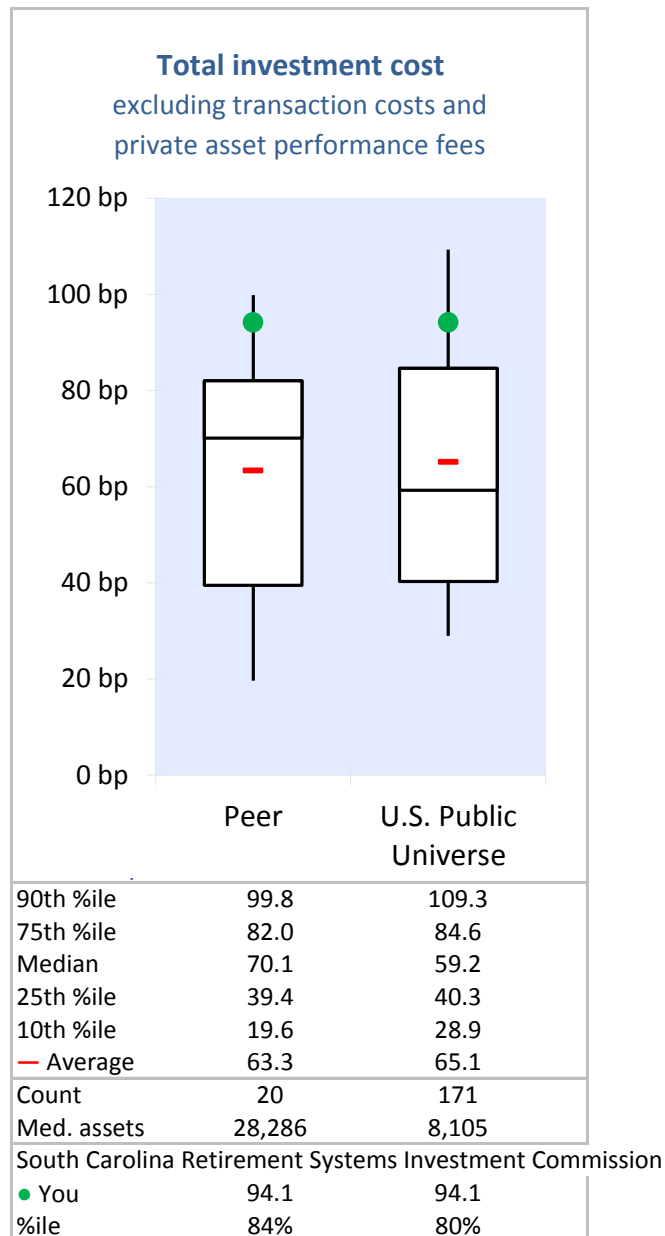
Total cost and benchmark cost

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Comparisons of total investment cost

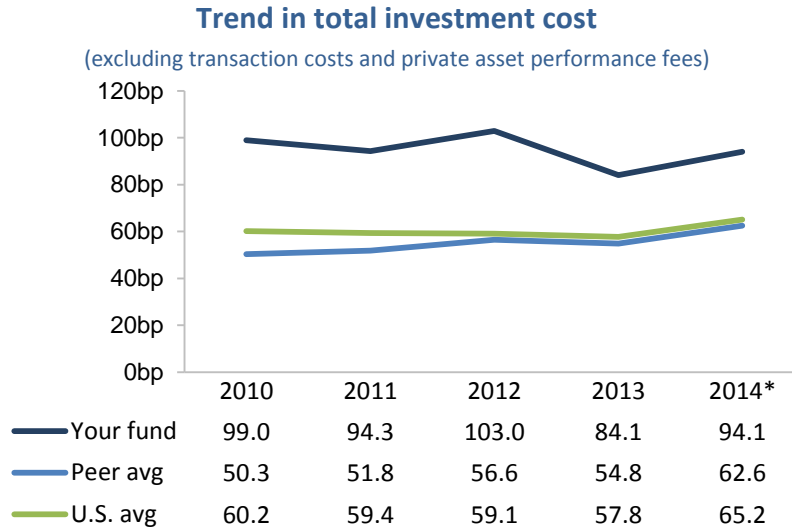
Your total investment cost, excluding transaction costs and private asset performance fees, of 94.1 bps was above the peer median of 70.1 bps.

Differences in total investment cost are often caused by two factors that are usually outside of management's control: asset mix and fund size. Therefore, to assess whether your fund's total investment cost is high or low given your unique asset mix and size, CEM calculates a benchmark cost for your fund. Benchmark cost analysis begins on page 7 of this section.



Trend in total investment cost

Your total investment cost, excluding transaction costs and private asset performance fees, decreased from 99.0 bps in 2010 to 94.1 bps in 2014.



Trend analysis is based on the 130 U.S. funds and the 19 peer funds with 5 or more consecutive years of data.

* Starting in 2014 hedge fund performance fees are being included for all participants. This is one reason for the uptick in costs relative to 2013.

Types of costs included in your total investment cost

The table below outlines the types of costs included in your total investment cost.

Asset class	Internal		External			
	In-house total cost	Transaction costs	Manager base fees	Monitoring & other costs	Perform. fees (active only)	Transaction costs
<u>Public</u> (Stock, Fixed income, commodities, REITs)	✓	✗	✓	✓	✓	✗
Derivatives/Overlays	✓	✗	✓	✓	✓	✗
<u>Hedge funds & Global TAA</u>						
Hedge Funds	n/a	n/a	✓	✓	✓	✗
Global TAA	✓	✗	✓	✓	✓	✗
<u>Private equity</u> (Diversified private equity, venture capital, LBO, other private equity)	✓	✗	✓*	✓	✗	✗
<u>Private real assets</u> (Infrastructure, natural resources, real estate ex-REITs, other real assets)	✓	✗	✓*	✓	✗	✗

*For limited partnerships, external manager base fees represent gross contractual management fees.

- ✓ indicates cost is included.
- ✗ indicates cost is excluded.
- Green shading indicates that the cost type has been newly added for the 2014 data year.
- CEM currently excludes external private asset performance fees and all transaction costs from your total cost because only a limited number of participants are currently able to provide complete data.

Detailed breakdown of your total investment cost

Your 2014 total investment cost, excluding transaction costs and private asset performance fees, was 94.1 bp or \$275.0 million.

Your investment costs

	Internal		External Passive		External Active			Total		
	Passive	Active	Fees	Monitoring & Other	Base Fees	Perform. Fees ¹	Monitoring & Other	\$000s	bps	% of Total
Asset management										
U.S. Stock - Broad/All		1	888	255	8,857		355	10,355		4%
Stock - EAFE					5,121		187	5,308		2%
Stock - Emerging					8,080		261	8,342		3%
Stock - Global			248	341				589		0%
Fixed Income - U.S.		44			4,031		601	4,675		2%
Fixed Income - Emerging			306	174	2,629		132	3,240		1%
Fixed Income - Global					3,172		280	3,452		1%
Fixed Income - High Yield					6,589		306	6,894		3%
Cash		568			1,657		554	2,779		1%
Real Estate ex-REITs		8						8		0%
Real Estate ex-REITs - LPs ³					14,727	44,656 ¹	279	59,663		22%
Hedge Funds					26,098	30,515	351	56,964		21%
Hedge Funds - Fund of Funds					9,071	479	617	10,167		4%
Underlying Fund of Fund Fees					36,966	32,186		69,151		25%
Global TAA					12,450	0	567	13,017		5%
Diversified Private Equity ³		1,827			23,878	39,584 ¹	417	65,707		24%
Diversified Private Equity - Fund of Funds					3,098	2,565 ¹	89	5,752		2%
Underlying Fund of Fund Fees ²					5,919			5,919		2%
Private Debt Limited Partnerships ³		4			23,944	30,833 ¹	432	55,213		20%
Overlay Programs		0			1,106	0	308	1,414		1%
Total asset management costs excluding private asset performance fees								270,971	92.7bp	99%
Oversight, custodial & other asset related costs										
Oversight of the Fund								1,478		1%
Trustee & Custodial								426		0%
Consulting and Performance Measurement								998		0%
Audit								816		0%
Other								287		0%
Total oversight, custodial & other costs								4,005	1.4bp	1%
Total investment costs excluding transaction costs and private asset performance fees								274,976	94.1bp	100%

¹ Starting in 2014, CEM changed its methodology to include performance fees on hedge funds in total cost used for comparison and benchmarking. Performance fees for real estate, infrastructure, natural resources and private equity are excluded.

² Default costs added. Refer to Appendix A.

³ Base fees derived from the partnership level detail you provided.

Changes in your investment costs

The table below shows how your investment costs have changed from year to year by asset class.

Change in your investment costs (2014 - 2010)

	Investment costs (\$000s)					Change (\$000s)				Change (%)			
	2014	2013	2012	2011	2010	2014	2013	2012	2011	2014	2013	2012	2011
Asset management													
U.S. Stock - Broad/All	10,355	10,152	10,514	10,070	14,750	203	-362	444	-4,679	2%	-3%	4%	-32%
Stock - EAFE	5,308	1,941	945	0	0	3,367	996	945		173%	105%		
Stock - Emerging	8,342	9,806	7,786	4,290	2,451	-1,464	2,020	3,496	1,840	-15%	26%	81%	75%
Stock - Global	589	0	0	0	0	589							
Fixed Income - U.S.	4,675	4,693	4,565	4,018	4,778	-18	127	548	-761	0%	3%	14%	-16%
Fixed Income - Emerging	3,240	1,707	2,087	1,865	978	1,533	-380	222	887	90%	-18%	12%	91%
Fixed Income - Global	3,452	3,193	3,745	5,359	25,177	260	-552	-1,614	-19,817	8%	-15%	-30%	-79%
Fixed Income - High Yield	6,894	8,468	6,865	4,695	2,786	-1,573	1,602	2,170	1,909	-19%	23%	46%	69%
Cash	2,779	2,875	2,836	2,680		-97	39	156	2,680	-3%	1%	6%	
Real Estate ex-REITs	8	17	23	0	0	-8	-6	23		-50%	-27%		
Real Estate ex-REITs - LPs ³	15,007	17,443	16,780	5,407	956	-2,436	663	11,373	4,452	-14%	4%	210%	466%
Hedge Funds	56,964	23,105	35,785	37,348	40,692	33,859	-12,680	-1,563	-3,344	147%	-35%	-4%	-8%
Hedge Funds - Fund of Funds	10,167	20,270	23,186	22,818	22,681	-10,103	-2,916	368	137	-50%	-13%	2%	1%
Underlying Fund of Fund Fees	69,151	37,822	48,478	43,136	43,083	31,329	-10,656	5,343	53	83%	-22%	12%	0%
Global TAA	12,450	11,441	11,167	10,387	7,915	1,009	274	780	2,472	9%	2%	8%	31%
Diversified Private Equity ³	26,123	30,294	30,269	28,769	21,307	-4,171	24	1,500	7,462	-14%	0%	5%	35%
Diversified Private Equity - Fund of Funds	3,187	3,077	5,116	2,881	3,409	110	-2,039	2,235	-528	4%	-40%	78%	-15%
Underlying Fund of Fund Fees ²	5,919	7,629	9,339	5,282	4,099	-1,711	-1,710	4,057	1,183	-22%	-18%	77%	29%
Private Debt Limited Partnerships ³	24,380	33,572	36,500	40,701	38,962	-9,192	-2,928	-4,201	1,739	-27%	-8%	-10%	4%
Overlay Programs	1,414	1,490	1,437	1,680	3,010	-76	53	-243	-1,330	-5%	4%	-14%	-44%
Total excl. private asset perf. fees	270,971	229,229	260,397	231,386	238,349	41,742	-31,168	29,011	-6,963	18%	-12%	13%	-3%
Oversight, custodial & other asset related costs													
Oversight of the Fund	1,478	1,319	1,039	3,221	2,497	159	279	-2,182	724	12%	27%	-68%	29%
Trustee & Custodial	426	317	254	230	374	108	63	24	-144	34%	25%	10%	-39%
Consulting and Performance Mea:	998	865	452	460	585	133	413	-8	-125	15%	91%	-2%	-21%
Audit	816	315	397	460	0	502	-82	-63	460	160%	-21%	-14%	
Other	287	293	951	0	351	-7	-657	951	-351	-2%	-69%		-100%
Total oversight, custodial & other	4,005	3,110	3,094	4,373	3,808	895	16	-1,279	564	29%	1%	-29%	15%
Total investment costs ¹	274,976	232,422	263,593	235,851	242,255	42,554	-31,171	27,741	-6,404	18%	-12%	12%	-3%
Total in basis points	94.1bp	84.1bp	103.0bp	94.3bp	99.0bp								

¹ Starting in 2014, CEM changed its methodology to include performance fees on hedge funds in total cost used for comparison and benchmarking. Performance fees for real estate, infrastructure, natural resources and private equity are excluded.

² Default costs added. Refer to Appendix A.

³ Base fees derived from the partnership level detail you provided.

Total cost versus benchmark cost

Your fund's total investment cost, excluding transaction costs and private asset performance fees, was 13.8 bps above your benchmark cost of 80.4 bps. This implies that your fund was high cost by 13.8 bps compared to the peer median, after adjusting for your fund's asset mix.

Your cost versus benchmark

	\$000s	bps
Your fund's total investment cost excluding transaction costs and illiquid asset performance fees	274,976	94.1 bp
- Your fund's benchmark	234,770	80.4 bp
= Your fund's excess cost	40,206	13.8 bp

Your benchmark cost is an estimate of your total costs assuming that you paid the peer median cost for each of your investment mandates and fund oversight. The calculation of your benchmark cost is shown on the following page.

The reasons why your fund's total cost was above your benchmark are summarized in the table below. Details of each of the impacts below are provided on pages 9 to 12.

Reasons why your fund was high cost

	Cost/-Savings impact	
	\$000s	bps
<u>Differences in implementation style:</u>		
External active vs. low cost styles	2,453	0.8 bp
Fund of funds vs. external direct	7,972	2.7 bp
Mix of internal and passive styles	-19	0.0 bp
Style impact of overlays	1,966	0.7 bp
Total style impact	12,372	4.2 bp
<u>Paying more/-less for similar services:</u>		
External investment management	6,469	2.2 bp
Private asset performance fees	0	0.0 bp
Internal investment management	-109	0.0 bp
Oversight, custodial and other	-331	-0.1 bp
Total impact of paying more /-less	6,030	2.1 bp
Total excess cost	40,206	13.8 bp

Benchmark cost calculation

Your 2014 benchmark cost was 80.4 basis points or \$234.8 million. It equals your holdings for each asset class multiplied by the peer median cost for the asset class. The peer median cost is the style weighted average for all implementation styles (i.e., internal passive, internal active, external passive, external active).

Calculation of your 2014 benchmark cost

Asset class	Your average assets (A)	Weighted peer median cost ¹ (B)	Benchmark \$000s (A X B)
Asset management costs			
U.S. Stock - Broad/All	2,355	15.1 bp	3,568
Stock - EAFE	721	24.0 bp	1,734
Stock - Emerging	1,007	47.1 bp	4,749
Stock - Global	1,316	32.0 bp	4,217
Fixed Income - U.S.	2,557	11.7 bp	2,997
Fixed Income - Emerging	1,180	33.1 bp	3,900
Fixed Income - Global	1,080	30.9 bp	3,339
Fixed Income - High Yield	1,179	41.2 bp	4,855
Cash	5,218	5.3 bp	2,779
Real Estate ex-REITs	1,201	97.3 bp	11,686
Hedge Funds (External)	3,736	148.1 bp	55,330
Global TAA	2,186	58.9 bp	12,878
Diversified Private Equity	2,995	170.4 bp	51,032
Private Debt Limited Partnerships	1,979	131.7 bp	26,061
Overlay Programs ²	29,216	0.1 bp	335
Benchmark for asset management	29,216	64.8 bp	189,457
Oversight, custody and other costs			
Oversight of the Fund	29,216	0.7 bp	2,113
Trustee & Custodial	29,216	0.3 bp	797
Consulting	29,216	0.3 bp	982
Audit	29,216	0.1 bp	149
Other	29,216	0.1 bp	295
Benchmark for oversight, custody & other		1.5 bp	4,336
Total benchmark cost		66.3 bp	193,793

1. The weighted peer median cost for asset management is the style-weighted average of the peer median costs for all implementation styles (i.e., internal passive, internal active, external passive, external active, fund of fund). It excludes performance fees on private assets. The style weights by asset class for your fund and the peers are shown on page 17 of this section.

2. Total fund average holdings is used as the base when calculating the relative cost impact of the overlay programs.

Cost impact of differences in implementation style

Differences in implementation style (i.e., external active management versus lower cost indexed and internal management, fund of funds versus lower cost direct LPs, and overlay usage) relative to your peers cost you 4.2 bps.

Calculation of the cost impact of differences in implementation style

	Your avg holdings (mils) (A)	% External active			Premium vs. internal and passive ^{1 2} (C)	Cost/ -Savings ³ \$000s bps (A X B X C)	
		You	Peer average	More/ -Less			
U.S. Stock - Broad/All	2,355	58%	37%	21%	36 bp	1,773	
Stock - EAFE	721	100%	50%	50%	41 bp	1,466	
Stock - Emerging	1,007	100%	80%	20%	46 bp	937	
Stock - Global	1,316	0%	60%	-60%	44 bp	-3,501	
Fixed Income - U.S.	2,557	91%	67%	24%	14 bp	867	
Fixed Income - Emerging	1,180	43%	84%	-41%	31 bp	-1,496	
Fixed Income - Global	1,080	100%	100%	0%		0	
Fixed Income - High Yield	1,179	100%	91%	9%	Insufficient	0	
Real Estate ex-REITs	1,201	97%	96%	1%	69 bp	112	
partnerships as % of external:	1,169	100%	54%	46%	43 bp	2,295	
Hedge Funds	3,736	100%	100%	0%		0	
Global TAA	2,186	100%	100%	0%		0	
Diversified Private Equity	2,995	100%	100%	0%		0	
Private Debt Limited Partnerships	1,979	100%	100%	0%		0	
Total impact of differences in external active management usage						2,453	0.8 bp
		<i>Fund of fund % of external LPs</i>			<i>Premium vs. direct LPs^{1 2}</i>		
Hedge Funds LPs	3,736	64%	28%	36%	55 bp	7,257	
Performance Fee Impact (on NAV):	0					399	
Diversified Private Equity LPs	2,995	12%	10%	2%	54 bp	316	
Total impact of differences in fund of fund usage						7,972	2.7 bp
		<i>Overlay usage</i>					
Impact of lower use of portfolio level overlays (see page 10)						1,966	0.7 bp
		<i>Mix of low cost styles</i>					
Impact of mix of internal indexed, internal active, external indexed (see page 11)						-19	0.0 bp
Total						12,372	4.2 bp

1. The external active cost 'premium vs internal and passive' is the additional cost of external active management and fund of funds relative to the average of the other lower cost implementation styles: internal passive, internal active and external passive. These calculations are specific to your peer group. The fund-of-funds 'premium vs. direct LPs' is the peer-median cost of fund-of-funds minus the peer median cost for direct external active management.

2. 'Insufficient' indicates there is insufficient peer data to determine the cost premium.

Cost impact of overlays

As summarized on the previous page, the style impact of overlays cost you 0.7 bps. If you use more overlays than your peers, or more expensive types of overlays, then it increases your relative cost.

Calculation of the cost impact of differences in the use of portfolio level overlays

	Your avg total holdings (mils)	Overlay notional amounts as a % of avg total holdings			Median cost as a % of notional	Your cost as a % of total holdings ¹	Average cost as a % of total holdings	Cost/-Savings Impact (000s)
		You	Peer Average	More/-Less				
	(A)			(B)	(C)			(A X B X C)
Internal Overlays								
Currency - Hedge	29,216	0.0%	0.3%	-0.3%	0.2 bp			-1
Passive Beta - Hedge	29,216	0.0%	0.0%	0.0%	1.4 bp			-1
Duration - Hedge	29,216	0.0%	0.2%	-0.2%	0.3 bp			-2
External Overlays								
Currency - Hedge	29,216	0.0%	0.6%	-0.6%	1.7 bp			-29
Currency - Discretionary	29,216	0.0%	0.3%	-0.3%	14.0 bp			-128
Passive Beta - Hedge	29,216	12.6%	0.8%	11.8%	6.2 bp			2,153
Duration - Hedge	29,216	0.0%	0.0%	0.0%	5.8 bp			0
Dur. Mgmt Swaption - Hedge	29,216	0.0%	0.0%	0.0%	3.4 bp			0
Global TAA - Discretionary	29,216	0.0%	0.0%	0.0%	13.0 bp			0
Policy Tilt TAA - Discretionary	29,216	0.0%	0.0%	0.0%	21.7 bp			0
Commodity Futures - Discretionary	29,216	0.0%	0.0%	0.0%	4.7 bp			0
Long/Short - Discretionary	29,216	0.0%	0.1%	-0.1%	9.3 bp			-25
Other - Discretionary	29,216	0.0%	0.0%	0.0%	7.0 bp			0
Total impact in 000s								1,966
Total impact in basis points								0.7 bp

1. For overlay programs (primarily certain internal, profit seeking programs) where no clear notional value is defined or provided, these types of overlays are compared in terms of cost relative to total holdings.

Cost impact of lower cost styles

As summarized on page 9, your mix of 'lower-cost' internal and passive styles saved you 0.0 bps. Details are shown below.

Cost impact of differences in your mix of 'lower-cost' implementation styles

	Your non-external active holdings (mils)	Percent holdings (of non-external-active)						Cost/-Savings ¹ (000s)
		Internal passive		Internal active		External passive		
		You	Peers	You	Peers	You	Peers	
U.S. Stock - Broad/All	986	0%	9%	0%	7%	100%	84%	-28
Stock - Global	1,316	0%	28%	0%	27%	100%	45%	0
Fixed Income - U.S.	239	0%	0%	100%	65%	0%	35%	9
Fixed Income - Emerging	671	0%	0%	0%	10%	100%	90%	0
Cash	3,082	0%	Excluded	100%	Excluded	0%	Excluded	0
Real Estate ex-REITs	32	0%	0%	100%	100%	0%	0%	0
Total impact in 000s								-19
Total impact in basis points								0.0 bp

1. Cost/-savings for each asset class equals non-external active holdings within each asset class X cumulative impact from the three lower cost styles. By formula: [(peer median cost for the style - peer weighted average cost of lower cost styles) X (your weight for the style - peer weight for the style)]. Peer median costs for each style are shown on page 18.

Cost impact of paying more/-less for similar services

Differences in what you paid relative to your peers for similar asset management and related oversight and support services cost you 2.1 bps.

Calculation of the cost impact of paying more/-less

	Style	Your avg holdings (mils) (A)	Cost in bps			Cost/ -Savings \$000s bps (A X B)
			Your	Peer median	More/ -less (B)	
External asset management						
U.S. Stock - Broad/All	passive	984	11.6	1.7	9.9	978
U.S. Stock - Broad/All	active	1,369	67.3	37.6	29.7	4,065
Stock - EAFE	active	721	73.6	44.4	29.2	2,108
Stock - Emerging	active	1,007	82.8	56.4	26.4	2,656
Stock - Global	passive	1,316	4.5	5.4	-1.0	-128
Fixed Income - U.S.	active	2,318	20.0	16.4	3.5	819
Fixed Income - Emerging	passive	671	7.1	Insufficient		
Fixed Income - Emerging	active	508	54.3	37.9	16.5	836
Fixed Income - Global	active	1,080	32.0	30.9	1.1	114
Fixed Income - High Yield	active	1,179	58.5	41.2	17.3	2,040
Real Estate ex-REITs	LP	1,169	128.4	119.7	8.7	1,014
Hedge Funds	active	1,355	195.2	132.8	62.4	8,458
Hedge Funds - Fund of Funds	F. of F.	2,381	196.0	187.3	8.6	2,058
Global TAA	active	2,186	59.5	58.9*	0.6	139
Diversified Private Equity	active	2,636	99.1	165.0	-65.9	-17,375
Diversified Private Equity	F. of F.	359	253.9	218.9	35.0	1,255
Private Debt Limited Partnerships	active	1,979	123.2	131.7	-8.5	-1,681
		<i>Notional</i>				
Derivatives/Overlays - Passive Beta		3,687	3.8	6.2*	-2.4	-887
Total for external management						6,469 2.2 bp
Internal asset management						
U.S. Stock - Broad/All	active	2	2.5	5.4*	-2.8	-1
Fixed Income - U.S.	active	239	1.8	2.5	-0.7	-17
Real Estate ex-REITs	active	32	2.6	31.3	-28.7	-92
Total for internal asset management						-109 0.0 bp
Oversight, custodial, other						
Oversight of the Fund		29,216	0.5	0.7	-0.2	-635
Consulting and Performance Measurement		29,216	0.3	0.3	0.0	16
Trustee & Custodial		29,216	0.1	0.3	-0.1	-371
Audit		29,216	0.3	0.1	0.2	668
Other		29,216	0.1	0.1	0.0	-9
Total for oversight, custodial, other						-331 -0.1 bp
Total						6,030 2.1 bp

*Universe median used as peer data was insufficient.

Summary of why you are high or low cost by asset class

The table below summarizes where you are high and low cost by asset class. It also quantifies how much is due to differences in implementation style (i.e., differences in the mix of external active, external passive, internal active, internal passive and fund of fund usage) and how much is due to paying more or less for similar services (i.e., same asset class and style).

Summary of why you are high or low cost by asset class

	Your cost ¹	Benchmark = peer weighted median cost ¹	More/-less	Your average assets	More/-less (\$000s)	Due to Impl. style (\$000s)	Due to paying more/less (\$000s)
	(A)	(B)	(C = A - B)	(D)	(C X D)		
Asset management costs							
U.S. Stock - Broad/All	44.0 bp	15.1 bp	28.8 bp	2,355	6,788	1,745	5,043
U.S. Stock - Mid Cap					0	0	0
U.S. Stock - Small Cap					0	0	0
Stock - EAFE	73.6 bp	24.0 bp	49.6 bp	721	3,574	1,466	2,108
Stock - Emerging	82.8 bp	47.1 bp	35.7 bp	1,007	3,593	937	2,656
Stock - Global	4.5 bp	32.0 bp	-27.6 bp	1,316	-3,628	-3,501	-128
Fixed Income - U.S.	18.3 bp	11.7 bp	6.6 bp	2,557	1,679	876	803
Fixed Income - Emerging	27.5 bp	33.1 bp	-5.6 bp	1,180	-660	-1,496	836
Fixed Income - Global	32.0 bp	30.9 bp	1.1 bp	1,080	114	0	114
Fixed Income - High Yield	58.5 bp	41.2 bp	17.3 bp	1,179	2,040	0	2,040
Cash	5.3 bp	5.3 bp	0.0 bp	5,218	0	0	0
Real Estate ex-REITs	125.1 bp	97.3 bp	27.7 bp	1,201	3,329	2,406	922
Hedge Funds (External)	195.7 bp	148.1 bp	47.6 bp	3,736	17,773	7,257	10,516
Global TAA	59.5 bp	58.9 bp	0.6 bp	2,186	139	0	139
Diversified Private Equity	117.6 bp	170.4 bp	-52.8 bp	2,995	-15,804	316	-16,119
Private Debt Limited Partnerships	123.2 bp	131.7 bp	-8.5 bp	1,979	-1,681	0	-1,681
Overlay Programs ²	0.5 bp	0.1 bp	0.4 bp	29,216	1,079	1,966	-887
Total asset management	92.7 bp	64.8 bp	27.9 bp	29,216	18,333	11,973	6,361
Oversight, custody and other costs							
Oversight of the Fund	0.5 bp	0.7 bp	-0.2 bp	29,216	-635	n/a	-635
Trustee & Custodial	0.1 bp	0.3 bp	-0.1 bp	29,216	-371	n/a	-371
Consulting	0.3 bp	0.3 bp	0.0 bp	29,216	16	n/a	16
Audit	0.3 bp	0.1 bp	0.2 bp	29,216	668	n/a	668
Other	0.1 bp	0.1 bp	0.0 bp	29,216	-9	n/a	-9
Total oversight, custody & other	1.4 bp	1.5 bp	-0.1 bp	29,216	-331	n/a	-331
Total	94.1 bp	66.3 bp	27.8 bp	29,216	18,002	11,973	6,030

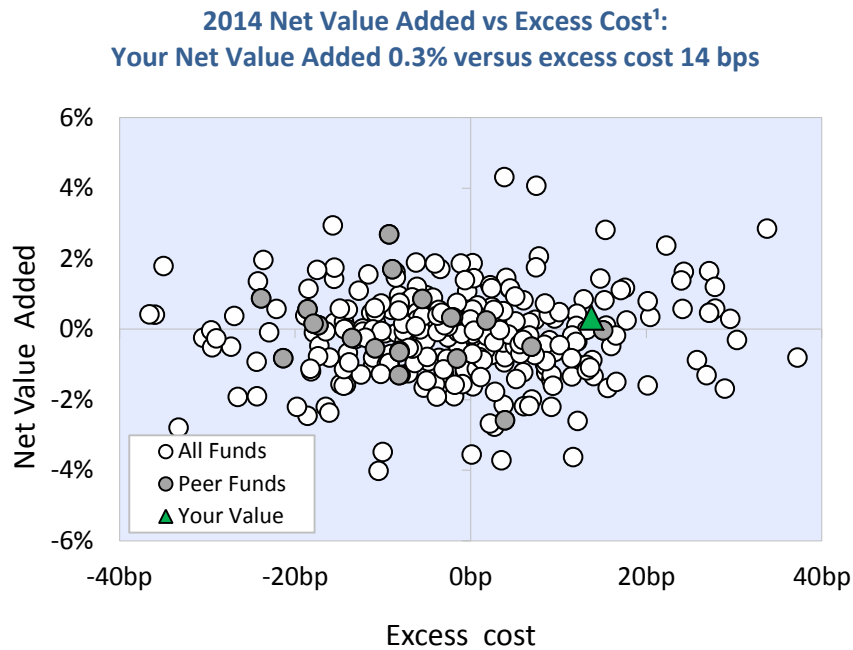
1. The weighted peer median cost for asset management is the style-weighted average of the peer median costs for all implementation styles (i.e., internal passive, internal active, external passive, external active, fund of fund). It excludes performance fees on private assets. The style weights by asset class for your fund and the peers are shown on page 17 of this section.

2. Total fund average holdings is used as the base when calculating the relative cost impact of the overlay programs.

Your cost effectiveness ranking

Being high or low cost is neither good nor bad. The more important question is, are you receiving sufficient value for your excess cost? At the total fund level, we provide insight into this question by combining your value added and your excess cost to create a snapshot your cost effectiveness performance relative to that of the survey universe.

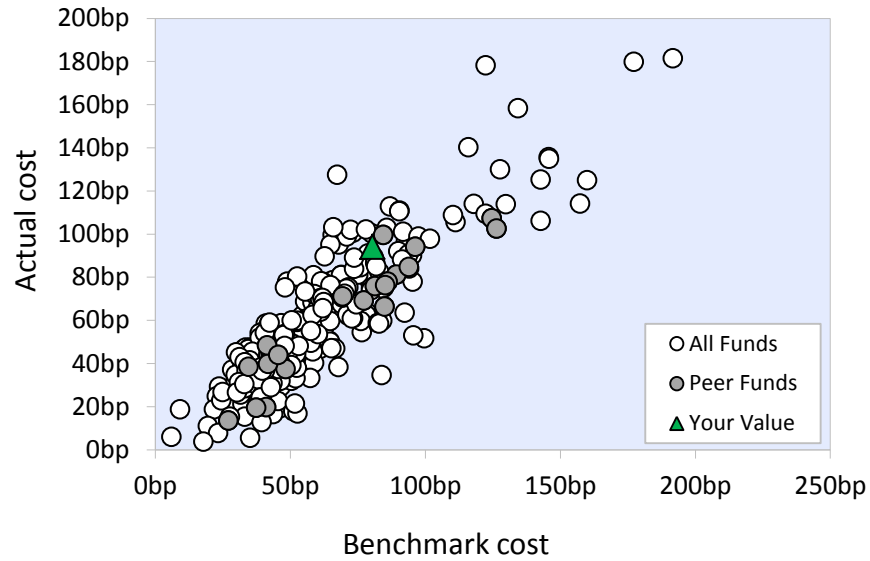
For the 2014 year, your fund ranked in the positive value added, high cost quadrant.



¹ Benchmark cost and excess cost calculations are based on regression analysis (see Appendix B in this section) for all funds except your fund. Your fund's benchmark cost is based on peer-median costs (per page 7 of this section).

Actual cost versus benchmark cost

2014 Actual Cost vs Benchmark Cost¹: Your actual cost was 94.1 bps and your benchmark cost was 80.4 bps



¹ Benchmark cost calculations are based on regression analysis (see Appendix B in this section) for all funds except your fund. Your fund's benchmark cost is based on peer-median costs (per page 7 of this section).

Appendix A: Benchmarking methodology formulas and data

a) Formulas

Example calculations are for U.S. Stock - Broad/All unless otherwise indicated.

Asset class peer cost

$$\begin{aligned} &= \text{Weighted average by peer average style of peer median costs for asset class} \\ &= [(0.06 \times 2.0\text{bp}) + (0.04 \times 5.4\text{bp}) + (0.53 \times 1.7\text{bp}) + (0.37 \times 37.6\text{bp})] / (0.06 + 0.04 + 0.53 + 0.37) = 15.1\text{bp} \end{aligned}$$

Peer average low cost (by asset class)

$$\begin{aligned} &= \text{Weighted average by peer average style of peer median costs for internal passive, internal active and external passive management for asset class} \\ &= [(0.06 \times 2.0\text{bp}) + (0.04 \times 5.4\text{bp}) + (0.53 \times 1.7\text{bp})] / (0.06 + 0.04 + 0.53) = 2.0\text{bp} \end{aligned}$$

External active cost premium (by asset class)

$$\begin{aligned} &= \text{Peer median external active cost - peer average low cost} \\ &= 37.6\text{bp} - 2.0\text{bp} = 35.6\text{bp} \end{aligned}$$

Fund of funds premium (by asset class)

$$\begin{aligned} &= \text{Peer median fund-of-funds cost - peer median external active cost} \\ &= (\text{For private equity}) 218.9\text{bp} - 165.0\text{bp} = 53.9\text{bp} \end{aligned}$$

Impact from other differences in implementation style (by Asset Class)=

$$\begin{aligned} &= [(\text{Your int. pass. \% - average peer int. pass. \%}) \times (\text{peer median int. pass. cost - peer average low cost}) \\ &\quad + (\text{your int. act. \% - peer average int. act. \%}) \times (\text{peer median int. act. cost - peer average low cost}) \\ &\quad + (\text{your ext. pass. \% - average peer ext. pass. \%}) \times (\text{median peer ext. pass. cost - peer average low cost})] \\ &\quad \times \text{your average holdings} \end{aligned}$$

b) Insufficient peer data

All peer data is adjusted to ensure comparisons are made only when sufficient data is available. When too few peers have the asset class or style in question, peer costs are replaced with your fund's cost, neutralizing the effect of your cost. Major implementation styles (external active, fund of funds and combined "low cost") that you do not hold are ignored if they have insufficient data to draw major style impact conclusions. Throughout this section, 'peer median' and 'average peer style' always refer to these adjusted values. The following page shows the adjusted data used in this section.

Appendix A: Benchmarking methodology formulas and data (page 2 of 2)

c) 2014 cost data used to calculate weighted peer median costs and impact of mix differences.

Asset Class	Your costs (basis points)						Peer median costs (basis points)						
	Internal Passive	Internal Active	External Passive	External Active	Limited Partner.	Fund of Funds	Internal Passive	Internal Active	External Passive	External Active	Limited Partner.	Fund of Funds	Weighted Median
U.S. Stock - Broad/All		2.5	11.6	67.3			2.0	5.4 bp ¹	1.7	37.6			15.1
Stock - EAFE				73.6			9.2	3.7	3.0	44.4			24.0
Stock - Emerging				82.8			10.4	8.1	12.4	56.4			47.1
Stock - Global			4.5				5.4	5.4	5.4	49.8			32.0
Stock - Other													FALSE
Fixed Income - U.S.		1.8		20.0				2.5	1.5	16.4			11.7
Fixed Income - Emerging			7.1	54.3				7.1	Insufficient	37.9			33.1
Fixed Income - Global				32.0						30.9			30.9
Fixed Income - High Yield				58.5				41.2		41.2			41.2
Real Estate ex-REITs		2.6			128.4			31.3		76.9	119.7	119.7	97.3
Hedge Funds				195.2		196.0				132.8		187.3	148.1
Global TAA				59.5						58.9 bp ¹			58.9
Diversified Private Equity				99.1		253.9				165.0		218.9	170.4
Private Debt Limited Partnerships				123.2						131.7			131.7

¹Universe median used as peer data was insufficient.

d) 2014 Style weights used to calculate the weighted peer median costs and impact of mix differences.

Style Weights	You (%)						Peer average (%)					
	Internal Passive	Internal Active	External Passive	External Active	Limited Partner.	Fund of Funds	Internal Passive	Internal Active	External Passive	External Active	Limited Partner.	Fund of Funds
U.S. Stock - Broad/All	0.0%	0.1%	41.8%	58.1%			5.9%	4.5%	52.6%	37.0%		
Stock - EAFE	0.0%	0.0%	0.0%	100.0%			4.4%	5.0%	40.5%	50.1%		
Stock - Emerging	0.0%	0.0%	0.0%	100.0%			6.4%	6.5%	7.4%	79.8%		
Stock - Global	0.0%	0.0%	100.0%	0.0%			11.0%	11.0%	18.0%	59.9%		
Fixed Income - U.S.	0.0%	9.3%	0.0%	90.7%			0.0%	21.4%	11.6%	66.9%		
Fixed Income - Emerging	0.0%	0.0%	56.9%	43.1%			0.0%	1.6%	14.1%	84.3%		
Fixed Income - Global	0.0%	0.0%	0.0%	100.0%			0.0%	0.0%	0.0%	100.0%		
Fixed Income - High Yield	0.0%	0.0%	0.0%	100.0%			0.0%	9.4%	0.0%	90.6%		
Cash		59.1%		40.9%			Excluded	Excluded	Excluded	Excluded	Excluded	Excluded
Real Estate ex-REITs		2.7%		0.0%	97.3%	0.0%		4.0%		44.0%	51.2%	0.8%
Hedge Funds				36.3%		63.7%				71.9%		28.1%
Global TAA		0.0%		100.0%				0.0%		100.0%		
Diversified Private Equity		0.0%		88.0%		12.0%		0.0%		90.0%		10.0%
Private Debt Limited Partnerships		0.0%		100.0%				0.0%		100.0%		

The above data was adjusted as noted when there were insufficient peers, or for other reasons where direct comparisons were inappropriate.

Appendix B: Regression based benchmarks

Regression Benchmark Cost Equations

	2014		2013		2012		2011		2010	
	Coeff.	"t"	Coeff.	"t"	Coeff.	"t"	Coeff.	"t"	Coeff.	"t"
Constant	84.4	19.2	76.8	18.2	73.2	18.9	72.5	18.8	65.1	14.4
Size in millions (Log 10)	-15.7	-14.6	-14.2	-13.3	-13.7	-13.8	-13.3	-13.8	-13.1	-11.6
<u>Percentage of assets in:</u>										
Stocks	14.3	3.3	19.6	4.5	19.0	4.6	14.8	3.6	n/a	
Domestic stocks	n/a		n/a		n/a		n/a		27.0	4.7
Foreign stocks	n/a		n/a		n/a		n/a		25.8	3.1
Real estate	56.7	3.7	56.9	3.8	55.1	4.2	50.8	3.9	46.5	3.1
Private equity & hedge funds	205.2	27.4	203.3	26.9	208.1	30.5	210.4	31.5	225.8	29.0
Country variable (1 if Cdn)	-6.9	-4.0	-8.1	-4.7	-6.4	-4.1	-4.9	-3.3	-5.2	-2.6
	All		All		All		All		All	
Standard error	14.5		14.6		13.1		13.2		15.5	
R-squared	67%		65%		71%		70%		67%	
F statistic	185.9		175.1		219.0		231.8		154.1	
Sample size	449		466		454		487		457	

In order to compare your fund's cost effectiveness to the survey universe, a benchmark cost for all participants is required.

The benchmark operating cost for all other funds is determined using regression analysis. The regression equation coefficients and "t statistics" are shown in the table above. An absolute "t" of greater than 2 indicates that the coefficient is statistically significant in predicting the dependent variable, in this case, the benchmark cost.

The benchmark equations have been remarkably robust. Although the coefficients change every year, primarily because of changes in the composition of the survey universe, they remain similar in relative magnitude and direction.

Most importantly, the R-squareds have been high. In 2014, the R-squared was 67% which means that fund size, asset mix and nationality explain more than 67% of the differences in costs between funds. This is good explanatory power.

Below is a description of the coefficients:

- Size = Log10 (fund size in millions)
- % Stocks = proportion in stocks (coefficient changed in 2011)
- % Domestic stocks = proportion in domestic stocks
- % Foreign stocks = proportion in foreign stocks.
- % Real estate = proportion directly invested in real estate and infrastructure.
- % Private equity = proportion in direct and fund-of-funds venture capital, other private equity and hedge funds.
- Country variable = 1 if your country of origin is Canada, otherwise 0.

6

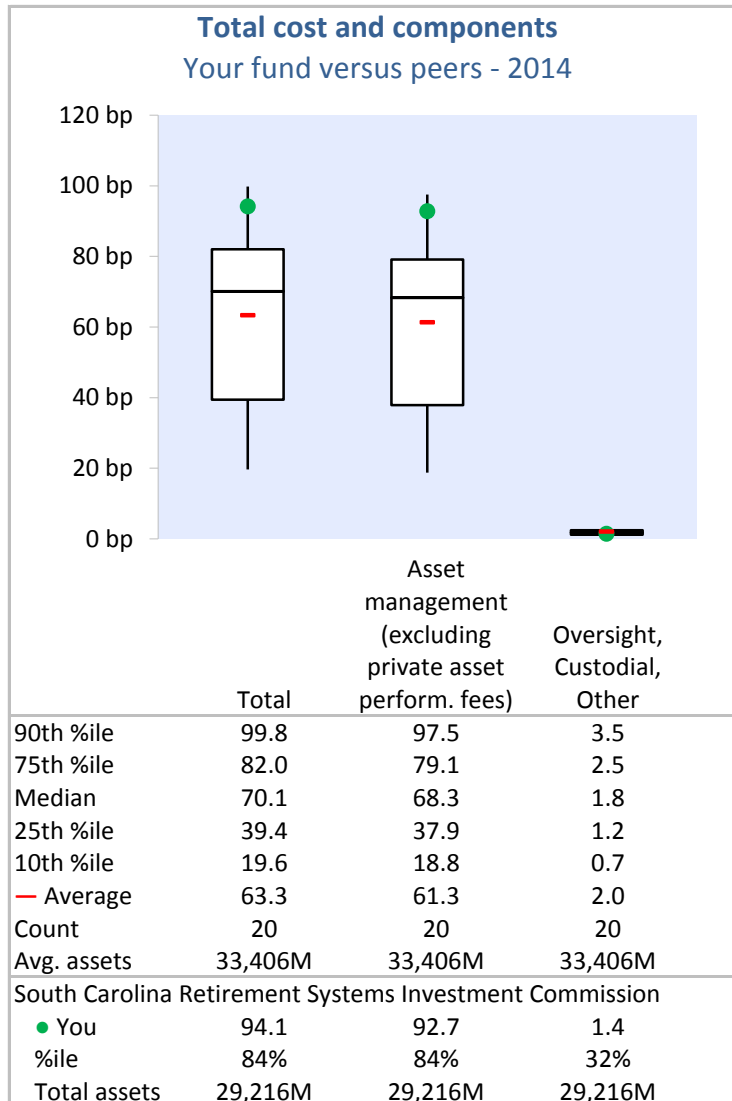
Cost comparisons

Total fund cost	2
Governance, operations & support	3
Public asset classes	
- Stock	4
- Fixed Income	13
- Commodities	25
- REITs	26
Real asset classes	
- Real estate ex-REITs	27
- Infrastructure	28
- Natural resources	29
- Other real assets	30
Private equity	
- Diversified private equity	31
- LBO	32
- Venture capital	33
- Other private equity	34
Global TAA	35
Hedge Funds	36
Overlays	37

Total fund cost

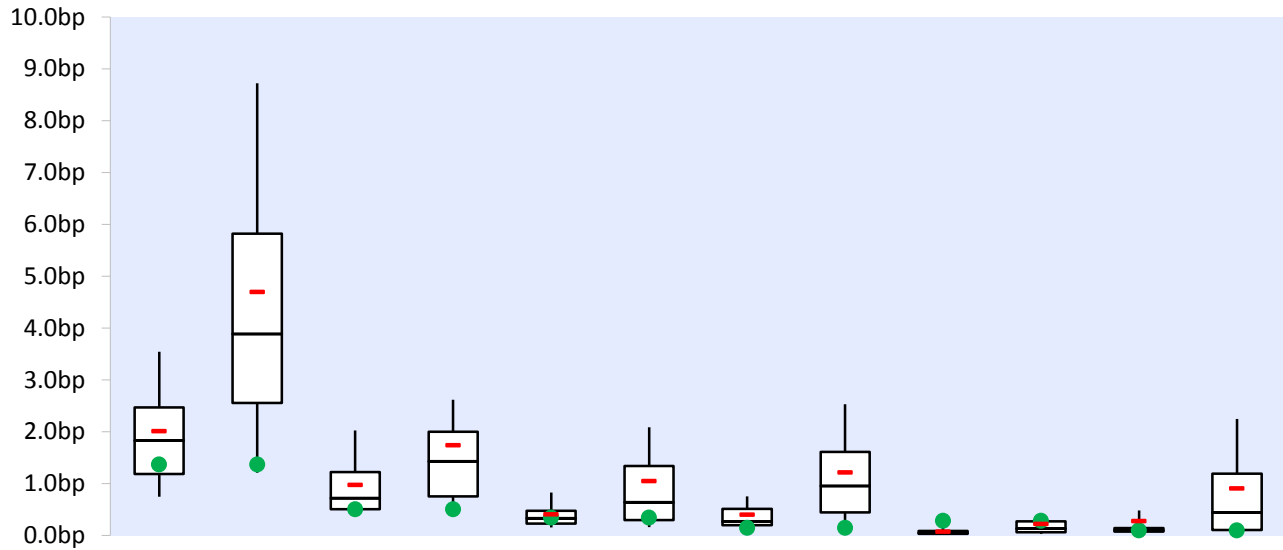
Total costs are benchmarked in the previous section. In this section, your fund's costs are compared on a line-item basis to your peers. This enables you to understand better why you may be a high or low cost fund and it also identifies and quantifies major cost differences that may warrant further investigation.

The 25th to 75th percentile range is the most relevant since higher and lower values may include outliers caused by unusual circumstances, such as performance-based fees. Count refers to the number of funds in your peer group that have costs in this category. It enables you to gauge the statistical significance.



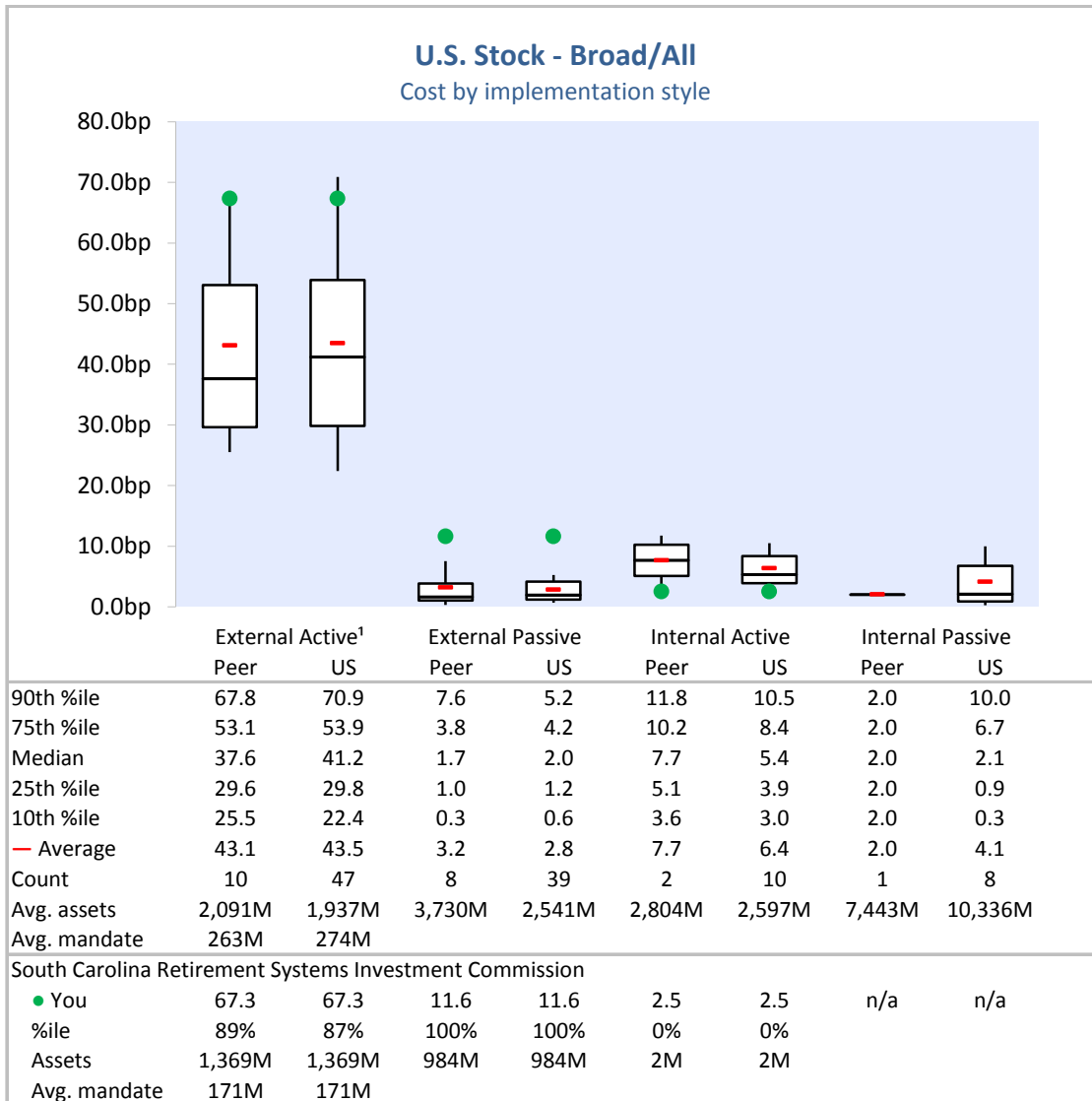
Governance, operations & support

Cost as a % of total plan assets



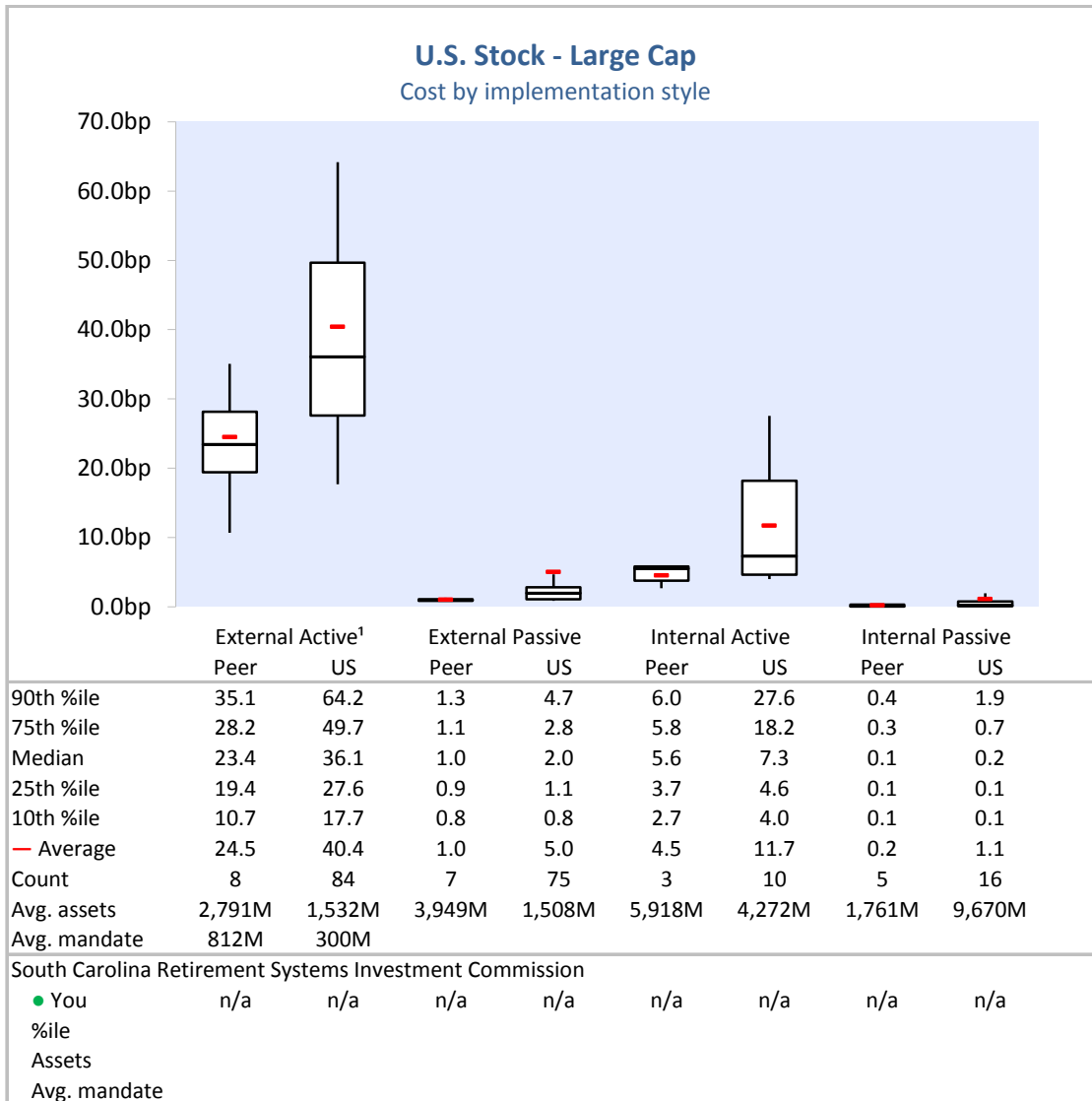
	<u>Total</u>		<u>Oversight¹</u>		<u>Consulting & Perf. Meas.</u>		<u>Custody</u>		<u>Audit</u>		<u>Other</u>	
	Peer	US	Peer	US	Peer	US	Peer	US	Peer	US	Peer	US
90th %ile	3.5	8.7	2.0	2.6	0.8	2.1	0.8	2.5	0.2	0.4	0.5	2.2
75th %ile	2.5	5.8	1.2	2.0	0.5	1.3	0.5	1.6	0.1	0.3	0.1	1.2
Median	1.8	3.9	0.7	1.4	0.3	0.6	0.3	1.0	0.1	0.1	0.1	0.4
25th %ile	1.2	2.6	0.5	0.8	0.2	0.3	0.2	0.4	0.0	0.1	0.1	0.1
10th %ile	0.7	1.2	0.4	0.4	0.2	0.2	0.1	0.2	0.0	0.0	0.1	0.0
— Average	2.0	4.7	1.0	1.7	0.4	1.0	0.4	1.2	0.1	0.2	0.3	0.9
Count	20	171	20	171	18	154	20	167	16	151	16	120
Avg. assets	33,406M	20,637M	33,406M	20,637M	33,406M	20,637M	33,406M	20,637M	33,406M	20,637M	33,406M	20,637M
South Carolina Retirement Systems Investment Commission												
● You	1.4	1.4	0.5	0.5	0.3	0.3	0.1	0.1	0.3	0.3	0.1	0.1
%ile	32%	12%	26%	15%	53%	32%	16%	3%	100%	77%	47%	24%
Plan assets	29,216M	29,216M	29,216M	29,216M	29,216M	29,216M	29,216M	29,216M	29,216M	29,216M	29,216M	29,216M

1. Oversight costs include the salaries and benefits of executives and their staff responsible for overseeing the entire fund or multiple asset classes and the fees/salaries of the Board or Investment Committee. All costs associated with the above including fees/salaries, travel, director's insurance and attributed overhead are included. Given fiduciary obligations, having the lowest oversight costs is not necessarily optimal. Some sponsors with lower-than-average executive and administration costs compensate by having-higher-than average consulting costs.



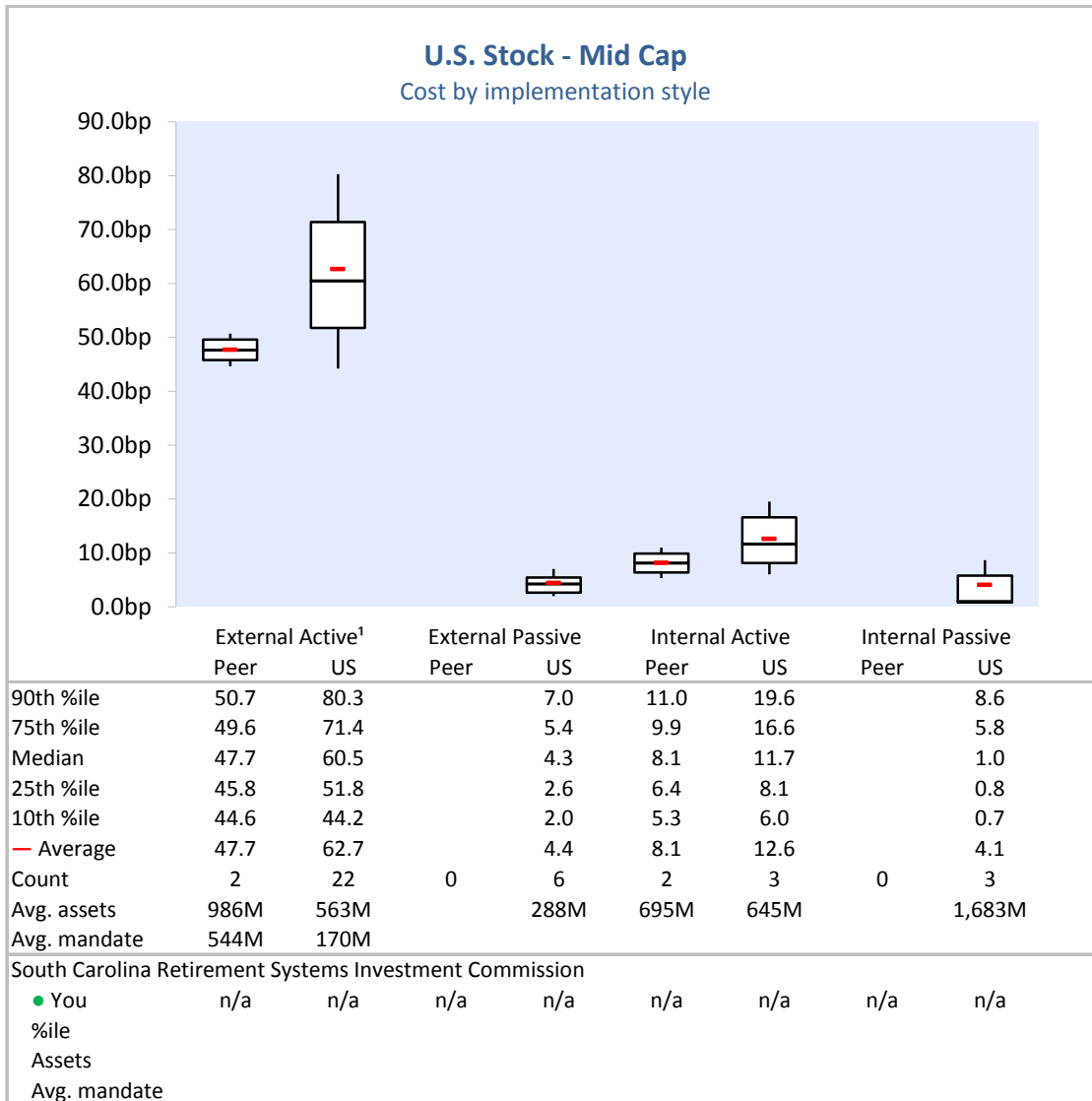
1. Breakdown of external active fees

	You	Peer Average	US Average
Base fees	64.7	38.8	38.0
Performance fees	0.0	3.7	5.1
Internal and other	<u>2.6</u>	<u>0.5</u>	<u>0.4</u>
Total	67.3	43.1	43.5



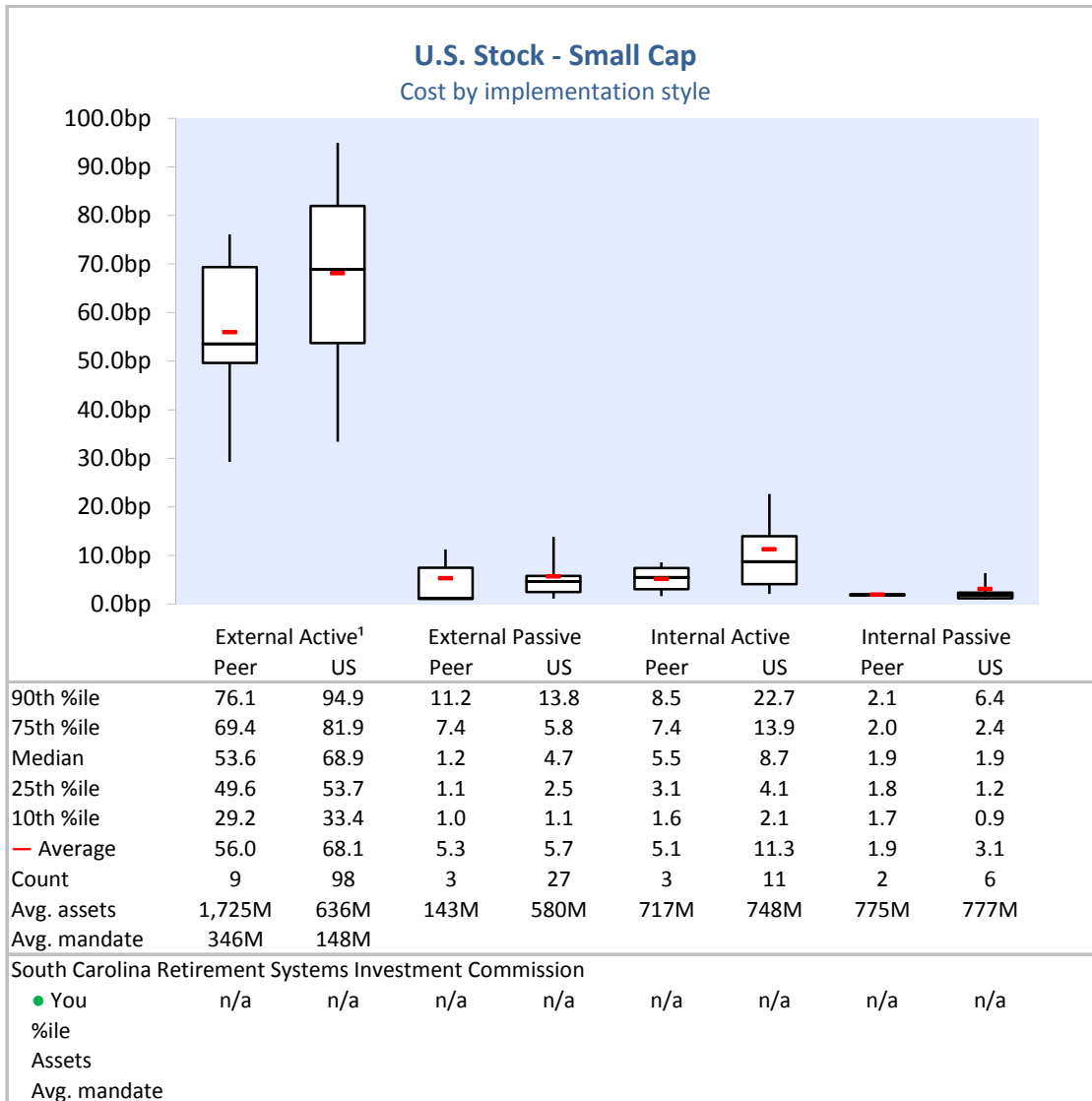
1. Breakdown of external active fees

	You	Peer Average	US Average
Base fees	n/a	23.7	35.7
Performance fees	n/a	0.7	4.5
Internal and other	<u>n/a</u>	<u>0.1</u>	<u>0.3</u>
Total	n/a	24.5	40.4



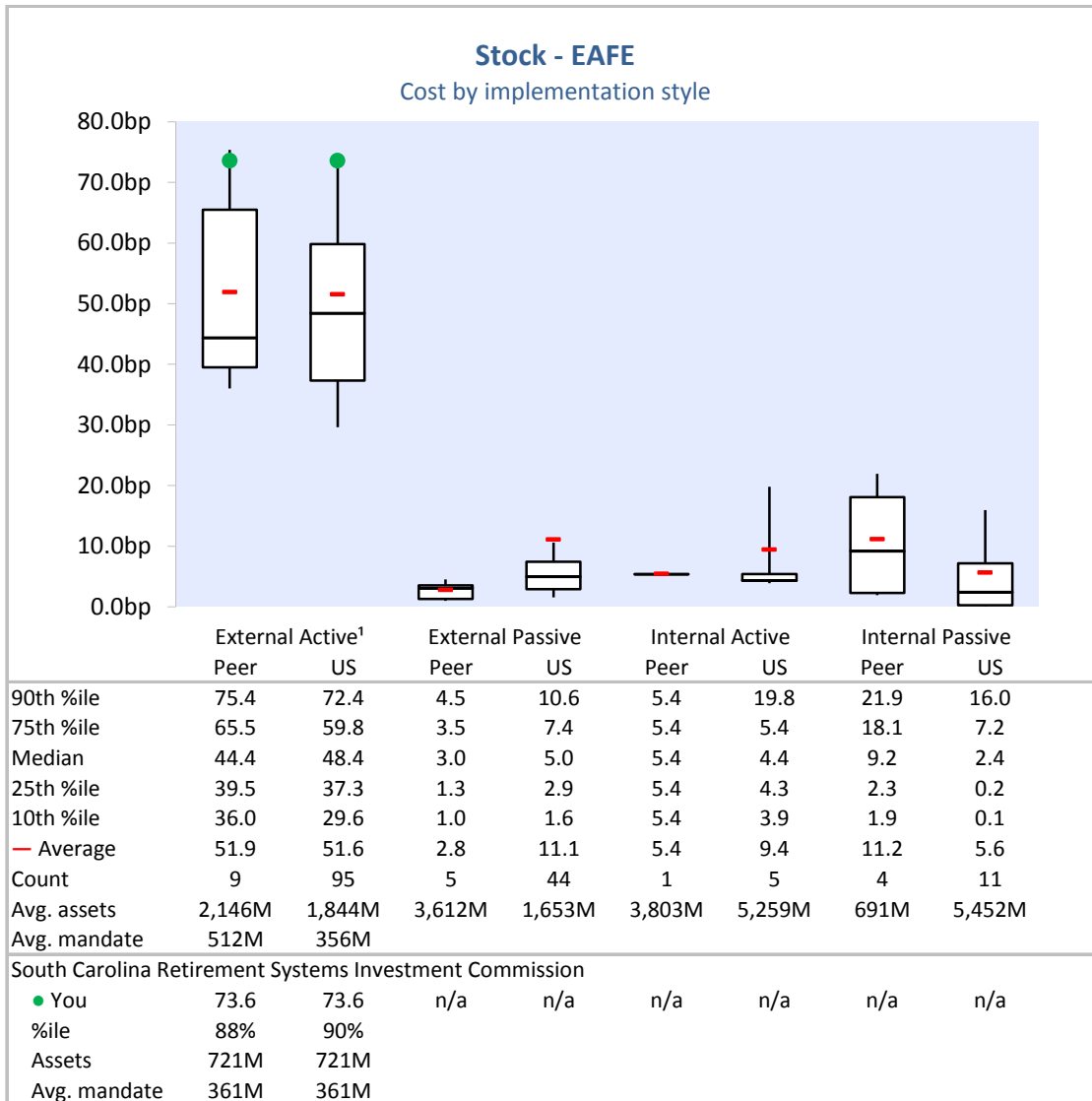
1. Breakdown of external active fees

	You	Peer Average	US Average
Base fees	n/a	47.7	59.0
Performance fees	n/a	0.0	3.4
Internal and other	<u>n/a</u>	<u>0.0</u>	<u>0.3</u>
Total	n/a	47.7	62.7



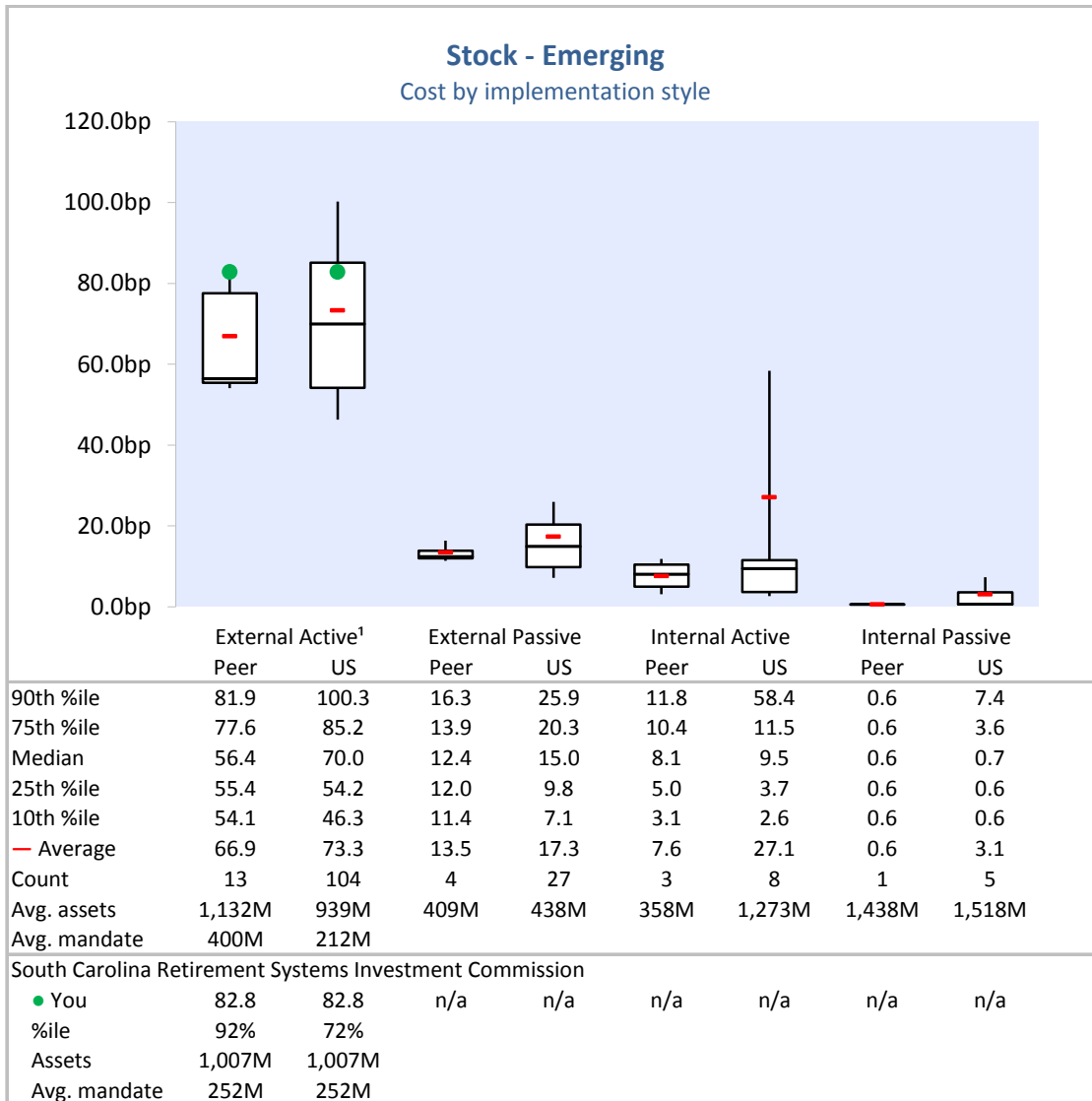
1. Breakdown of external active fees

	You	Peer Average	US Average
Base fees	n/a	53.6	65.4
Performance fees	n/a	2.3	2.5
Internal and other	<u>n/a</u>	<u>0.2</u>	<u>0.2</u>
Total	n/a	56.0	68.1



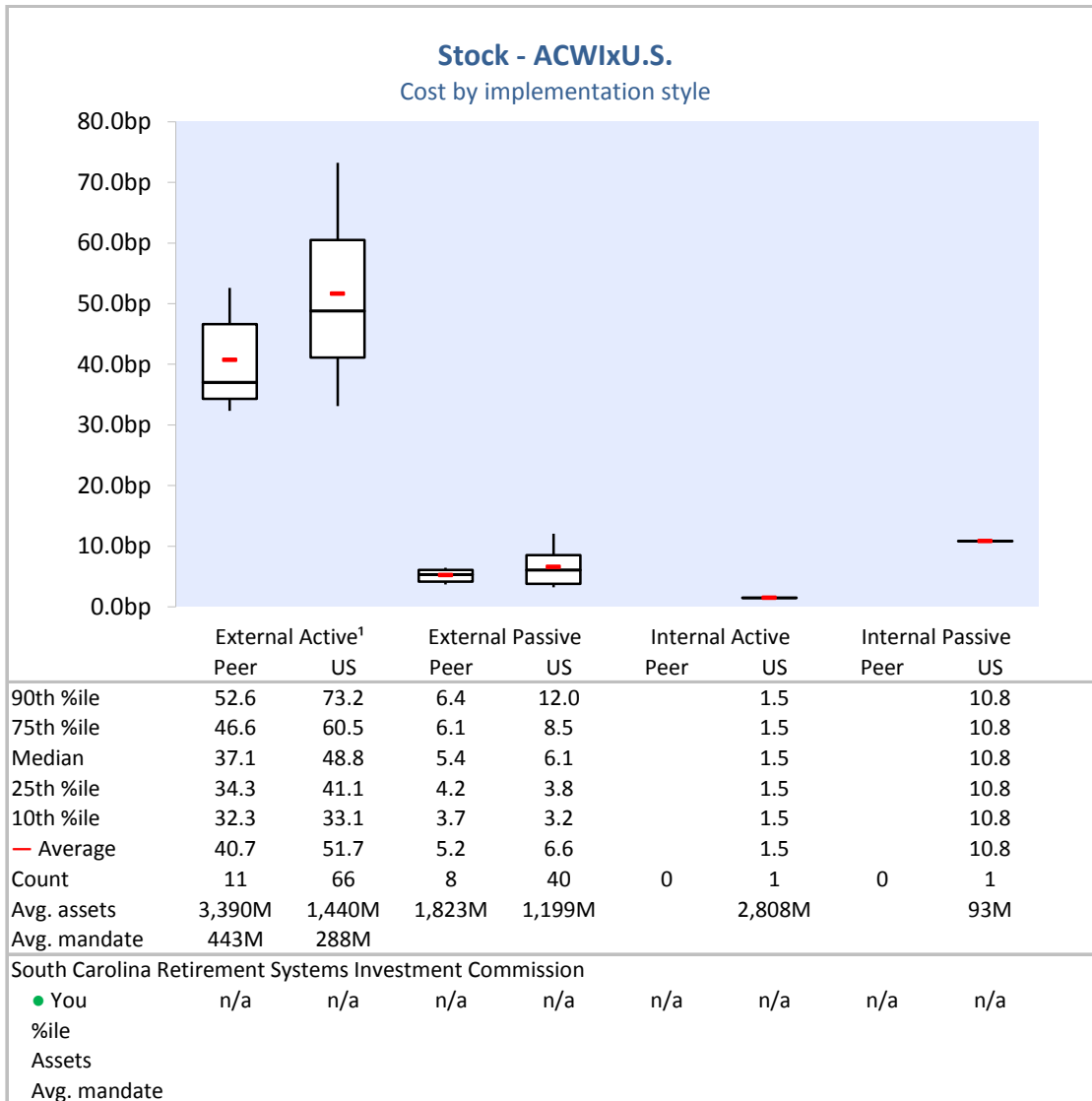
1. Breakdown of external active fees

	You	Peer Average	US Average
Base fees	71.0	51.5	49.0
Performance fees	0.0	0.0	2.4
Internal and other	<u>2.6</u>	<u>0.4</u>	<u>0.2</u>
Total	73.6	51.9	51.6



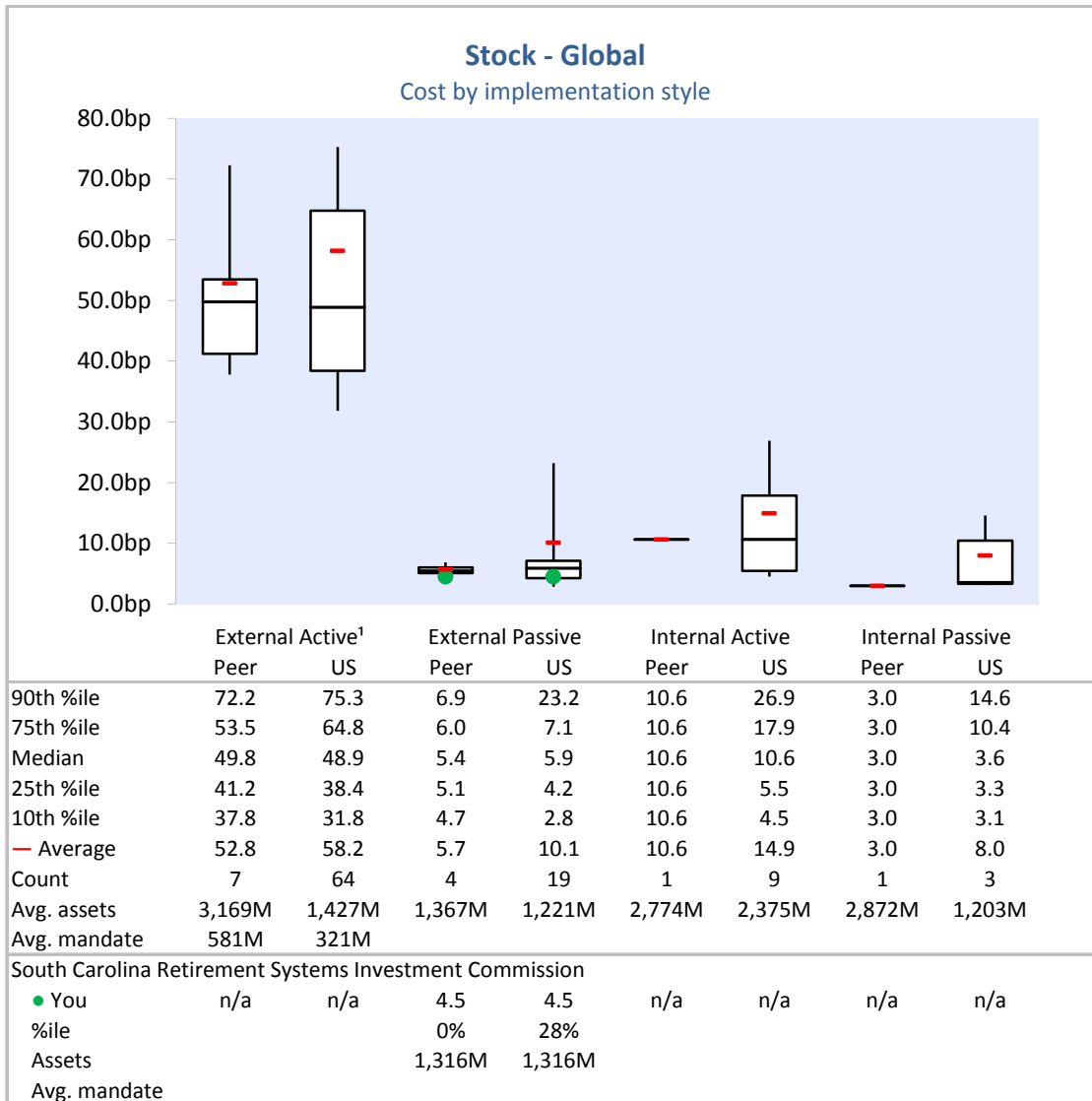
1. Breakdown of external active fees

	You	Peer Average	US Average
Base fees	80.2	66.5	69.9
Performance fees	0.0	0.0	3.0
Internal and other	<u>2.6</u>	<u>0.4</u>	<u>0.4</u>
Total	82.8	66.9	73.3



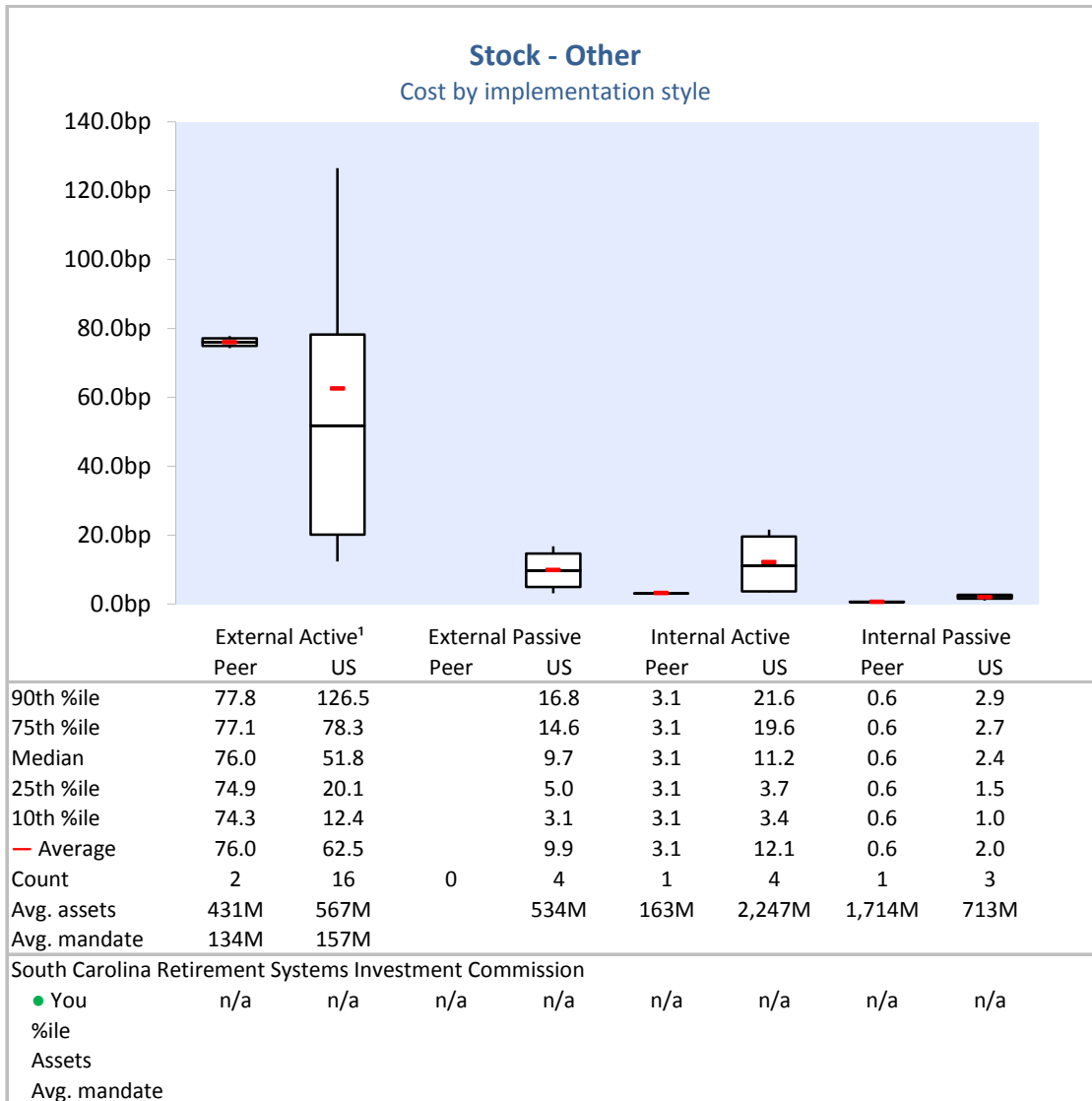
1. Breakdown of external active fees

	You	Peer Average	US Average
Base fees	n/a	35.6	49.5
Performance fees	n/a	5.1	1.9
Internal and other	<u>n/a</u>	<u>0.1</u>	<u>0.3</u>
Total	n/a	40.7	51.7



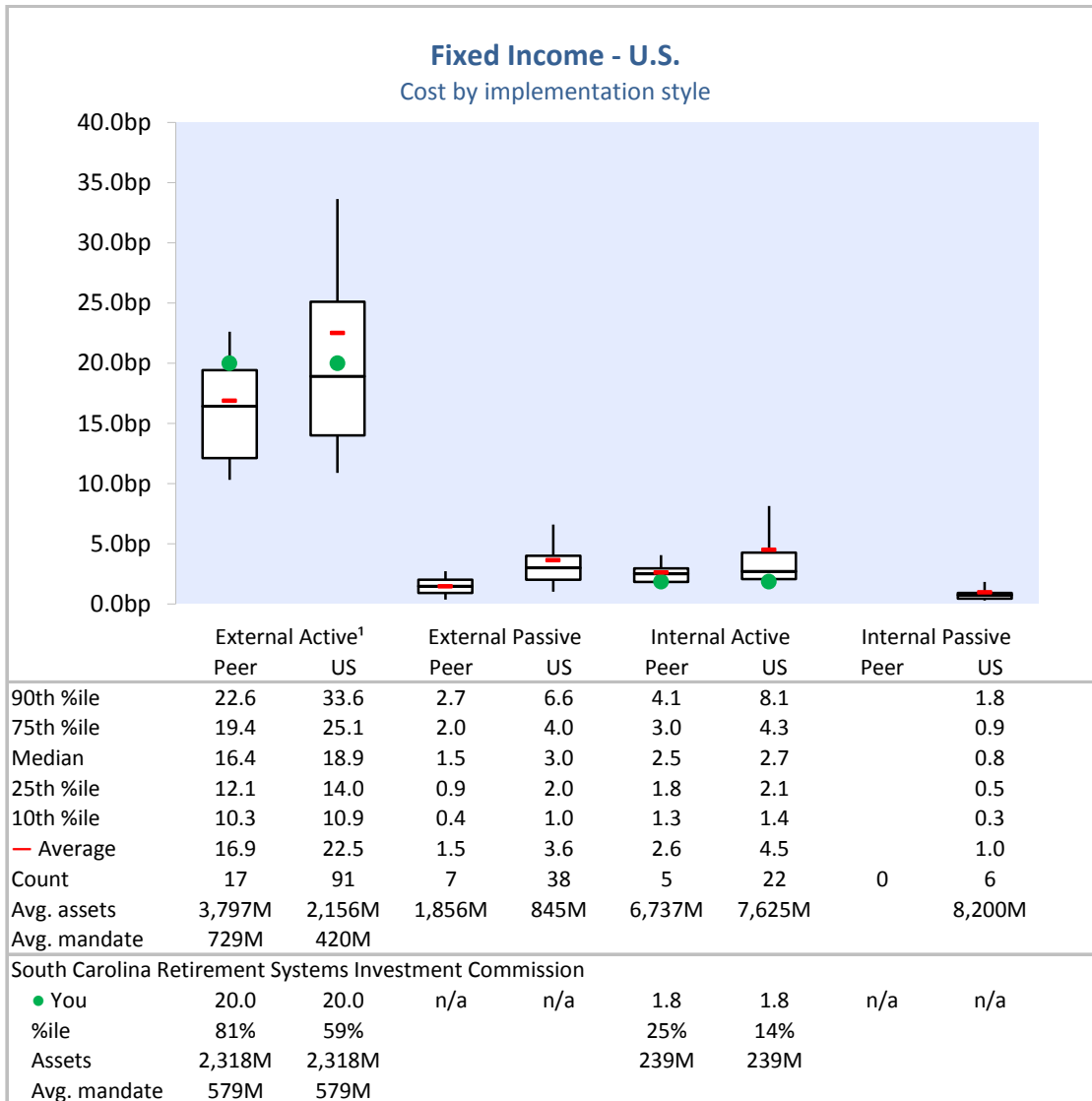
1. Breakdown of external active fees

	You	Peer Average	US Average
Base fees	n/a	46.3	48.8
Performance fees	n/a	6.3	9.2
Internal and other	<u>n/a</u>	<u>0.2</u>	<u>0.2</u>
Total	n/a	52.8	58.2



1. Breakdown of external active fees

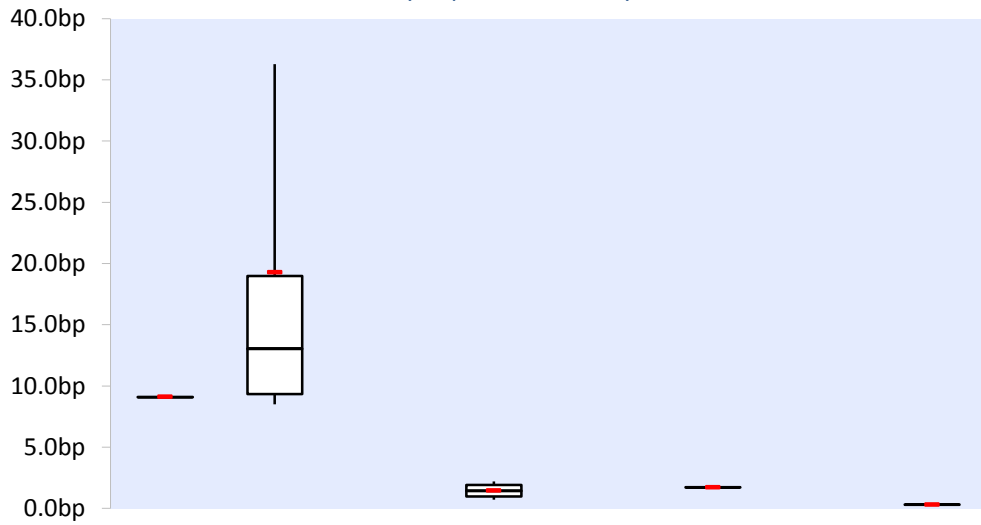
	You	Peer Average	US Average
Base fees	n/a	76.0	50.9
Performance fees	n/a	0.0	10.5
Internal and other	<u>n/a</u>	<u>0.0</u>	<u>1.1</u>
Total	n/a	76.0	62.5



1. Breakdown of external active fees

	You	Peer Average	US Average
Base fees	17.4	16.2	21.9
Performance fees	0.0	0.5	0.4
Internal and other	<u>2.6</u>	<u>0.2</u>	<u>0.2</u>
Total	20.0	16.9	22.5

Fixed Income - U.S. Gov't Cost by implementation style

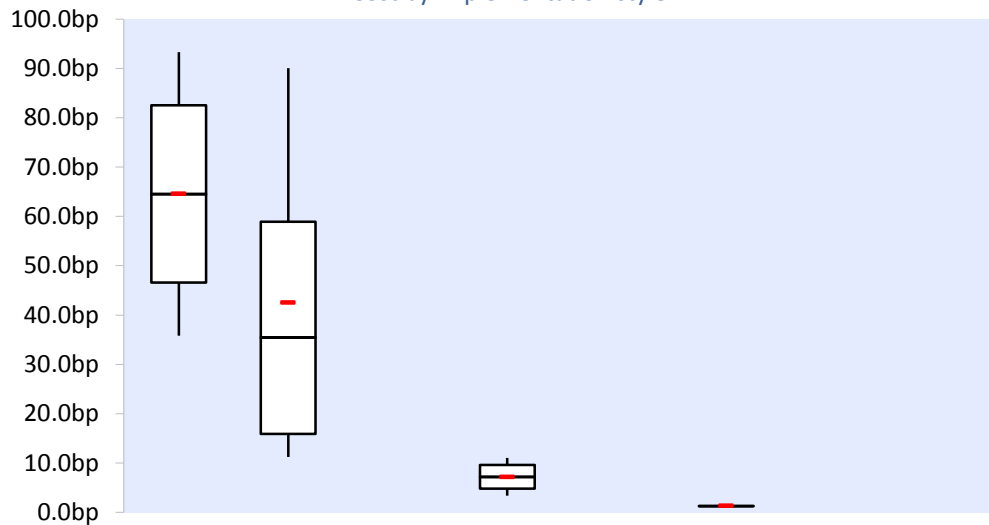


	External Active ¹		External Passive		Internal Active		Internal Passive	
	Peer	US	Peer	US	Peer	US	Peer	US
90th %ile	9.1	36.3		2.2		1.7		0.3
75th %ile	9.1	19.0		1.9		1.7		0.3
Median	9.1	13.0		1.5		1.7		0.3
25th %ile	9.1	9.3		1.0		1.7		0.3
10th %ile	9.1	8.5		0.7		1.7		0.3
— Average	9.1	19.3		1.5		1.7		0.3
Count	1	6	0	2	0	1	0	1
Avg. assets	4,914M	2,054M		1,397M		290M		2,317M
Avg. mandate	1,228M	593M						
South Carolina Retirement Systems Investment Commission								
● You	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
%ile								
Assets								
Avg. mandate								

1. Breakdown of external active fees

	You	Peer Average	US Average
Base fees	n/a	8.8	19.2
Performance fees	n/a	0.0	0.0
Internal and other	<u>n/a</u>	<u>0.3</u>	<u>0.0</u>
Total	n/a	9.1	19.3

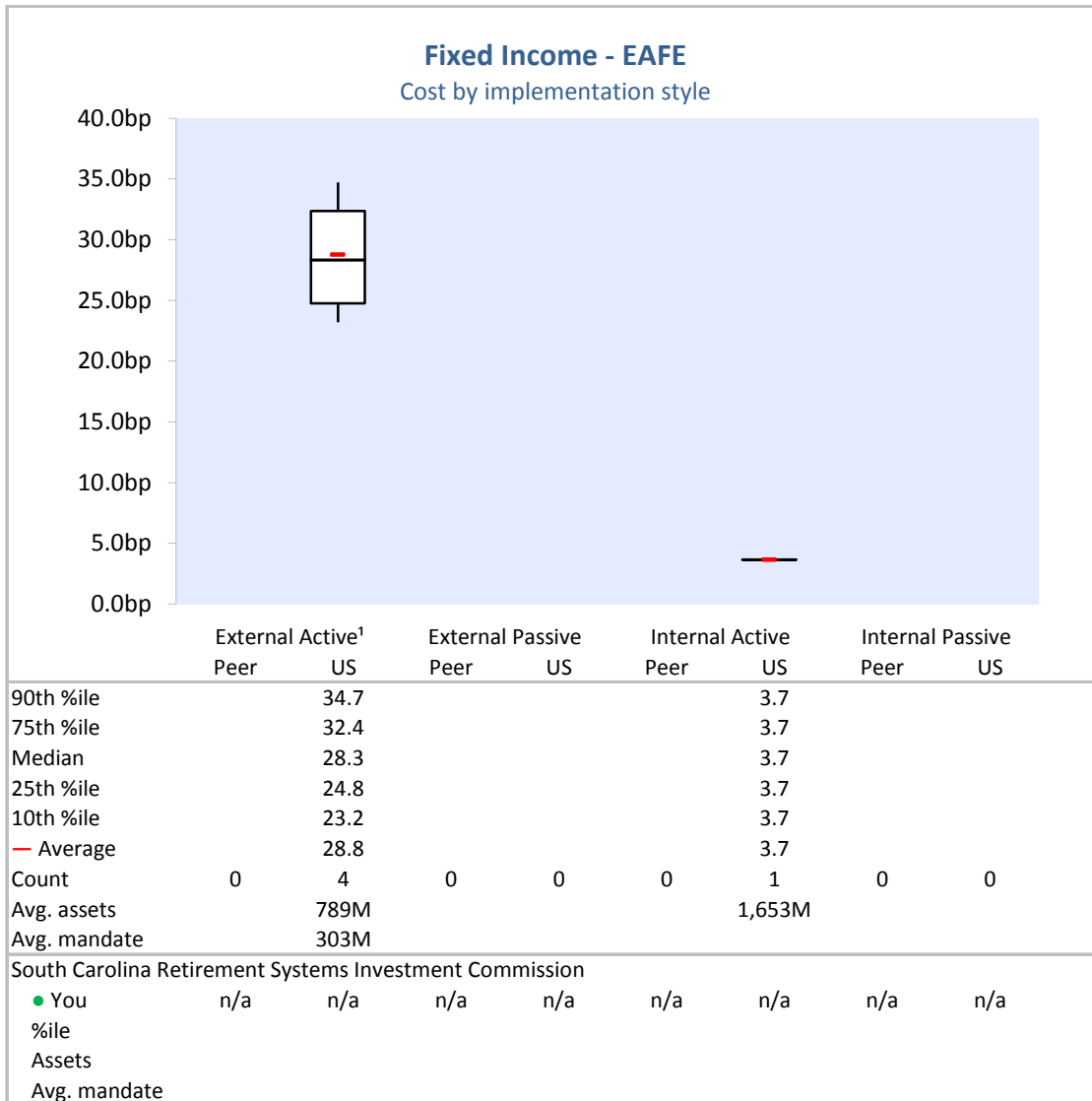
Fixed Income - U.S. Credit Cost by implementation style



	External Active ¹		External Passive		Internal Active		Internal Passive	
	Peer	US	Peer	US	Peer	US	Peer	US
90th %ile	93.3	90.1		11.0		1.3		
75th %ile	82.6	58.9		9.6		1.3		
Median	64.6	35.5		7.2		1.3		
25th %ile	46.6	15.9		4.8		1.3		
10th %ile	35.8	11.2		3.4		1.3		
— Average	64.6	42.5		7.2		1.3		
Count	2	12	0	2	0	1	0	0
Avg. assets	543M	1,030M		113M		933M		
Avg. mandate	215M	254M						
South Carolina Retirement Systems Investment Commission								
● You	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
%ile								
Assets								
Avg. mandate								

1. Breakdown of external active fees

	You	Peer Average	US Average
Base fees	n/a	64.6	42.5
Performance fees	n/a	0.0	0.0
Internal and other	<u>n/a</u>	<u>0.0</u>	<u>0.0</u>
Total	n/a	64.6	42.5

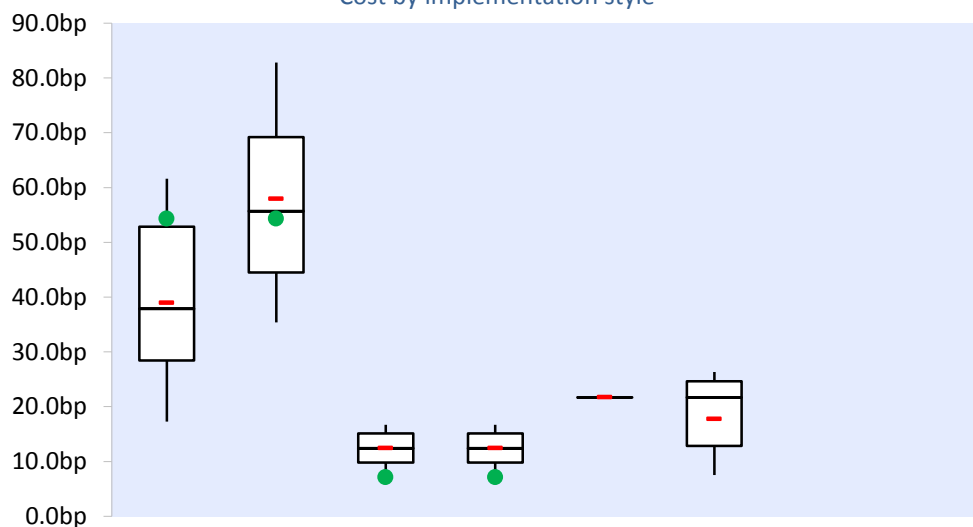


1. Breakdown of external active fees

	You	Peer Average	US Average
Base fees	n/a	n/a	23.8
Performance fees	n/a	n/a	4.6
Internal and other	<u>n/a</u>	<u>n/a</u>	<u>0.3</u>
Total	n/a	n/a	28.8

Fixed Income - Emerging

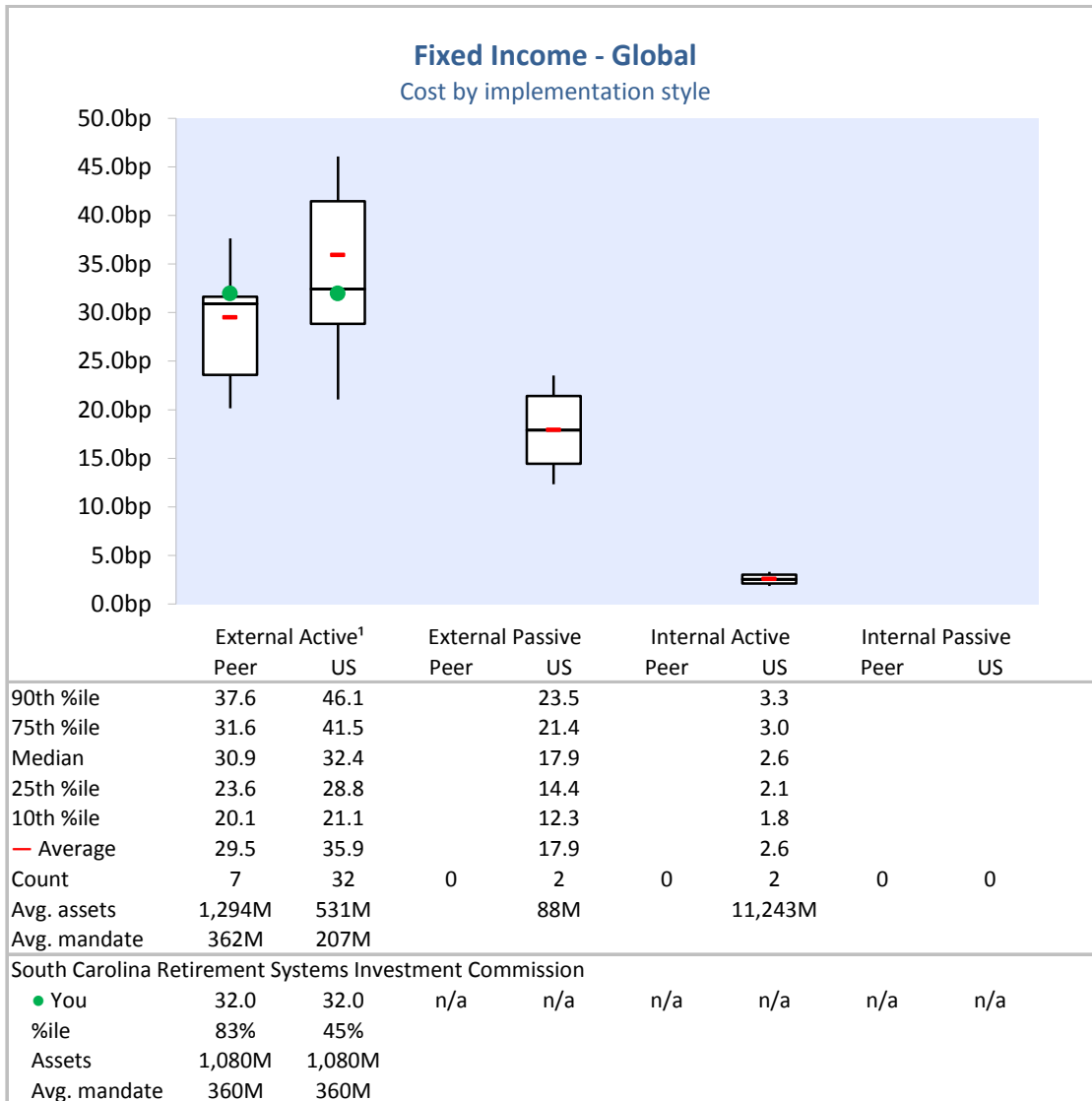
Cost by implementation style



	External Active ¹		External Passive		Internal Active		Internal Passive	
	Peer	US	Peer	US	Peer	US	Peer	US
90th %ile	61.6	82.8	16.7	16.7	21.7	26.4		
75th %ile	52.9	69.2	15.1	15.1	21.7	24.6		
Median	37.9	55.7	12.5	12.5	21.7	21.7		
25th %ile	28.5	44.5	9.8	9.8	21.7	12.9		
10th %ile	17.3	35.4	8.2	8.2	21.7	7.5		
— Average	39.0	58.0	12.5	12.5	21.7	17.8		
Count	10	45	2	2	1	3	0	0
Avg. assets	613M	489M	437M	437M	80M	484M		
Avg. mandate	334M	212M						
South Carolina Retirement Systems Investment Commission								
● You	54.3	54.3	7.1	7.1	n/a	n/a	n/a	n/a
%ile	78%	48%	0%	0%				
Assets	508M	508M	671M	671M				
Avg. mandate	127M	127M						

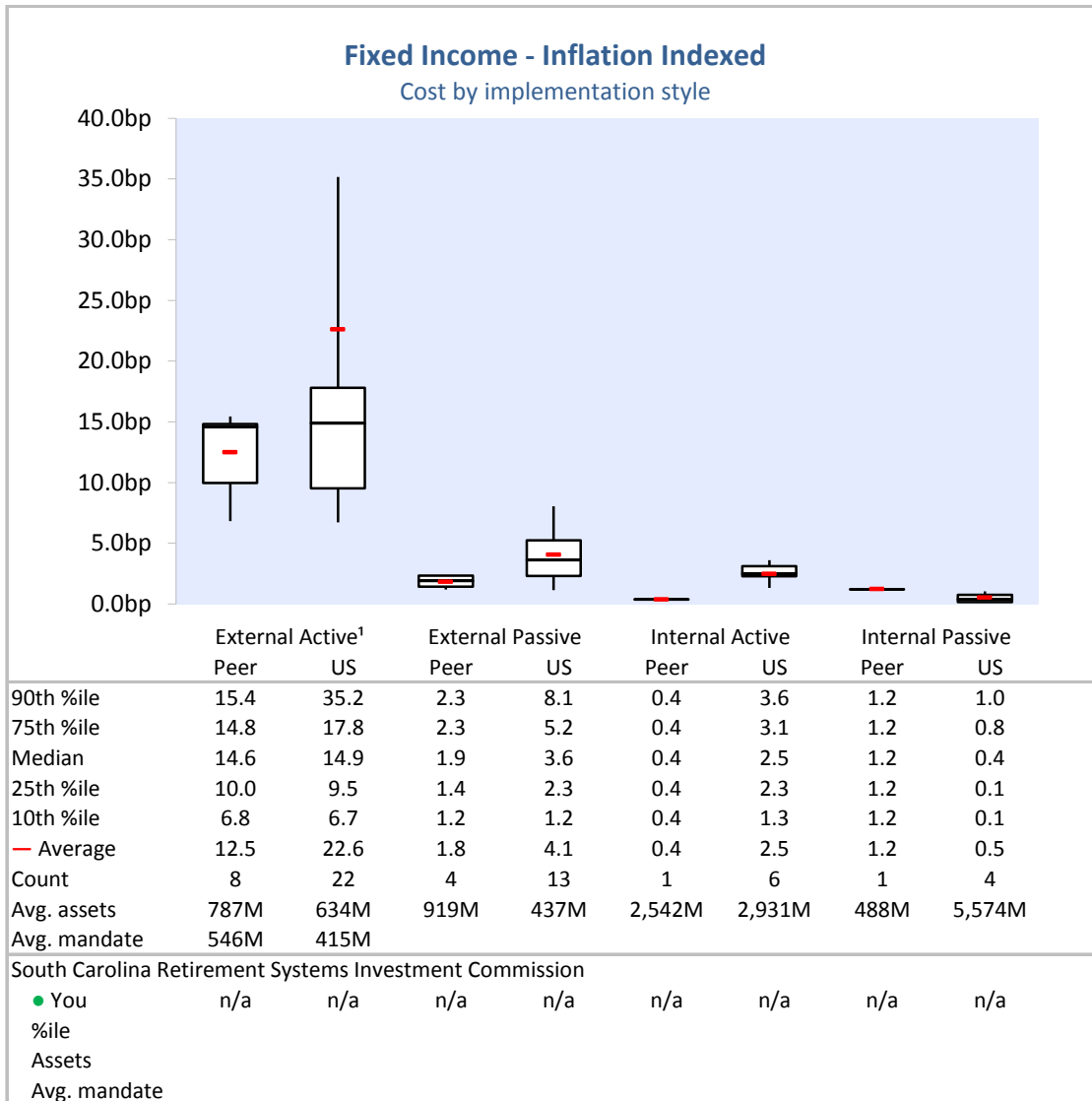
1. Breakdown of external active fees

	You	Peer Average	US Average
Base fees	51.7	38.7	55.6
Performance fees	0.0	0.0	2.2
Internal and other	<u>2.6</u>	<u>0.3</u>	<u>0.1</u>
Total	54.3	39.0	58.0



1. Breakdown of external active fees

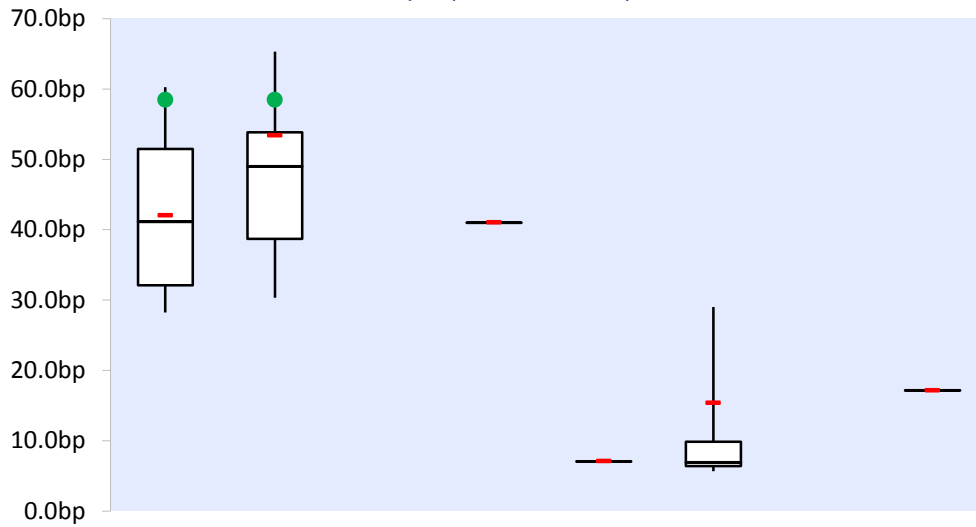
	You	Peer Average	US Average
Base fees	29.4	28.7	34.5
Performance fees	0.0	0.5	1.1
Internal and other	<u>2.6</u>	<u>0.4</u>	<u>0.3</u>
Total	32.0	29.5	35.9



1. Breakdown of external active fees

	You	Peer Average	US Average
Base fees	n/a	12.5	18.5
Performance fees	n/a	0.0	4.0
Internal and other	<u>n/a</u>	<u>0.0</u>	<u>0.2</u>
Total	n/a	12.5	22.6

Fixed Income - High Yield Cost by implementation style

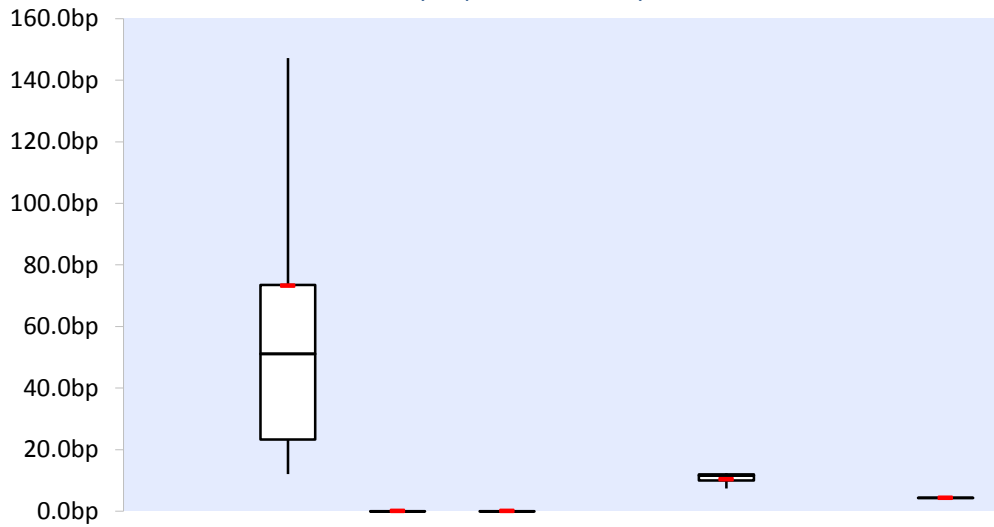


	External Active ¹		External Passive		Internal Active		Internal Passive	
	Peer	US	Peer	US	Peer	US	Peer	US
90th %ile	60.3	65.3		41.0	7.1	29.0		17.2
75th %ile	51.5	53.9		41.0	7.1	9.9		17.2
Median	41.2	49.0		41.0	7.1	6.9		17.2
25th %ile	32.1	38.7		41.0	7.1	6.4		17.2
10th %ile	28.2	30.4		41.0	7.1	5.7		17.2
— Average	42.0	53.4		41.0	7.1	15.4		17.2
Count	9	73	0	1	1	8	0	1
Avg. assets	1,072M	586M		119M	738M	549M		20M
Avg. mandate	420M	230M						
South Carolina Retirement Systems Investment Commission								
● You	58.5	58.5	n/a	n/a	n/a	n/a	n/a	n/a
%ile	88%	83%						
Assets	1,179M	1,179M						
Avg. mandate	168M	168M						

1. Breakdown of external active fees

	You	Peer Average	US Average
Base fees	55.9	39.6	45.5
Performance fees	0.0	2.1	6.8
Internal and other	<u>2.6</u>	<u>0.3</u>	<u>0.3</u>
Total	58.5	42.0	53.4

Fixed Income - Mortgages Cost by implementation style

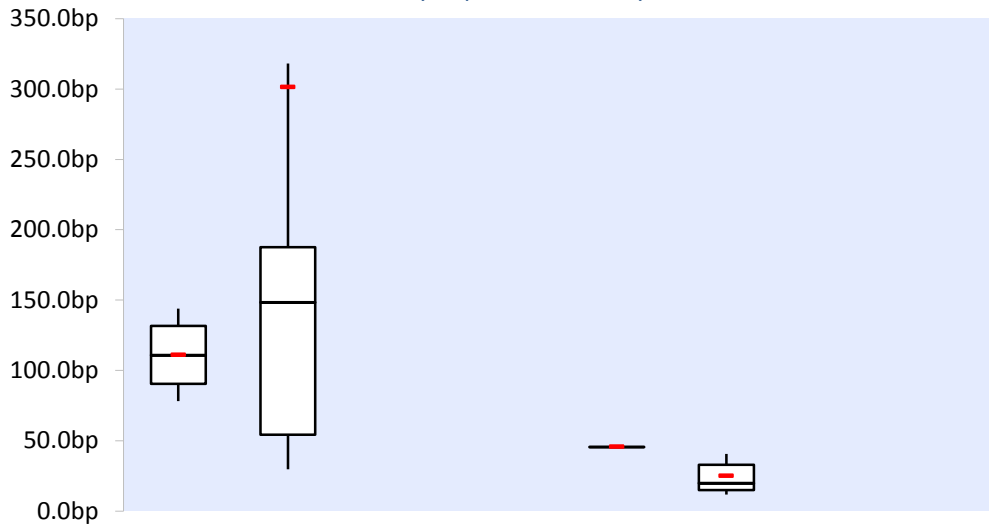


	External Active ¹		External Passive		Internal Active		Internal Passive	
	Peer	US	Peer	US	Peer	US	Peer	US
90th %ile		147.2	0.0	0.0		12.3		4.3
75th %ile		73.4	0.0	0.0		11.9		4.3
Median		51.1	0.0	0.0		11.6		4.3
25th %ile		23.3	0.0	0.0		10.0		4.3
10th %ile		12.0	0.0	0.0		7.3		4.3
— Average		73.3	0.0	0.0		10.3		4.3
Count	0	12	1	1	0	4	0	1
Avg. assets		274M	81M	81M		3,357M		856M
Avg. mandate		141M						
South Carolina Retirement Systems Investment Commission								
● You	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
%ile								
Assets								
Avg. mandate								

1. Breakdown of external active fees

	You	Peer Average	US Average
Base fees	n/a	n/a	55.5
Performance fees	n/a	n/a	17.1
Internal and other	<u>n/a</u>	<u>n/a</u>	<u>0.7</u>
Total	n/a	n/a	73.3

Fixed Income - Private Debt Cost by implementation style



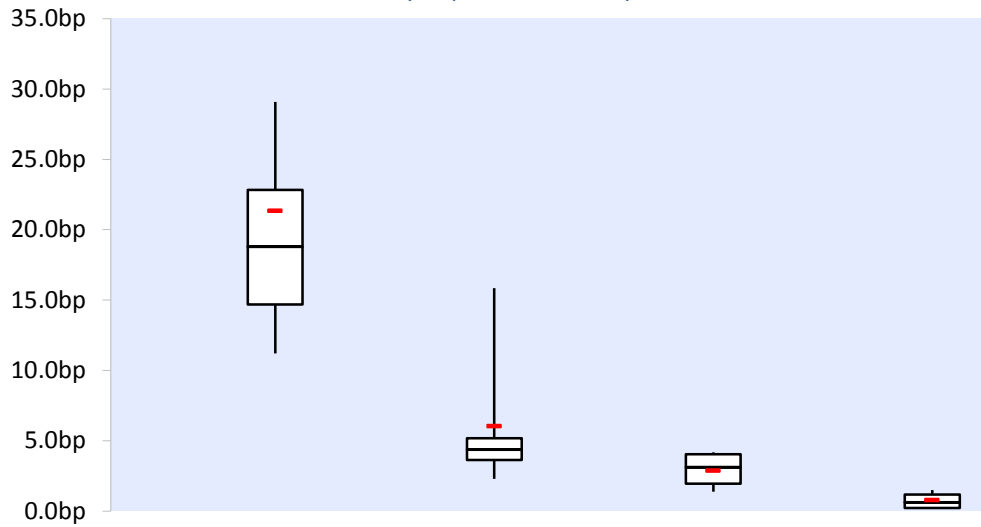
	External Active ¹		External Passive		Internal Active		Internal Passive	
	Peer	US	Peer	US	Peer	US	Peer	US
90th %ile	143.9	318.2			45.7	40.6		
75th %ile	131.6	187.6			45.7	32.9		
Median	111.0	148.4			45.7	20.0		
25th %ile	90.5	54.3			45.7	14.9		
10th %ile	78.2	29.8			45.7	11.9		
— Average	111.0	301.5			45.7	25.2		
Count	2	23	0	0	1	3	0	0
Avg. assets	590M	657M			489M	365M		
Avg. mandate	44M	127M						
South Carolina Retirement Systems Investment Commission								
● You	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
%ile								
Assets								
Avg. mandate								

1. Breakdown of external active fees

	You	Peer Average	US Average
Base fees	n/a	111.0	279.9
Performance fees	n/a	0.0	21.2
Internal and other	<u>n/a</u>	<u>0.0</u>	<u>0.4</u>
Total	n/a	111.0	301.5

Fixed Income - Long Bonds

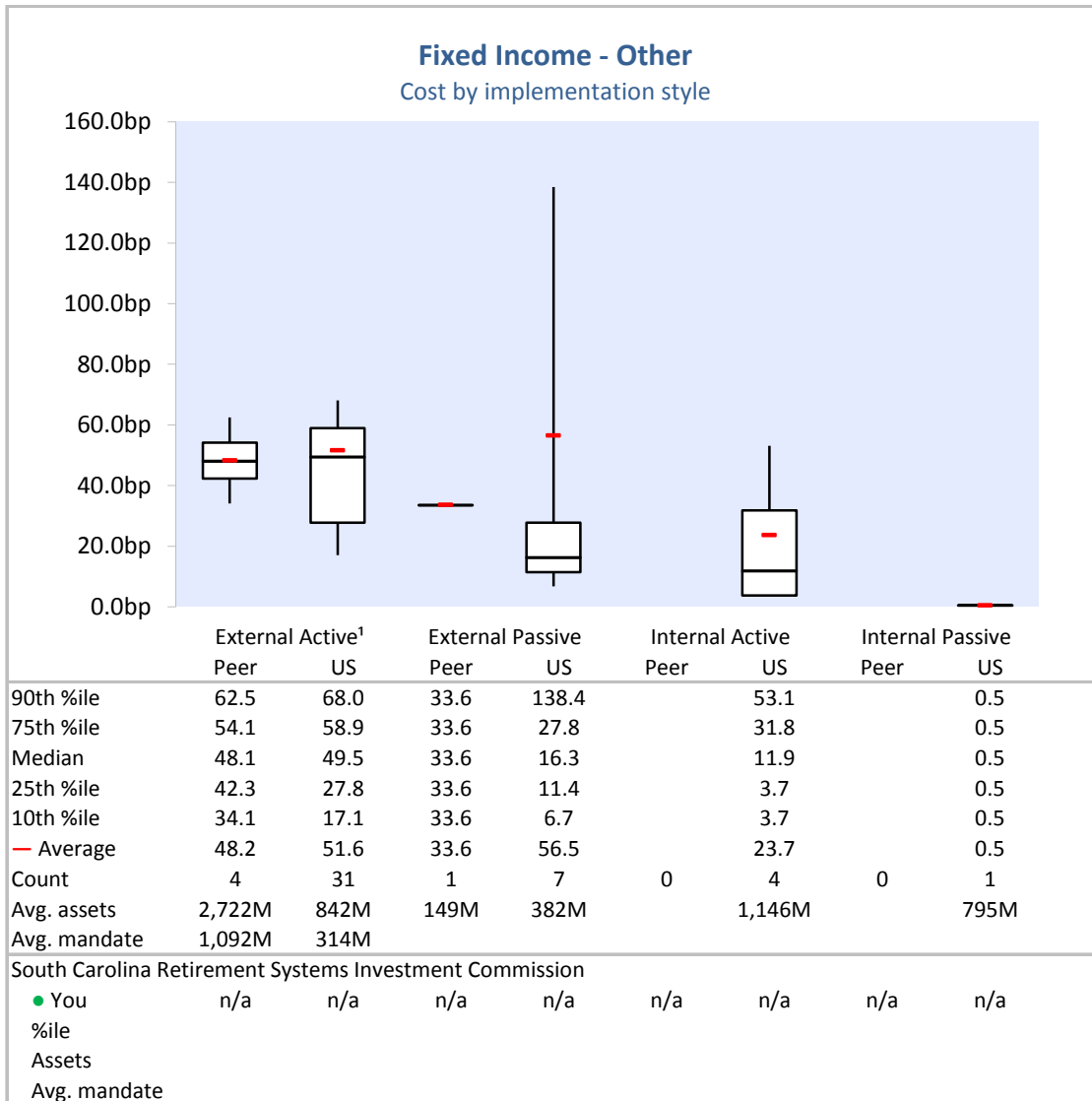
Cost by implementation style



	External Active ¹		External Passive		Internal Active		Internal Passive	
	Peer	US	Peer	US	Peer	US	Peer	US
90th %ile		29.1		15.9		4.2		1.5
75th %ile		22.8		5.2		4.1		1.2
Median		18.8		4.4		3.1		0.6
25th %ile		14.7		3.6		2.0		0.2
10th %ile		11.2		2.3		1.4		0.2
— Average		21.3		6.0		2.9		0.8
Count	0	75	0	22	0	4	0	4
Avg. assets		3,471M		459M		874M		5,812M
Avg. mandate		610M						
South Carolina Retirement Systems Investment Commission								
● You	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
%ile								
Assets								
Avg. mandate								

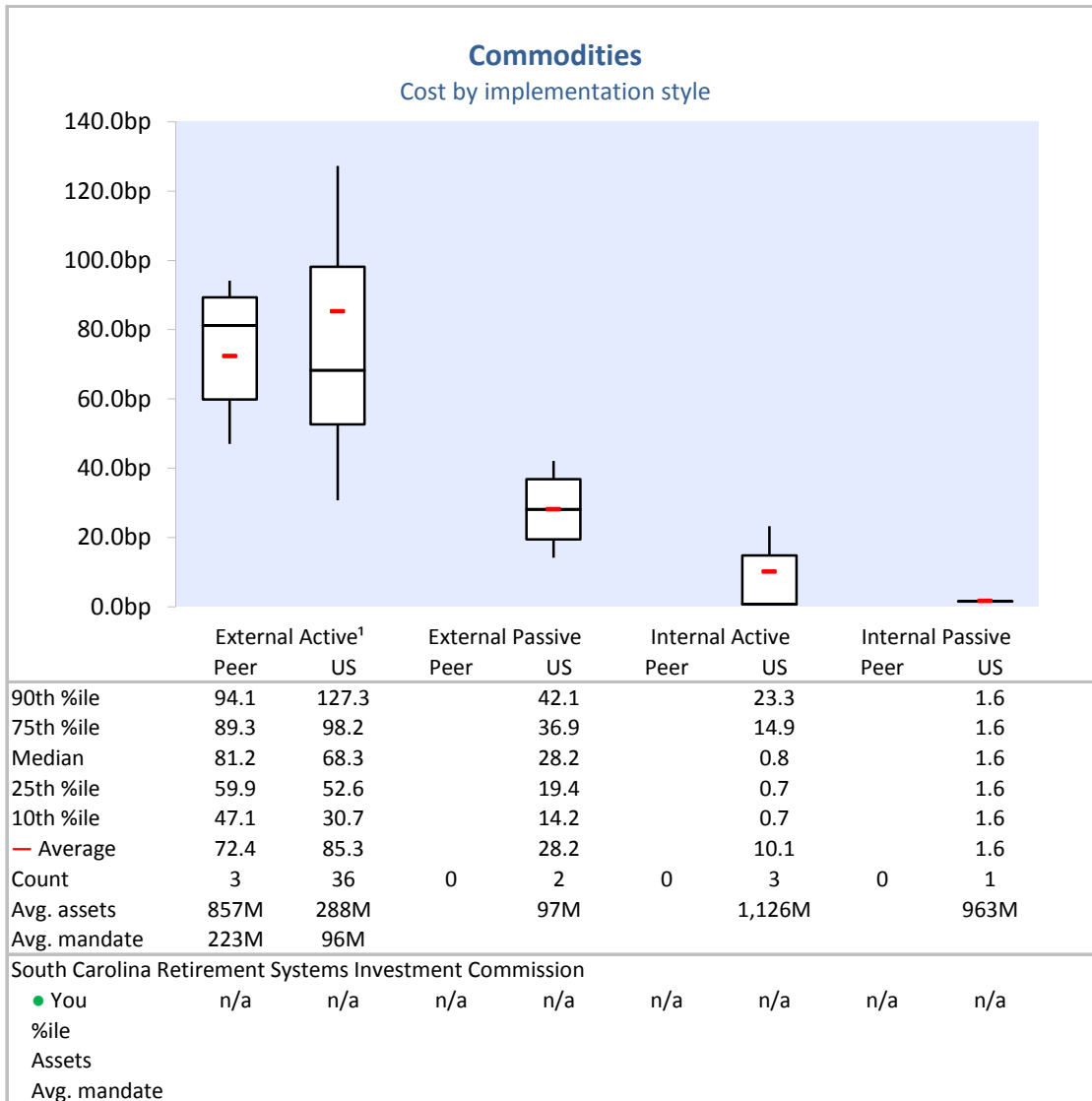
1. Breakdown of external active fees

	You	Peer Average	US Average
Base fees	n/a	n/a	19.8
Performance fees	n/a	n/a	1.5
Internal and other	<u>n/a</u>	<u>n/a</u>	<u>0.0</u>
Total	n/a	n/a	21.3



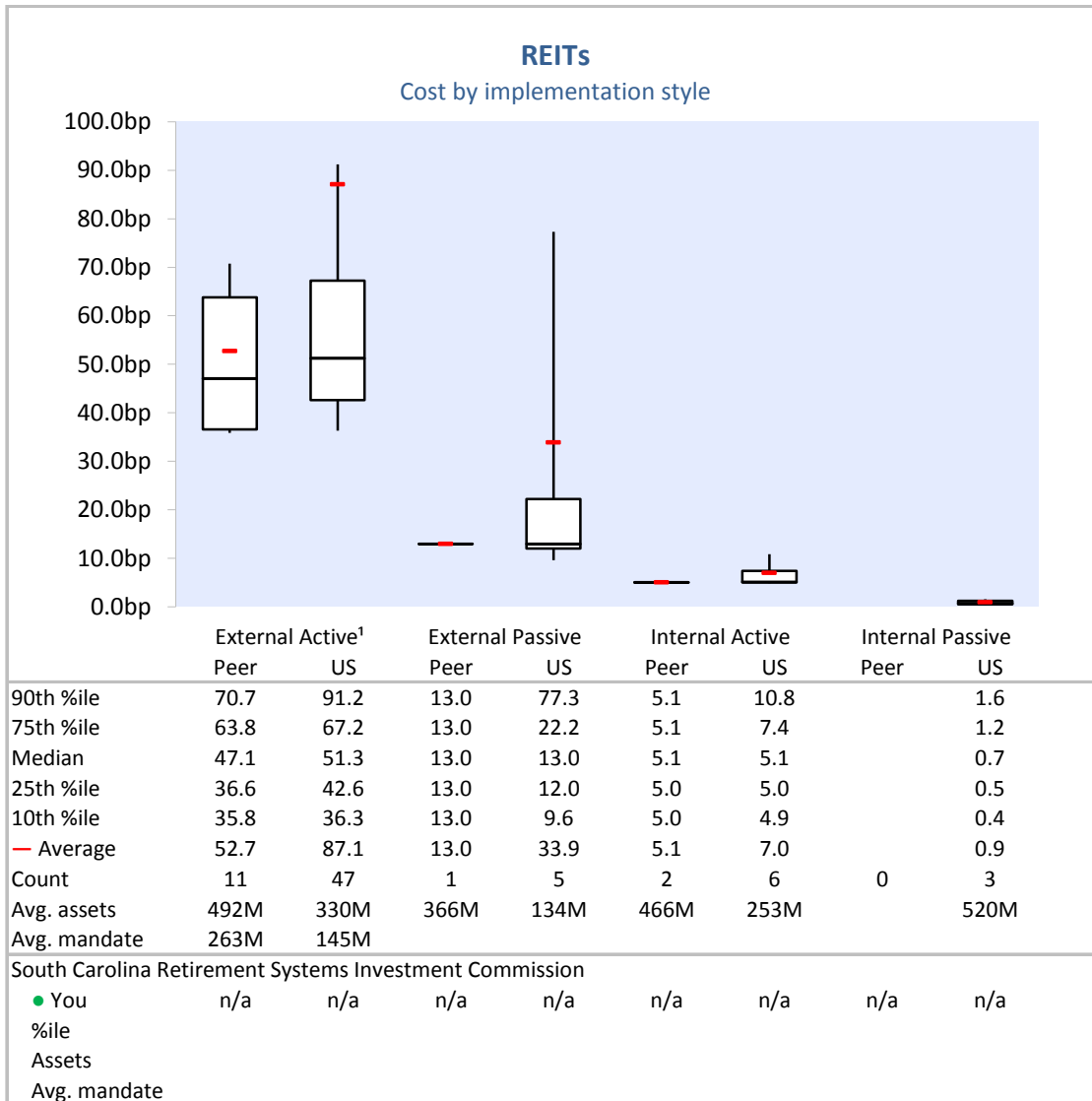
1. Breakdown of external active fees

	You	Peer Average	US Average
Base fees	n/a	43.1	43.8
Performance fees	n/a	4.8	7.6
Internal and other	<u>n/a</u>	<u>0.4</u>	<u>0.2</u>
Total	n/a	48.2	51.6



1. Breakdown of external active fees

	You	Peer Average	US Average
Base fees	n/a	69.7	80.9
Performance fees	n/a	2.7	3.5
Internal and other	<u>n/a</u>	<u>0.0</u>	<u>0.8</u>
Total	n/a	72.4	85.3

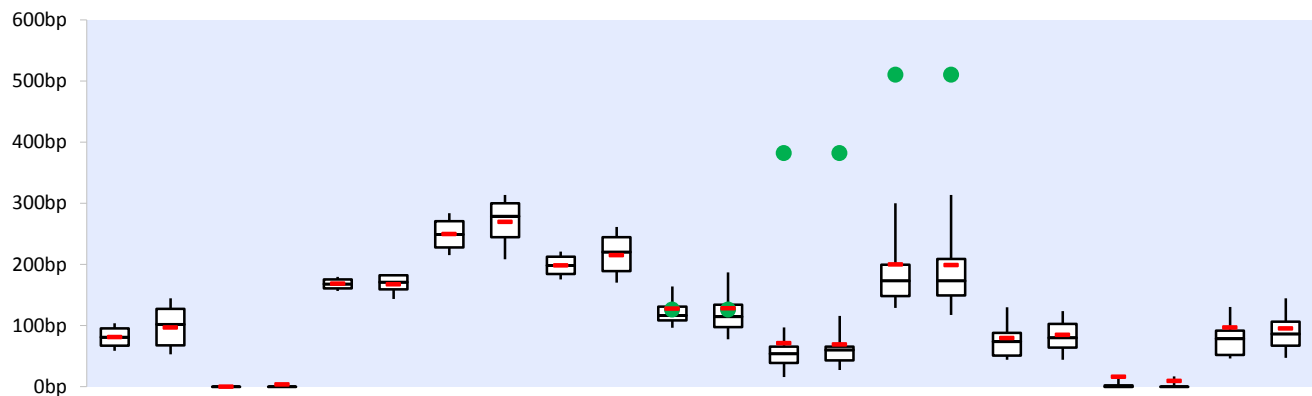


1. Breakdown of external active fees

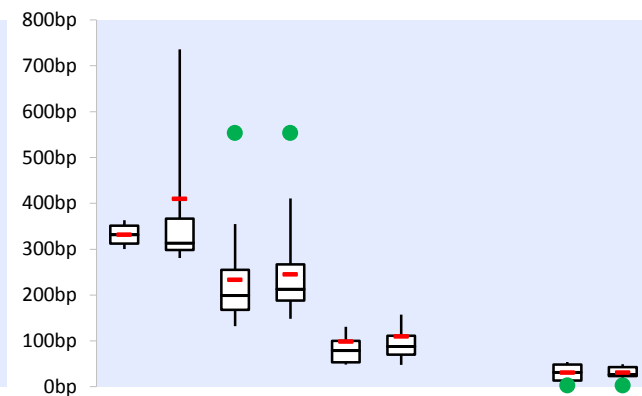
	You	Peer Average	US Average
Base fees	n/a	51.6	86.0
Performance fees	n/a	1.0	0.8
Internal and other	<u>n/a</u>	<u>0.1</u>	<u>0.2</u>
Total	n/a	52.7	87.1

Real Estate ex-REITs

Cost as a % of the amount fees are based on¹



Cost as a % of NAV



	Fund of Funds									Direct LP						External (not LP)						
	Mgmt fees (Top layer)		Perf. fees (Top layer)		Underlying mgmt. & perf. ²		Total ³ incl. perf.		Total ³ excl. perf.		Mgmt fees		Perf. fees		Total ³ incl. perf.		Mgmt fees		Perf. fees		Total ³ incl. perf.	
	Peer	US	Peer	US	Peer	US	Peer	US	Peer	US	Peer	US	Peer	US	Peer	US	Peer	US	Peer	US	Peer	US
90th %ile	104.0	144.4	0.0	0.0	179.8	182.7	283.9	313.6	221.1	261.6	164.2	187.1	97.1	115.8	300.0	314.0	130.1	123.9	13.5	17.0	130.6	144.5
75th %ile	95.5	127.4	0.0	0.0	175.5	182.1	271.0	300.0	212.6	244.5	130.8	134.2	65.6	65.6	199.7	209.1	88.1	102.7	2.3	0.0	91.7	106.6
Median	81.3	102.3	0.0	0.0	168.2	171.2	249.5	279.4	198.4	220.8	117.1	115.0	54.1	60.6	173.2	173.6	74.2	80.0	0.0	0.0	78.9	86.4
25th %ile	67.1	67.5	0.0	0.0	161.0	159.5	228.0	244.5	184.2	189.4	108.5	97.6	38.7	43.2	148.4	149.5	51.0	64.1	0.0	0.0	51.7	67.3
10th %ile	58.6	53.3	0.0	0.0	156.6	143.8	215.2	208.3	175.7	170.4	96.7	77.7	15.9	27.4	129.2	117.5	44.3	44.2	0.0	0.0	46.1	47.3
— Average	81.3	96.5	0.0	3.8	168.2	167.5	249.5	269.3	198.4	215.1	127.4	128.2	70.9	69.0	199.8	198.8	79.3	84.6	16.1	9.3	96.6	95.0
Count	2	14	2	14	2	14	2	14	2	14	16	79	16	79	16	79	13	89	13	89	13	89
Avg. assets	99M	151M	99M	151M	99M	151M	99M	151M	99M	151M	1,600M	1,690M	1,600M	1,690M	1,600M	1,690M	1,640M	1,166M	1,640M	1,166M	1,640M	1,166M
South Carolina Retirement Systems Investment Commission																						
● You	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	126.0	126.0	382.1	382.1	510.5	510.5	n/a	n/a	n/a	n/a	n/a	n/a
%ile											60%	56%	100%	100%	100%	99%						
Assets											1,169M	1,169M	1,169M	1,169M	1,169M	1,169M						

Fund of Funds		Direct LP		External (not LP)		Oper. Sub.		Internal	
Total ³ incl. perf.		Total ³ incl. perf.		Total ³ incl. perf.		Total		Total	
Peer	US	Peer	US	Peer	US	Peer	US	Peer	US
362.9	735.6	355.0	410.7	130.6	157.5			53.9	48.9
351.1	366.4	255.2	267.0	100.2	110.9			48.3	42.7
331.6	313.7	199.0	213.4	78.9	87.9			31.3	26.9
312.0	298.4	167.9	188.0	52.9	69.8			13.8	23.1
300.3	280.6	132.4	148.2	48.4	47.5			7.1	13.0
331.6	409.5	232.8	244.5	98.2	109.2			30.7	30.5
2	14	16	79	13	89	0	0	4	8
58M	86M	1,466M	1,541M	1,587M	1,105M			608M	1,685M
n/a	n/a	553.4	553.4	n/a	n/a	n/a	n/a	2.6	2.6
		100%	96%					0%	0%
		1,078M	1,078M					32M	32M

1. The base for fees is usually the committed amount during the commitment period, and unreturned invested capital afterwards.

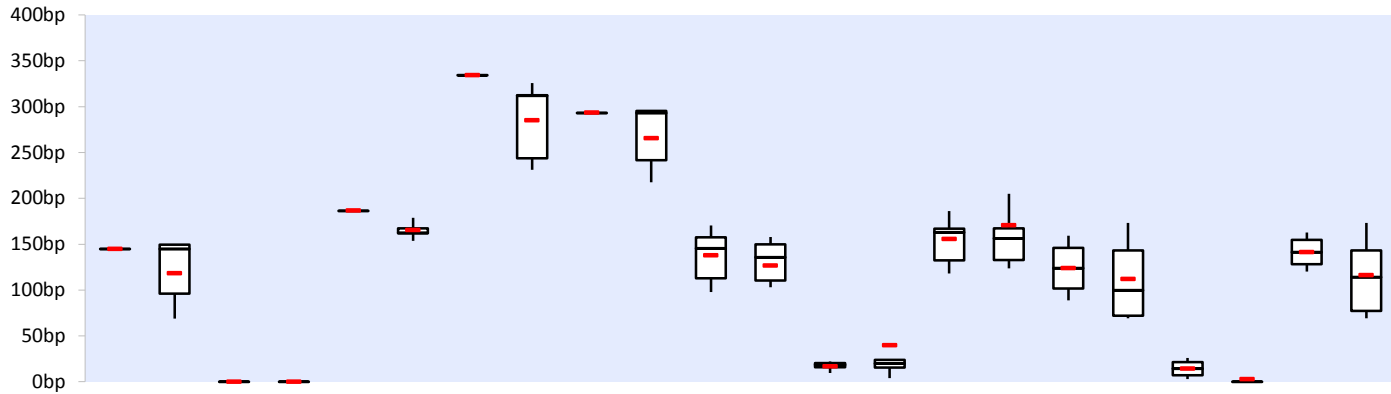
2. The fees of fund of funds include both the top layer fees paid to the fund of funds manager and the underlying fees paid to the 'underlying partnerships' held by the fund of funds. Most funds were unable to provide the underlying fees so defaults of 117 bps (on amount fees are based on) for underlying management fees and 66 bps (on NAV) for underlying performance fees were used.

3. The total cost also includes the internal cost of monitoring and selecting real estate investments. Your cost of monitoring and selecting was 2.4 bps for LPs. The peer average cost of monitoring and selecting was 0.0 bps for fund of funds, 1.4 bps for LPs and 1.1 bps for external (not LPs).

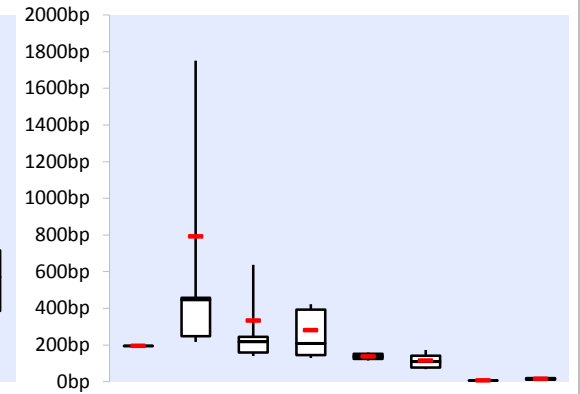
Real Estate Limited Partnerships: Fees are the weighted average management fee of 126 bps per the partnership level detail provided by you. This replaces the cost you provided on the main survey of 132 bps (15 million).

Infrastructure

Cost as a % of the amount fees are based on¹



Cost as a % of NAV

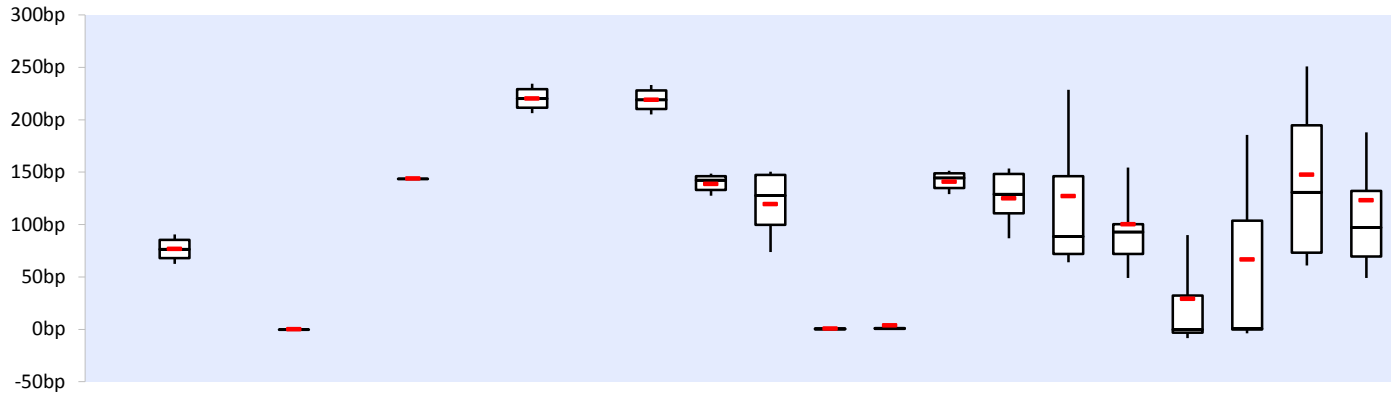


	Fund of Funds										Direct LP						External (not LP)					
	Mgmt fees (Top layer)		Perf. fees (Top layer)		Underlying mgmt. & perf. ²		Total ³ incl. perf.		Total ³ excl. perf.		Mgmt fees		Perf. fees		Total ³ incl. perf.		Mgmt fees		Perf. fees		Total ³ incl. perf.	
	Peer	US	Peer	US	Peer	US	Peer	US	Peer	US	Peer	US	Peer	US	Peer	US	Peer	US	Peer	US	Peer	US
	Peer	US	Peer	US	Peer	US	Peer	US	Peer	US	Peer	US	Peer	US	Peer	US	Peer	US	Peer	US	Peer	US
90th %ile	144.9	150.1	0.0	0.0	186.6	178.9	334.4	325.6	293.4	295.7	170.6	157.7	22.2	24.6	186.1	205.0	159.1	173.1	25.8	0.0	162.7	173.1
75th %ile	144.9	149.6	0.0	0.0	186.6	167.2	334.4	312.4	293.4	295.2	157.6	150.0	20.3	24.0	167.1	167.1	145.9	143.1	21.5	0.0	154.7	143.1
Median	144.9	144.9	0.0	0.0	186.6	162.4	334.4	312.0	293.4	293.4	145.6	136.0	18.6	20.0	163.1	156.3	123.9	100.0	14.4	0.0	141.4	114.1
25th %ile	144.9	96.0	0.0	0.0	186.6	162.0	334.4	243.9	293.4	241.6	112.7	110.3	15.8	15.3	132.5	132.8	101.8	72.2	7.2	0.0	128.1	77.3
10th %ile	144.9	68.8	0.0	0.0	186.6	153.5	334.4	231.3	293.4	217.4	97.7	103.0	9.6	3.9	117.9	123.6	88.6	69.2	2.9	0.0	120.2	69.2
— Average	144.9	118.3	0.0	0.0	186.6	165.2	334.4	285.1	293.4	265.5	138.0	126.7	16.8	39.8	155.7	170.6	123.9	112.1	14.4	2.6	141.4	116.2
Count	1	5	1	5	1	5	1	5	1	5	6	21	6	21	6	21	2	11	2	11	2	11
Avg. assets	68M	75M	68M	75M	68M	75M	68M	75M	68M	75M	306M	374M	306M	374M	306M	374M	267M	227M	267M	227M	267M	227M
South Carolina Retirement Systems Investment Commission																						
● You	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
%ile																						
Assets																						

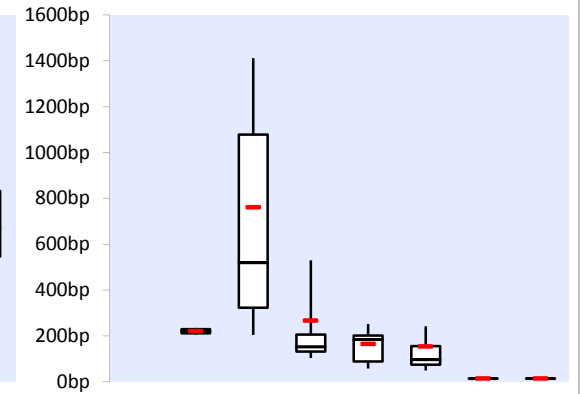
1. The base for fees is usually the committed amount during the commitment period, and unreturned invested capital afterwards.
2. The fees of fund of funds include both the top layer fees paid to the fund of funds manager and the underlying fees paid to the 'underlying partnerships' held by the fund of funds. Most funds were unable to provide the underlying fees so defaults of 146 bps (on amount fees are based on) for underlying management fees and 24 bps (on NAV) for underlying performance fees were used.
3. The total cost also includes the internal cost of monitoring and selecting infrastructure investments. The peer average cost of monitoring and selecting was 2.8 bps for fund of funds, 0.9 bps for LPs and 3.2 bps for external (not LPs).

Natural Resources

Cost as a % of the amount fees are based on¹

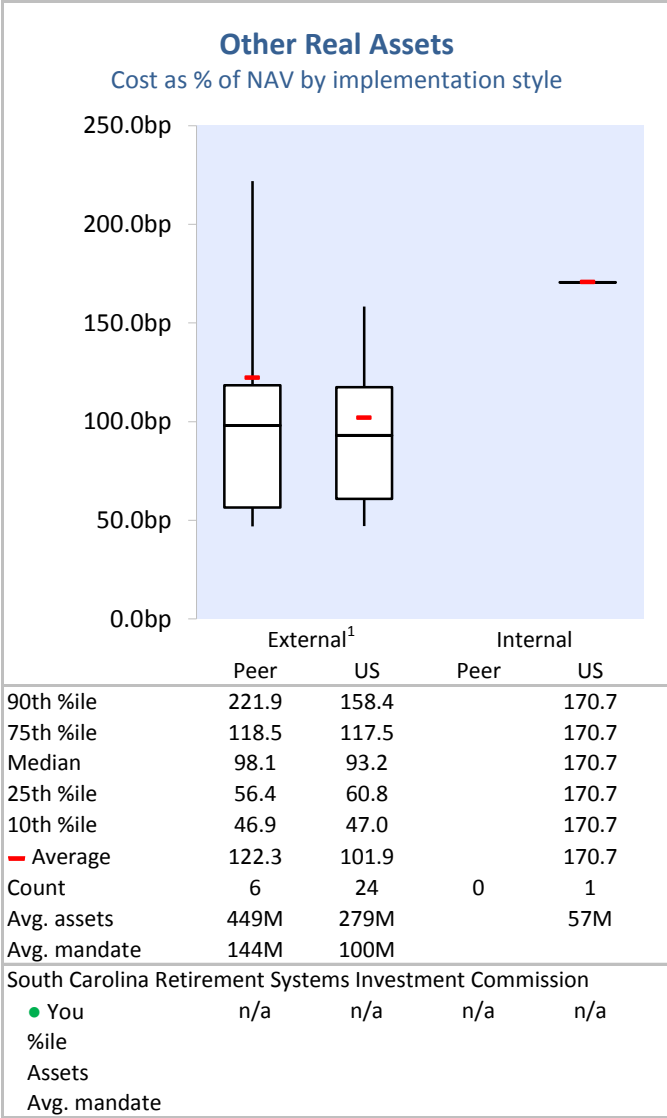


Cost as a % of NAV



	Fund of Funds						Direct LP						External (not LP)													
	Mgmt fees (Top layer)		Perf. fees (Top layer)		Underlying mgmt. & perf. ²		Total ³ incl. perf.		Total ³ excl. perf.		Mgmt fees		Perf. fees		Total ³ incl. perf.		Mgmt fees		Perf. fees		Total ³ incl. perf.					
	Peer	US	Peer	US	Peer	US	Peer	US	Peer	US	Peer	US	Peer	US	Peer	US	Peer	US	Peer	US	Peer	US	Peer	US		
90th %ile	90.6	0.0	143.7	234.3	233.1	148.5	150.4	1.0	2.2	151.4	153.3	228.6	154.4	89.9	185.7	250.7	187.9									
75th %ile	85.4	0.0	143.7	229.1	227.9	146.3	147.4	0.8	1.2	148.9	148.3	146.1	100.3	32.1	103.7	194.8	132.1									
Median	76.6	0.0	143.7	220.3	219.1	142.5	127.9	0.4	1.1	144.6	129.1	88.7	93.0	0.0	0.7	130.8	97.3									
25th %ile	67.9	0.0	143.7	211.6	210.4	133.2	99.8	0.2	0.6	134.8	110.6	72.1	71.9	-3.0	0.0	73.2	69.6									
10th %ile	62.6	0.0	143.7	206.3	205.1	127.6	73.7	0.2	0.1	129.0	86.9	64.0	49.0	-8.5	-3.7	61.0	49.0									
— Average	76.6	0.0	143.7	220.3	219.1	138.8	119.5	0.6	3.8	140.9	124.8	127.1	100.1	29.1	66.5	147.5	123.1									
Count	0	2	0	2	0	3	20	3	20	3	20	6	27	4	8	6	27									
Avg. assets	216M		216M		216M		216M		216M		297M		718M		297M		718M		505M		278M		505M		278M	
South Carolina Retirement Systems Investment Commission																										
● You	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
%ile																										
Assets																										

1. The base for fees is usually the committed amount during the commitment period, and unreturned invested capital afterwards.
2. The fees of fund of funds include both the top layer fees paid to the fund of funds manager and the underlying fees paid to the 'underlying partnerships' held by the fund of funds. Most funds were unable to provide the underlying fees so defaults of 143 bps (on amount fees are based on) for underlying management fees and 1 bps (on NAV) for underlying performance fees were used.
3. The total cost also includes the internal cost of monitoring and selecting natural resources investments. The peer average cost of monitoring and selecting was 1.6 bps for LPs and 1.0 bps for external (not LPs).



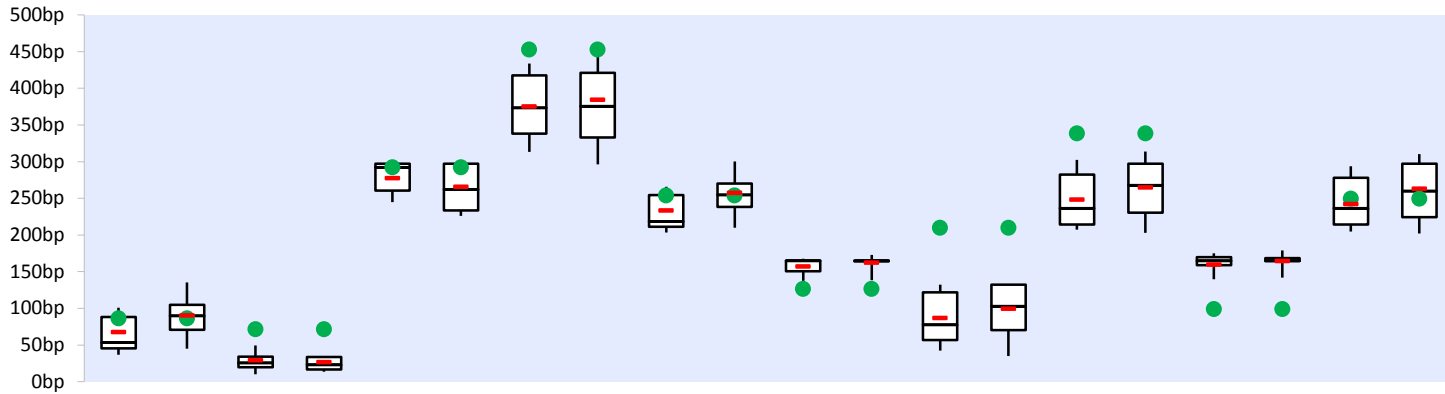
1. Breakdown of external fees

	Your Plan	Peer Average	US Average
Base fees	n/a	119.9	99.8
Internal and other	<u>n/a</u>	<u>2.4</u>	<u>2.1</u>
Total*	n/a	122.3	101.9
Performance fees		8.7	2.2

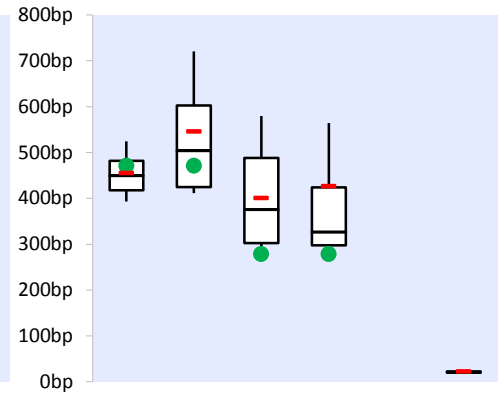
* Total cost excludes performance fees because most participants did not provide performance fees for other real assets.

Diversified Private Equity

Cost as a % of the amount fees are based on¹



Cost as a % of NAV



	Fund of Funds										Direct LP						Direct LP & Co-Inv. ⁴				Fund of Funds		Direct LP & Co-Inv. ⁴		Internal	
	Mgmt fees		Perf. fees		Underlying		Total ³		Total ³		Mgmt fees		Perf. fees		Total ³		Total		Total ³		Total		Total			
	(Top layer)		(Top layer)		mgmt. & perf. ²		incl. perf.		excl. perf.		Peer		US		incl. perf.		excl. perf		incl. perf.		incl. perf.		Peer		US	
	Peer	US	Peer	US	Peer	US	Peer	US	Peer	US	Peer	US	Peer	US	Peer	US	Peer	US	Peer	US	Peer	US	Peer	US	Peer	US
90th %ile	100.8	135.3	49.5	34.9	299.2	297.4	433.6	463.2	265.8	300.3	167.6	172.7	132.4	132.4	302.5	313.7	174.9	178.8	293.8	310.3	524.6	720.8	579.7	564.3		24.1
75th %ile	88.2	104.9	34.3	33.7	297.4	297.4	417.7	421.0	254.4	270.0	165.0	165.0	121.7	132.4	282.3	297.4	170.0	168.5	278.0	297.4	481.5	602.7	488.3	423.7		22.7
Median	53.9	90.0	25.9	23.1	292.2	262.1	373.5	375.8	218.9	255.0	165.0	165.0	77.8	103.0	236.7	268.1	165.0	165.0	236.7	260.0	449.7	504.1	376.0	326.6		20.5
25th %ile	45.7	70.9	19.8	16.9	260.4	233.7	338.3	332.8	211.5	238.1	150.6	164.2	56.9	70.3	214.3	230.4	159.1	164.6	214.3	224.4	417.7	424.4	302.5	297.4		20.4
10th %ile	36.8	45.1	10.1	13.6	244.9	226.3	313.3	296.5	203.4	210.1	137.7	138.4	42.3	34.8	207.3	203.0	139.8	142.1	204.6	202.1	393.1	411.6	286.1	289.9		20.4
— Average	67.7	90.2	29.4	26.4	277.3	265.6	375.1	384.3	233.5	257.2	156.9	162.1	86.6	99.4	248.3	264.7	159.5	164.4	242.2	262.8	454.6	545.6	400.5	426.7		21.9
Count	7	69	7	69	7	69	7	69	7	69	16	96	16	96	16	96	16	96	16	96	7	69	16	96	0	3
Avg. assets	924M	581M	924M	581M	924M	581M	924M	581M	924M	581M	4,788M	2,711M	4,788M	2,711M	4,788M	2,711M	4,841M	2,764M	4,841M	2,764M	735M	419M	3,037M	2,050M		229M
South Carolina Retirement Systems Investment Commission																										
● You	86.4	86.4	71.5	71.5	292.2	292.2	452.6	452.6	253.9	253.9	126.5	126.5	209.8	209.8	338.5	338.5	99.1	99.1	249.2	249.2	470.9	470.9	278.5	278.5	n/a	n/a
%ile	67%	44%	100%	99%	50%	65%	100%	88%	67%	44%	0%	5%	100%	99%	100%	95%	0%	0%	67%	43%	67%	43%	7%	7%		
Assets	359M	359M	359M	359M	359M	359M	359M	359M	359M	359M	1,887M	1,887M	1,887M	1,887M	1,887M	1,887M	2,636M	2,636M	2,636M	2,636M	345M	345M	2,360M	2,360M		

- The base for fees is usually the committed amount during the commitment period, and unreturned invested capital afterwards.
- The fees of fund of funds include both the top layer fees paid to the fund of funds manager and the underlying fees paid to the 'underlying partnerships' held by the fund of funds. Most funds were unable to provide the underlying fees so defaults of 165 bps (on amount fees are based on) for underlying management fees and 132 bps (on NAV) for underlying performance fees were used.
- The total cost also includes the internal cost of monitoring and selecting private equity investments. Your cost of monitoring and selecting was 2.5 bps for fund of funds and 2.2 bps for LPs. The peer average cost of monitoring and selecting was 0.8 bps for fund of funds and 4.9 bps for LPs.
- Co-investment is included with direct LPs because it can only be done alongside direct LPs. CEM uses this combined style in its benchmark cost analysis to ensure funds that reduce their costs by using co-investment receive benchmark credit. Co-investment is done by 2 of your peers and 7 of the U.S. funds.

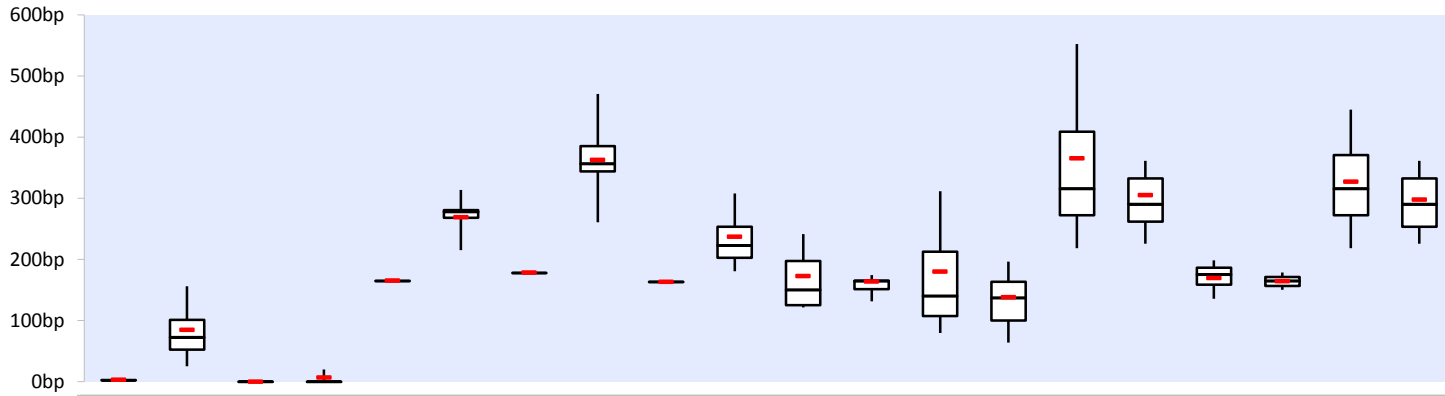
Diversified Private Equity Direct LPs: Fees are the weighted average management fee of 127 bps per the partnership level detail provided by you. This replaces the cost you provided on the main survey of 124 bps (23 million).

Diversified Private Equity - Fund of Funds ('bottom layer'): For comparability with other styles, a default for management fees paid to the 'bottom layer' underlying managers of 165 bps (on amount fees are based on) was used.

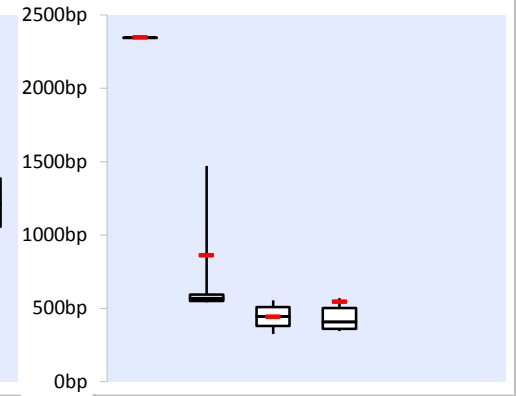
Diversified Private Equity - Fund of Funds ('bottom layer'): A default for performance fees paid to the 'bottom layer' underlying managers of 132 bps (on NAV) was used to enable comparisons of the total cost of different implementation styles. This default is not included in your total fund cost or in benchmark analysis.

LBO

Cost as a % of the amount fees are based on¹



Cost as a % of NAV



	Fund of Funds										Direct LP						Direct LP & Co-Inv. ⁴				Fund of Funds		Direct LP & Co-Inv. ⁴		Internal		
	Mgmt fees (Top layer)		Perf. fees (Top layer)		Underlying mgmt. & perf. ²		Total ³ incl. perf.		Total ³ excl. perf.		Mgmt fees		Perf. fees		Total ³ incl. perf.		Total ³ excl. perf.		Total ³ incl. perf.		Total ³ incl. perf.		Total ³				
	Peer	US	Peer	US	Peer	US	Peer	US	Peer	US	Peer	US	Peer	US	Peer	US	Peer	US	Peer	US	Peer	US	Peer	US	Peer	US	
90th %ile	2.9	156.3	0.0	20.1	165.3	313.9	178.3	470.6	163.4	307.9	241.5	174.3	311.6	196.5	552.5	361.5	198.6	178.6	445.1	361.5	2346.3	1471.1	553.8	570.7			
75th %ile	2.9	101.4	0.0	0.0	165.3	280.6	178.3	385.2	163.4	253.6	197.6	165.0	212.8	163.5	409.0	332.6	186.4	171.3	370.6	332.6	2346.3	593.6	508.6	503.4			
Median	2.9	72.9	0.0	0.0	165.3	278.3	178.3	356.8	163.4	223.3	150.3	165.0	140.5	137.3	315.9	290.5	175.5	165.0	315.9	290.5	2346.3	570.5	446.5	409.5			
25th %ile	2.9	52.5	0.0	0.0	165.3	268.5	178.3	344.1	163.4	202.8	125.3	151.7	107.6	100.3	272.5	261.7	158.7	156.9	272.5	253.7	2346.3	551.3	379.8	361.5			
10th %ile	2.9	25.2	0.0	0.0	165.3	215.4	178.3	261.1	163.4	180.6	121.6	131.4	79.8	64.1	218.3	225.6	136.0	150.5	218.3	225.6	2346.3	541.8	326.2	346.1			
— Average	2.9	84.8	0.0	6.7	165.3	269.2	178.3	362.8	163.4	237.3	172.6	163.8	179.9	138.0	365.5	305.1	169.6	164.0	327.2	297.7	2346.3	861.1	441.9	543.9			
Count	1	6	1	6	1	6	1	6	1	6	4	23	4	23	4	23	4	23	4	23	1	6	4	23	0	0	
Avg. assets	38M	178M	38M	178M	38M	178M	38M	178M	38M	178M	2,092M	2,606M	2,092M	2,606M	2,092M	2,606M	2,260M	2,690M	2,260M	2,690M	3M	111M	1,671M	2,002M			
South Carolina Retirement Systems Investment Commission																											
● You	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
%ile																											
Assets																											

1. The base for fees is usually the committed amount during the commitment period, and unreturned invested capital afterwards.

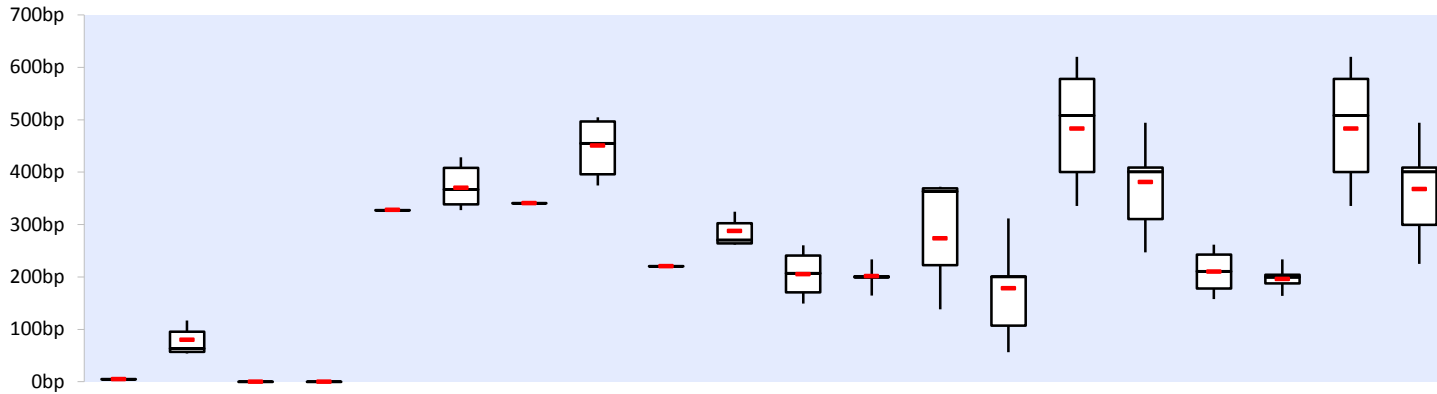
2. The fees of fund of funds include both the top layer fees paid to the fund of funds manager and the underlying fees paid to the 'underlying partnerships' held by the fund of funds. Most funds were unable to provide the underlying fees so defaults of 150 bps (on amount fees are based on) for underlying management fees and 196 bps (on NAV) for underlying performance fees were used.

3. The total cost also includes the internal cost of monitoring and selecting private equity investments. The peer average cost of monitoring and selecting was 10.1 bps for fund of funds and 13.0 bps for LPs.

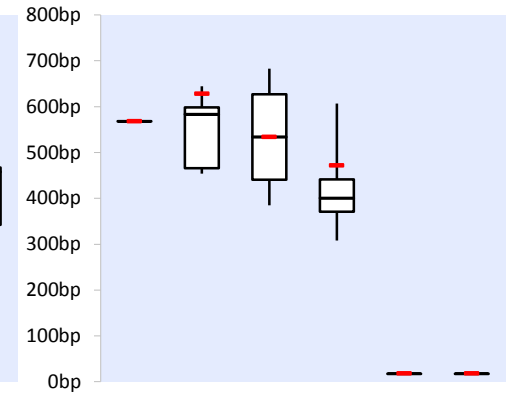
4. Co-investment is included with direct LPs because it can only be done alongside direct LPs. CEM uses this combined style in its benchmark cost analysis to ensure funds that reduce their costs by using co-investment receive benchmark credit. Co-investment is done by 1 of your peers and 1 of the U.S. funds.

Venture Capital

Cost as a % of the amount fees are based on¹



Cost as a % of NAV



	Fund of Funds										Direct LP						Direct LP & Co-Inv. ⁴				Fund of Funds		Direct LP & Co-Inv. ⁴		Internal	
	Mgmt fees (Top layer)		Perf. fees (Top layer)		Underlying mgmt. & perf. ²		Total ³ incl. perf.		Total ³ excl. perf.		Mgmt fees		Perf. fees		Total ³ incl. perf.		Total ³ excl. perf.		Total ³ incl. perf.		Total ³ incl. perf.		Total			
	Peer	US	Peer	US	Peer	US	Peer	US	Peer	US	Peer	US	Peer	US	Peer	US	Peer	US	Peer	US	Peer	US	Peer	US		
90th %ile	4.9	117.0	0.0	0.0	327.6	428.5	340.8	504.7	220.4	324.3	260.7	233.6	372.2	311.4	620.3	494.3	261.4	233.6	620.3	494.3	568.2	644.5	682.7	606.9	17.9	17.9
75th %ile	4.9	95.3	0.0	0.0	327.6	407.9	340.8	496.5	220.4	302.5	240.6	201.0	369.1	200.7	578.2	408.9	242.5	204.4	578.2	408.9	568.2	598.5	626.9	441.3	17.9	17.9
Median	4.9	63.6	0.0	0.0	327.6	367.3	340.8	455.0	220.4	270.9	207.2	200.0	363.7	200.7	508.1	400.7	211.0	200.0	508.1	400.7	568.2	583.4	533.9	400.7	17.9	17.9
25th %ile	4.9	56.9	0.0	0.0	327.6	338.7	340.8	396.2	220.4	264.1	170.9	199.8	222.7	107.2	400.3	310.7	177.7	187.7	400.3	299.6	568.2	465.4	440.7	371.0	17.9	17.9
10th %ile	4.9	53.7	0.0	0.0	327.6	327.8	340.8	374.4	220.4	261.4	149.1	164.7	138.0	56.3	335.7	246.9	157.7	163.7	335.7	224.8	568.2	454.0	384.9	308.2	17.9	17.9
— Average	4.9	79.6	0.0	0.0	327.6	370.0	340.8	450.4	220.4	287.7	205.2	201.3	273.2	178.1	483.0	381.2	209.8	196.1	483.0	367.3	568.2	627.9	533.8	471.6	17.9	17.9
Count	1	12	1	12	1	12	1	12	1	12	3	32	3	32	3	32	3	32	3	32	1	12	3	32	1	1
Avg. assets	161M	381M	161M	381M	161M	381M	161M	381M	161M	381M	282M	317M	282M	317M	282M	317M	282M	318M	282M	318M	96M	341M	297M	259M	9M	9M
South Carolina Retirement Systems Investment Commission																										
● You	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
%ile																										
Assets																										

1. The base for fees is usually the committed amount during the commitment period, and unreturned invested capital afterwards.

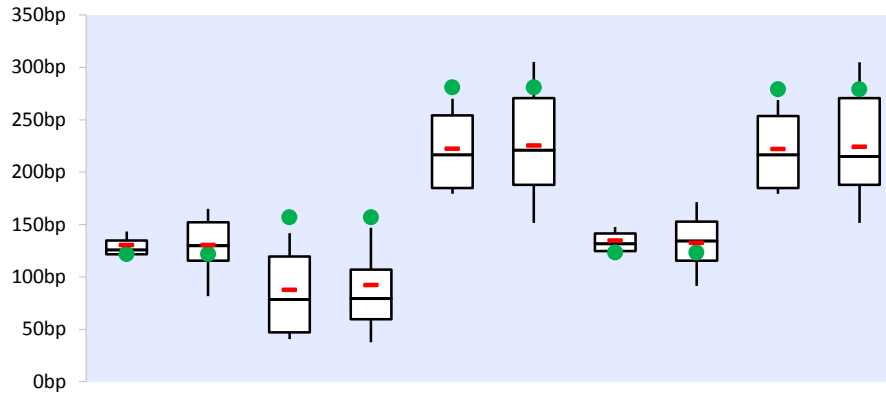
2. The fees of fund of funds include both the top layer fees paid to the fund of funds manager and the underlying fees paid to the 'underlying partnerships' held by the fund of funds. Most funds were unable to provide the underlying fees so defaults of 207 bps (on amount fees are based on) for underlying management fees and 201 bps (on NAV) for underlying performance fees were used.

3. The total cost also includes the internal cost of monitoring and selecting private equity investments. The peer average cost of monitoring and selecting was 8.3 bps for fund of funds and 4.5 bps for LPs.

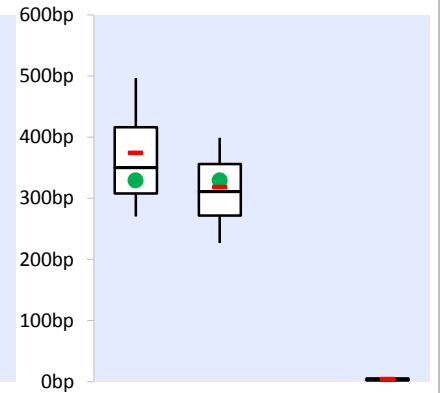
4. Co-investment is included with direct LPs because it can only be done alongside direct LPs. CEM uses this combined style in its benchmark cost analysis to ensure funds that reduce their costs by using co-investment receive benchmark credit. Co-investment is done by none of your peers and 2 of the U.S. funds.

Private Debt Limited Partnerships

Cost as a % of the amount fees are based on¹



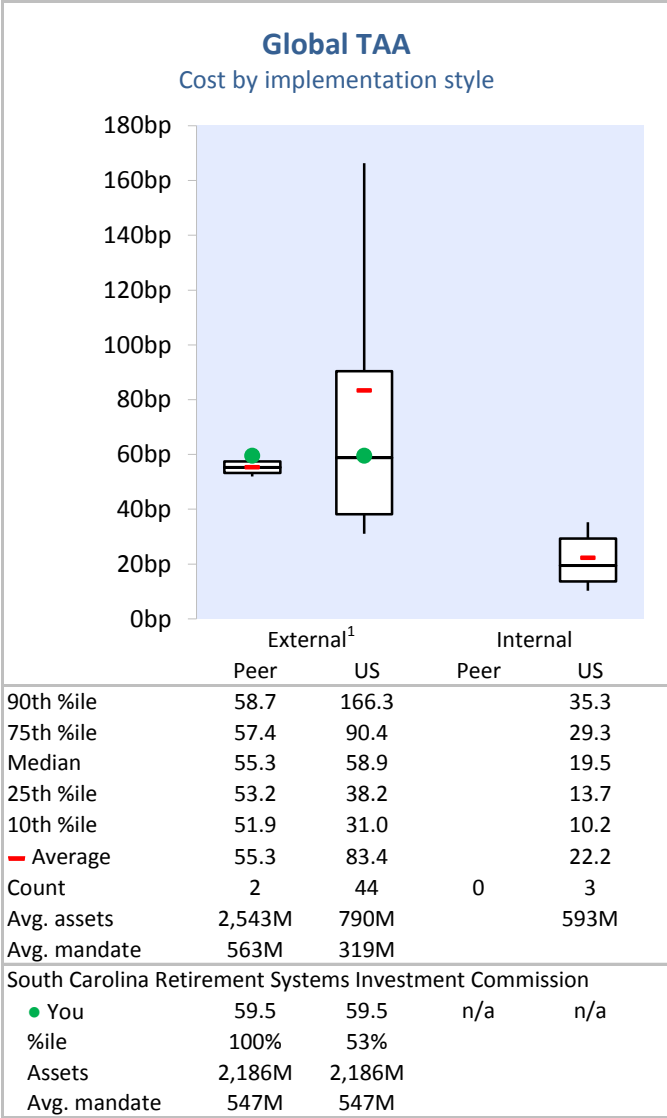
Cost as a % of NAV



	Direct LP						Direct LP & Co-Inv. ³				Direct LP & Co-Inv. ³		Internal	
	Mgmt fees		Perf. fees		Total ² incl. perf.		Total excl. perf		Total ² incl. perf.		Total ² incl. perf.		Total	
	Peer	US	Peer	US	Peer	US	Peer	US	Peer	US	Peer	US	Peer	US
90th %ile	143.3	165.0	141.8	147.1	270.1	305.2	147.6	171.3	268.9	304.9	497.2	399.1		6.6
75th %ile	134.6	152.1	119.4	106.9	254.1	270.6	141.6	152.9	253.6	270.6	416.5	356.3		5.4
Median	125.8	129.8	78.7	79.4	216.6	221.2	131.7	134.5	216.6	215.0	350.4	311.1		3.4
25th %ile	121.5	115.4	47.0	59.7	184.9	187.8	124.7	115.4	184.9	187.8	308.1	271.9		2.3
10th %ile	121.0	81.8	40.7	37.6	179.4	151.5	123.8	91.4	179.4	151.5	270.3	226.6		1.7
— Average	130.3	130.2	87.7	92.1	222.4	225.2	134.5	132.5	222.0	224.1	374.2	318.3		4.0
Count	4	23	4	23	4	23	4	23	4	23	4	23	0	3
Avg. assets	1,604M	669M	1,604M	669M	1,604M	669M								393M
South Carolina Retirement Systems Investment Commission														
● You	121.8	121.8	156.8	156.8	280.8	280.8	123.2	123.2	279.0	279.0	329.1	329.1	n/a	n/a
%ile	33%	41%	100%	91%	100%	86%	0%	36%	100%	86%	33%	68%		
Assets	1,966M	1,966M	1,966M	1,966M	1,966M	1,966M								

- The base for fees is usually the committed amount during the commitment period, and unreturned invested capital afterwards.
- The total cost also includes the internal cost of monitoring and selecting private equity investments. Your cost of monitoring and selecting was 2.2 bps for LPs. The peer average cost of monitoring and selecting was 4.4 bps for LPs.
- Co-investment is included with direct LPs in CEM's benchmark cost analysis because it reduces the cost of investing in direct LPs. Co-investment is done by 1 of your peers and 2 of the U.S. funds.

Private Debt Limited Partnerships: Fees are the weighted average management fee of 122 bps per the partnership level detail provided by you. This replaces the cost you

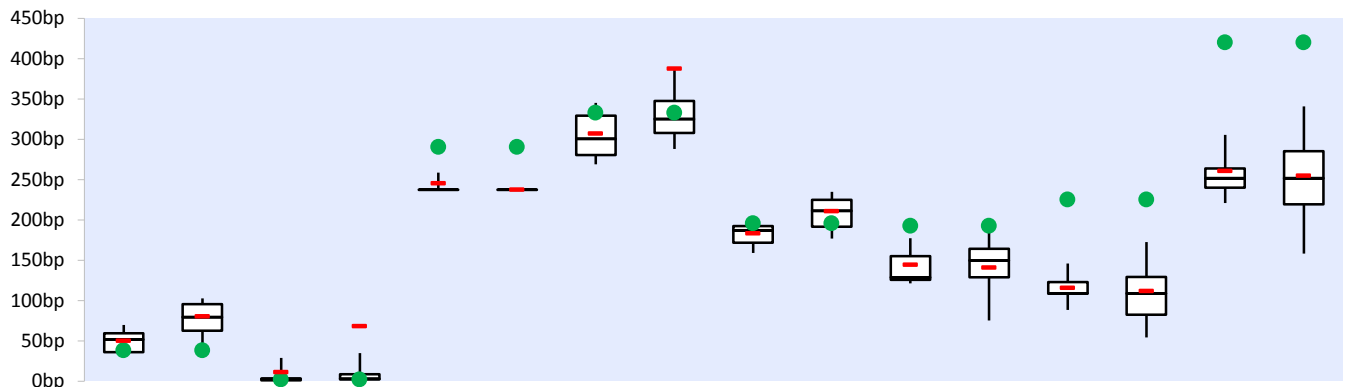


1. Breakdown of External fees

	Your Plan	Peer Average	US Average
Base fees	56.9	53.7	65.6
Performance fees	0.0	0.3	16.5
Internal and other	<u>2.6</u>	<u>1.3</u>	<u>1.3</u>
Total	59.5	55.3	83.4

Hedge Funds

Cost by implementation style

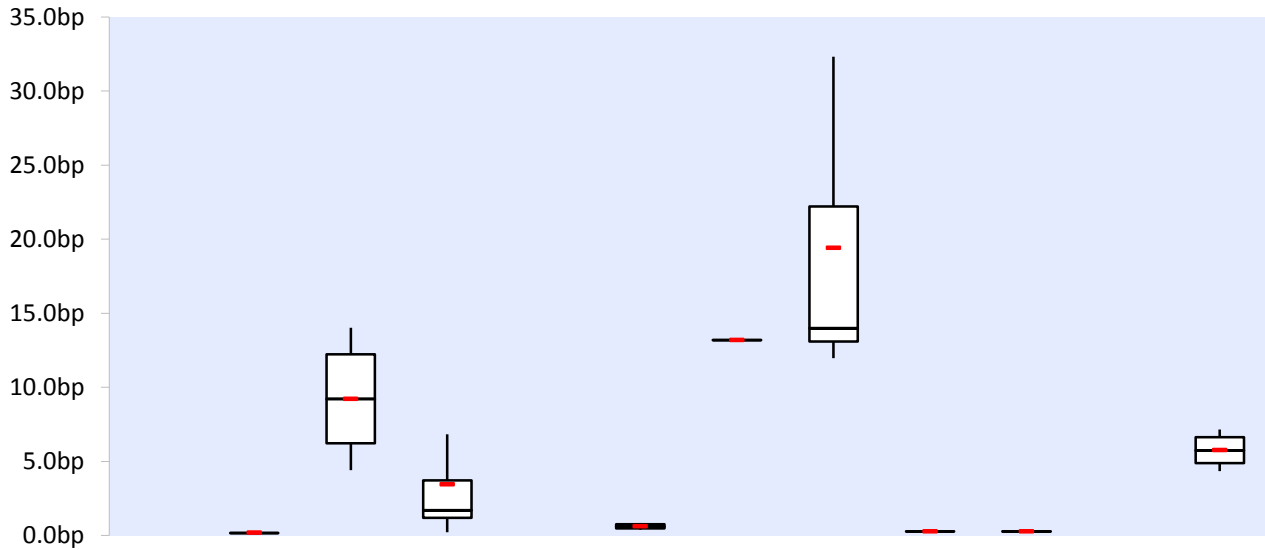


	Fund of Funds										External direct					
	Mgmt fees (Top layer)		Perf. fees (Top layer)		Underlying mgmt. & perf. ¹		Total ² incl. perf.		Total ² excl. perf.		Mgmt fees		Perf. fees		Total ² incl. perf.	
	Peer	US	Peer	US	Peer	US	Peer	US	Peer	US	Peer	US	Peer	US	Peer	US
90th %ile	69.9	102.7	28.8	34.8	258.9	237.8	345.3	389.1	203.0	235.0	177.3	187.7	145.9	172.4	305.7	340.8
75th %ile	59.2	95.6	3.0	8.4	237.8	237.8	329.2	347.5	192.5	224.8	155.0	164.2	122.9	129.3	263.8	285.2
Median	51.9	79.5	3.0	3.0	237.8	237.8	300.9	325.3	187.3	211.3	128.9	150.0	108.8	108.8	251.9	251.9
25th %ile	35.9	62.6	1.0	2.0	237.8	237.8	280.6	307.8	171.7	191.6	125.8	128.8	108.8	82.3	239.9	219.5
10th %ile	30.2	46.6	0.0	0.0	237.8	237.8	269.2	288.2	159.1	176.8	121.2	75.2	88.2	54.1	220.9	158.4
— Average	50.2	80.5	11.2	68.3	245.3	237.7	307.1	387.6	183.3	210.9	144.2	141.1	115.5	111.8	260.7	255.0
Count	7	65	7	65	7	65	7	65	7	65	9	73	9	73	9	73
Avg. assets	1,056M	555M	1,056M	555M	1,056M	555M	1,056M	555M	1,056M	555M	2,961M	1,766M	2,961M	1,766M	2,961M	1,766M
South Carolina Retirement Systems Investment Commission																
● You	38.1	38.1	2.0	2.0	290.5	290.5	333.2	333.2	196.0	196.0	192.6	192.6	225.2	225.2	420.4	420.4
%ile	33%	6%	33%	25%	100%	100%	83%	56%	83%	31%	100%	92%	100%	96%	100%	99%
Assets	2,381M	2,381M	2,381M	2,381M	2,381M	2,381M	2,381M	2,381M	2,381M	2,381M	1,355M	1,355M	1,355M	1,355M	1,355M	1,355M

1. The fees of fund of funds include both the top layer fees paid to the fund of funds manager and the underlying fees paid to the 'underlying partnerships' held by the fund of funds. Most funds were unable to provide the underlying fees so defaults of 129 bps (on NAV) for underlying management fees and 109 bps (on NAV) for underlying performance fees were used.

2. The total cost also includes the internal cost of monitoring and selecting hedge fund investments. Your cost of monitoring and selecting was 2.6 bps for fund of funds and 2.6 bps for external direct. The peer average cost of monitoring and selecting was 0.4 bps for fund of funds and 1.0 bps for external direct.

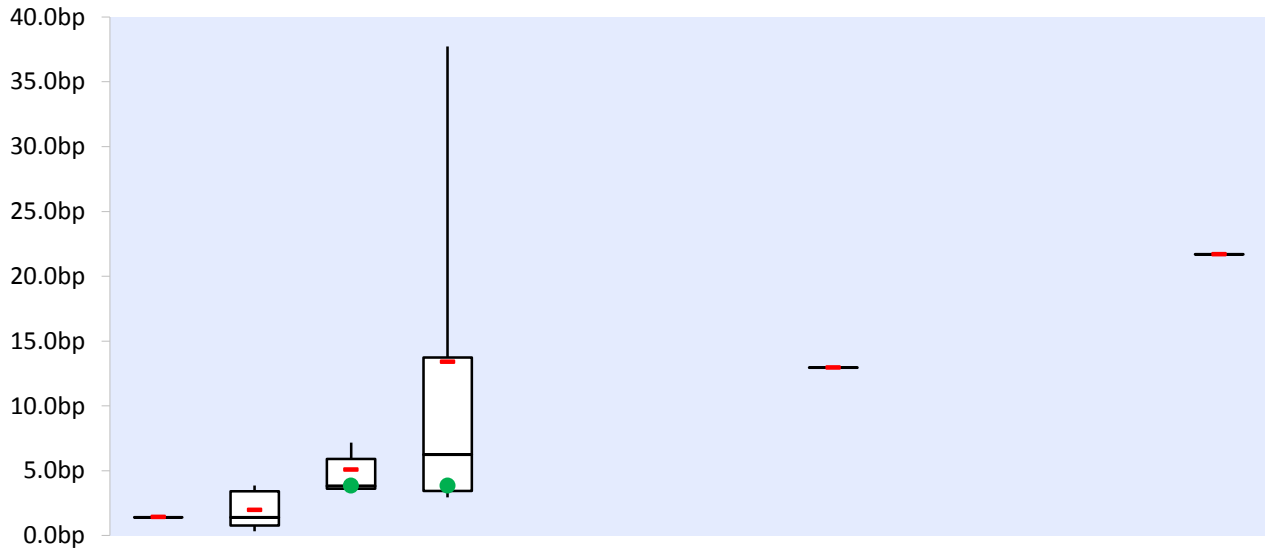
Overlays: currency, duration
Cost by implementation style



	<u>Currency Hedge</u>				<u>Discretionary Currency</u>				<u>Duration Management</u>			
	<u>Internal</u>		<u>External</u>		<u>Internal</u>		<u>External</u>		<u>Internal</u>		<u>External</u>	
	<u>% of notional</u>		<u>% of notional</u>		<u>% of notional</u>		<u>% of notional</u>		<u>% of notional</u>		<u>% of notional</u>	
	Peer	US	Peer	US	Peer	US	Peer	US	Peer	US	Peer	US
90th %ile		0.2	14.0	6.8		0.8	13.2	32.3	0.3	0.3		7.2
75th %ile		0.2	12.2	3.7		0.8	13.2	22.2	0.3	0.3		6.6
Median		0.2	9.2	1.7		0.6	13.2	14.0	0.3	0.3		5.8
25th %ile		0.2	6.2	1.2		0.5	13.2	13.1	0.3	0.3		4.9
10th %ile		0.2	4.4	0.2		0.4	13.2	12.0	0.3	0.3		4.4
— Average		0.2	9.2	3.4		0.6	13.2	19.4	0.3	0.3		5.8
Count	0	1	2	11	0	2	1	7	1	1	0	2
Avg. notional		7,639M	2,907M	2,551M		12,461M	1,000M	1,676M	1,800M	1,800M		834M
South Carolina Retirement Systems Investment Commission												
● You	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
%ile												
Notional												

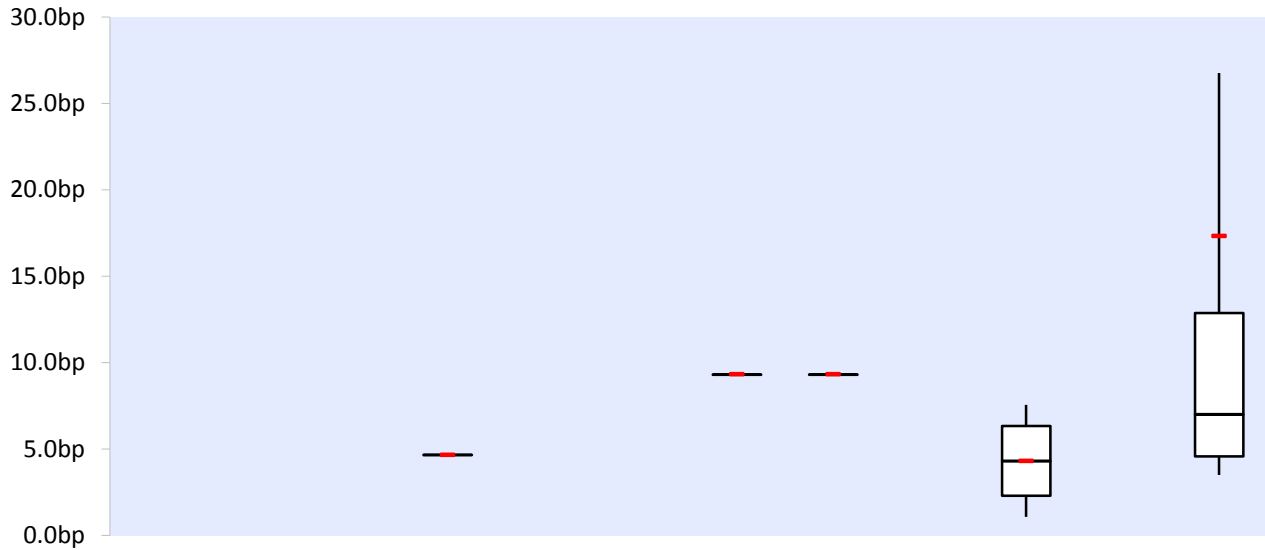
Overlays: passive beta/rebalancing, global TAA, policy tilt TAA

Cost by implementation style



	Passive Beta/Rebalancing				Global TAA				Policy Tilt TAA			
	Internal		External		Internal		External		Internal		External	
	% of notional		% of notional		% of notional		% of notional		% of notional		% of notional	
	Peer	US	Peer	US	Peer	US	Peer	US	Peer	US	Peer	US
90th %ile	1.4	3.8	7.2	37.7				13.0				21.7
75th %ile	1.4	3.4	5.9	13.7				13.0				21.7
Median	1.4	1.4	3.8	6.2				13.0				21.7
25th %ile	1.4	0.8	3.6	3.4				13.0				21.7
10th %ile	1.4	0.3	3.5	3.0				13.0				21.7
— Average	1.4	2.0	5.1	13.4				13.0				21.7
Count	1	5	3	18	0	0	0	1	0	0	0	1
Avg. notional	408M	959M	1,905M	1,493M				600M				32M
South Carolina Retirement Systems Investment Commission												
● You	n/a	n/a	3.8	3.8	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
%ile			50%	35%								
Notional			3,687M	3,687M								

Overlays: commodity, long/short, other
 Cost by implementation style



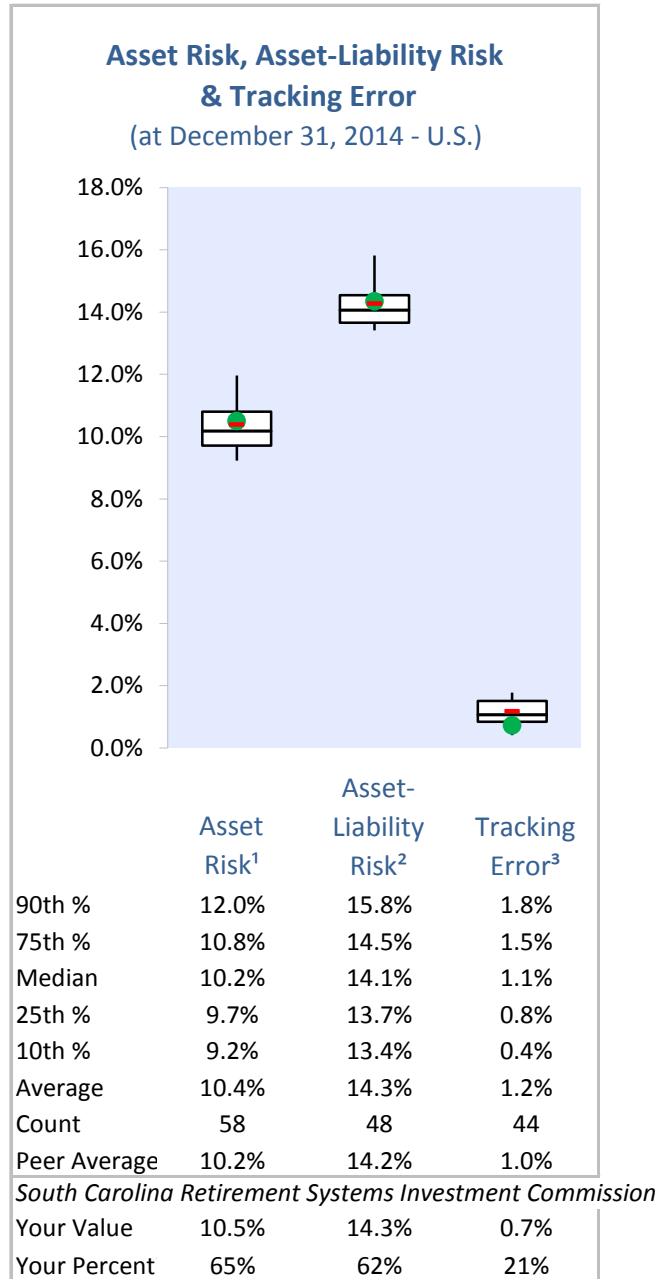
	<u>Commodity</u>				<u>Long/ Short</u>				<u>Other</u>			
	<u>Internal</u>		<u>External</u>		<u>Internal</u>		<u>External</u>		<u>Internal</u>		<u>External</u>	
	<u>% of notional</u>		<u>% of notional</u>		<u>% of notional</u>		<u>% of notional</u>		<u>% of notional</u>		<u>% of notional</u>	
	Peer	US	Peer	US	Peer	US	Peer	US	Peer	US	Peer	US
90th %ile			4.7				9.3	9.3		7.6	26.8	
75th %ile			4.7				9.3	9.3		6.3	12.9	
Median			4.7				9.3	9.3		4.3	7.0	
25th %ile			4.7				9.3	9.3		2.3	4.6	
10th %ile			4.7				9.3	9.3		1.1	3.5	
— Average			4.7				9.3	9.3		4.3	17.3	
Count	0	0	0	1	0	0	1	1	0	2	0	10
Avg. notional			1,076M				298M	298M		2,847M		675M
South Carolina Retirement Systems Investment Commission												
● You	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
%ile												
Notional												

7

Risk

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Comparison of your risk levels to the U.S. Public universe



1 Asset risk is the expected volatility of your policy return. It is based on the historical variance of, and covariance between, the asset classes in your asset mix policy. It is expressed as an annual standard deviation.

2 Asset-liability risk is the expected volatility of surplus returns. Surplus returns are the changes in a plan's marked-to-market funded status caused by market factors. Asset liability risk is a function of the volatility of policy returns (asset risk), the volatility of surplus returns (surplus risk) and the correlation between policy returns and surplus returns.

3 Tracking error is the risk of active management. It equals the standard deviation of your annual net value added over 5-years.

Calculation of asset risk

Before considering the benefit of diversification, the weighted average risk of the asset classes in your asset mix policy was 12.6%.

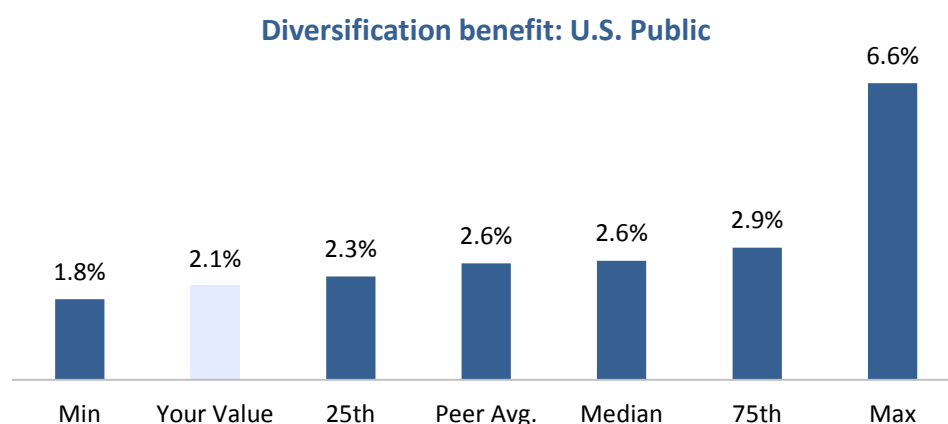
Calculation of your weighted asset class risk

Asset Class	Policy weight	Risk ¹	Weighted risk
	(A)	(B)	(A X B)
Stock: Global	31.0%	15%	4.5%
Bonds: U.S.	7.0%	6%	0.4%
Bonds: Emerging	6.0%	13%	0.8%
Bonds: Global (Currency Hedged)	2.3%	3%	0.1%
Bonds: Global	0.8%	6%	0.0%
Bonds: High Yield	6.0%	9%	0.5%
Bonds: Cash	5.0%	1%	0.0%
Commodities	3.0%	19%	0.6%
Real Estate	5.0%	13%	0.6%
Hedge Fund	8.0%	6%	0.5%
Funded Global TAA	10.0%	6%	0.6%
Private Equity: Diversified or All	9.0%	24%	2.2%
Private Equity: Other Non-Listed	7.0%	24%	1.7%
Weighted Total			12.6%

¹ Risk is the standard deviation of returns for the asset class based on standard benchmarks used by CEM. See page 15 of this section for benchmark details.

Reduction in asset risk due to diversification

Your asset risk is less than your weighted asset risk because of the benefit of diversification. Diversification reduces risk because when one asset class has a negative return, it might be offset by another asset class with a positive return. The lower the correlation between your policy asset classes, the greater the diversification benefit. The correlation between your policy asset classes is shown on page 17 of this section.



The benefit of diversification equals weighted asset risk minus asset risk.

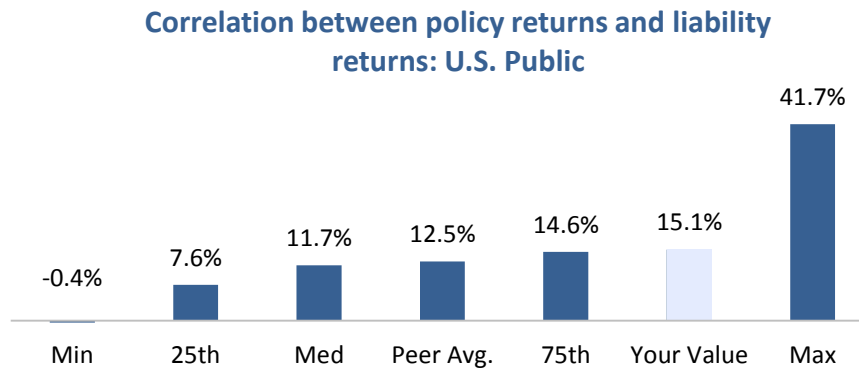
Components of asset risk

	You	Peer median*	Peer average	U.S. Public median*	U.S. Public average
Weighted asset risk	12.6%	12.7%	12.8%	12.9%	13.1%
Benefit of diversification	2.1%	2.5%	2.6%	2.6%	2.7%
Asset risk	10.5%	10.1%	10.2%	10.2%	10.4%

* Comparisons of components of asset risk should be interpreted with caution because it is not always possible to separate the diversification benefit from the weighted asset risk. For example, global stock as an asset class includes the diversification benefit of its geographic components within its asset risk.

Asset-liability risk

Your plan would not have any asset-liability risk if your assets perfectly matched your liabilities. If they matched, then the correlation between asset returns and liability returns would be 100%. If liabilities increased, assets would increase by a like amount (and vice versa). Thus higher correlation between your asset returns and liability returns reduces your asset-liability risk.



In addition to the correlation between asset returns and liability returns, asset-liability risk is also a function of the volatility of asset returns (asset risk) and the volatility of liability returns¹ (liability risk = $\sqrt{R_A^2 + R_L^2 - 2\rho_{AL}R_AR_L}$).

Components of asset-liability risk

	You	Peer median	Peer average	U.S. Public median	U.S. Public average
Asset risk (R_A)	10.5%	10.1%	10.2%	10.2%	10.4%
Liability risk (R_L)	11.5%	11.3%	11.0%	11.2%	11.0%
Correlation between policy returns and liability returns (ρ_{AL})	15.1%	13.0%	12.5%	11.7%	12.2%
Asset-liability risk	14.3%	14.2%	14.2%	14.1%	14.3%

1. Liability returns equal the changes in your marked-to-market liabilities caused by market factors. These are assumed to equal the return on your liability proxy portfolio (see next page).

Liability proxy portfolio

Your liability proxy portfolio is the portfolio of nominal and inflation-indexed bonds that best matches the sensitivity of your liabilities to changes in real and nominal interest rates.

Comparisons of liability proxy portfolio

	Your fund		Peer average		U.S. Public	
	Duration	% of Assets	Duration	% of Assets	Duration	% of Assets
Inflation Indexed Bonds	13.3	95%	12.3	72%	12.5	68%
Nominal Bonds	10.0	5%	13.8	28%	13.8	32%
Total		100%		100%		100%

Your liability proxy portfolio is a tool that:

- Helps you understand how the unsmoothed market value of your liabilities responds to changes in real and nominal interest rates.
- Helps you make better asset mix policy decisions by providing an understanding of which assets will decrease your asset-liability risk (i.e., assets that behave similarly to the neutral asset mix) and which assets will increase your risk.
- Helps you understand how your liabilities are different from your peers. Differences in liabilities mean that the same asset will have different risk / reward characteristics for different funds. For example, the risk of a nominal bond for a fund with 100% inflation sensitivity is much higher than it is for a fund with less than 100% inflation sensitivity.

Asset-liability risk could theoretically be eliminated if your actual asset mix matched the liability proxy portfolio. However, we recognize that this is neither an option nor a goal for most funds because:

- The supply of inflation-indexed assets is limited. These assets are required to match the obligations of pension liabilities.
- This low-risk strategy also has a lower expected return, implying either higher future funding costs or lower future benefits.

The methodology and formula used to determine your liability proxy portfolio are provided on pages 11-13 of this section.

Liability risk

Differences in liability risk are due to differences in inflation sensitivity and member demographics.

A plan's inflation sensitivity depends on:

a) The type of plan

Final and highest average plans have more inflation sensitivity than career average plans. Conversely, career average plans have more inflation sensitivity than flat benefit plans. Your plan type is final average.

Plan type	# of plans	% of Total
Flat Benefit	1	2%
Career Average	-	0%
Final/Highest/Best Avg	50	89%
Other	5	9%
Total	56	100%

b) Contractual inflation protection for retired members

Your retired members get 100% contractual inflation protection. Your retiree inflation protection is subject to a cap of For SCRS and PORS, eligible retirees and surviving annuitants will receive an annual increase in their pension benefit equal to the lesser of 1% of their retirement allowance or \$500 per

Retiree inflation protection	# of plans		
	Corporate	Public	Other
0%	121	25	8
>0% and <50%	3	1	0
50%	0	2	0
>50% and <100%	2	5	0
100%	96	56	2
Total	222	89	10

c) Member demographics

Member demographics impacts both inflation sensitivity and the duration of plan liabilities. The survey asks for your plan's percentage of liabilities that relate to retired members from your actuarial reports. If you did not provide this number, then it is estimated (see page 12 of this section). Your percentage of liabilities that relate to retired members was 64%.

	Your fund	Peer Average	U.S. Average
Active Members	59%	60%	59%
Retired Members	41%	40%	41%
Total	100%	100%	100%

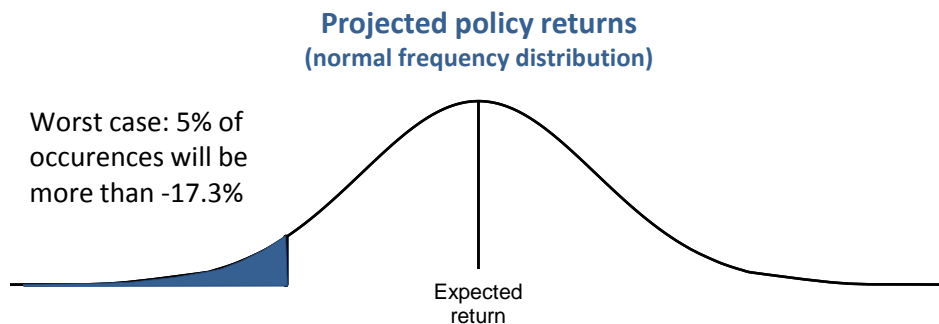
Projected worst case scenarios

We can convert your asset risk and asset-liability risk into worst case outcomes for policy returns and funded status if we make the following simplifying assumptions:

- a) Returns are normally distributed.
- b) Historic return volatility and correlations will continue in the future.
- c) No change in your policy asset mix or liabilities.

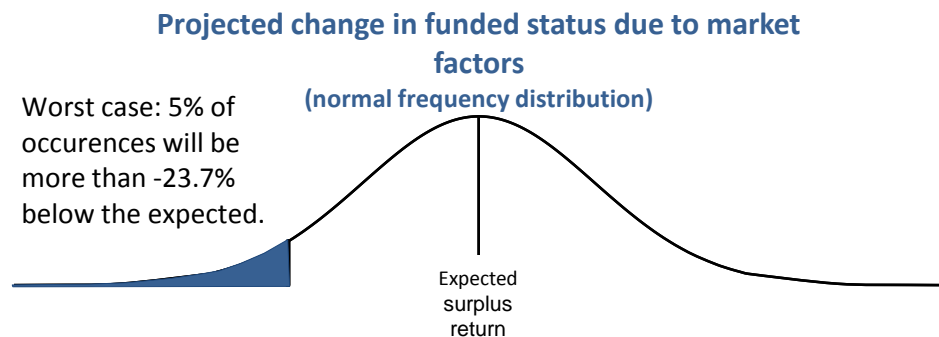
a) Worst case policy returns

Every year there is a 5% probability that your policy return will be worse than your expected policy return by more than -17.3% (-17.3% equals $-1.65 \times$ your asset risk of 10.5%). -17.3% is the starting point of worst case outcomes. They could be much worse.



b) Worst case impact on funded status

Every year, there is a 5% probability that changes in your mark-to-market funded status caused by market factors ("Surplus Returns") will be worse than expected by more than -23.7%. (-23.7% equals $-1.65 \times$ your asset-liability risk of 14.3%). -23.7% is the starting point of worst case outcomes. They could be much worse.



Historic worst case scenarios during the past 5 years

a) Historic worst case policy returns

During the past 5 years, your lowest policy return was 0.5% in 2011.

Historic policy returns - U.S.

	2014	2013	2012	2011	2010
90th %	8.7%	18.4%	13.8%	3.6%	14.0%
75th %	7.7%	17.1%	13.3%	2.6%	13.2%
Median	6.6%	15.5%	12.7%	1.3%	12.6%
25th %	5.9%	13.6%	11.7%	0.4%	11.8%
10th %	4.9%	11.5%	10.9%	-0.2%	11.3%
Average	6.8%	15.2%	12.5%	1.5%	12.4%
Count	58	62	67	67	72
Peer Avg	6.9%	14.5%	12.1%	1.6%	12.2%
Your Value	4.8%	10.2%	10.7%	0.5%	10.9%

b) Historic worst case changes in funded status

During the past 5 years, your worst change in marked-to-market funded status caused by market factors ("Surplus Returns") was -18.5% in 2011.

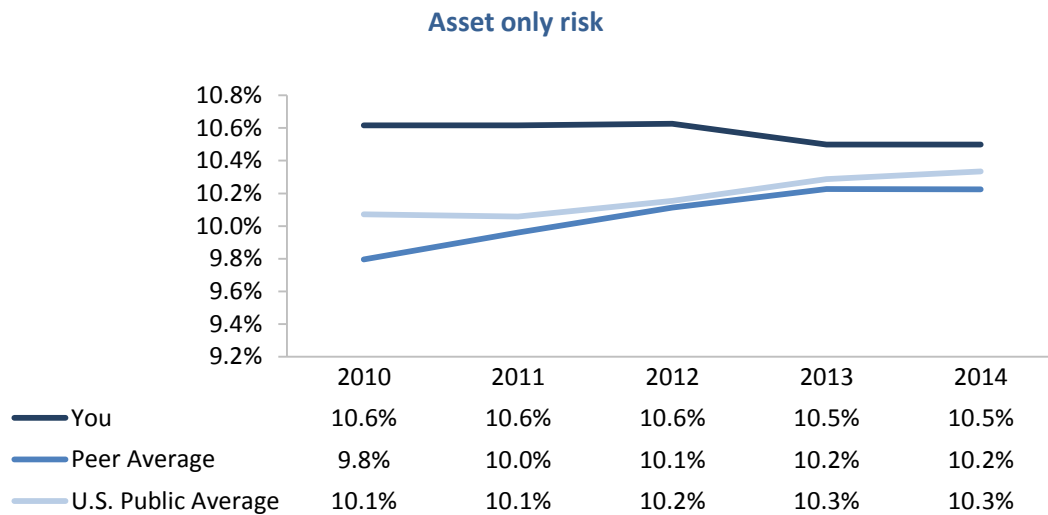
Historic changes in funded status caused by market factors - U.S.

	2014	2013	2012	2011	2010
90th %	-4.9%	36.9%	10.5%	-17.2%	6.6%
75th %	-6.1%	33.5%	9.7%	-18.7%	5.3%
Median	-7.5%	31.2%	7.7%	-20.1%	4.1%
25th %	-9.4%	27.4%	5.8%	-21.3%	2.9%
10th %	-11.0%	25.8%	5.0%	-23.2%	2.2%
Average	-7.7%	31.0%	7.8%	-20.1%	4.2%
Count	48	51	58	55	63
Peer Avg	-7.5%	31.1%	7.4%	-19.8%	3.5%
Your Value	-6.7%	28.2%	5.5%	-18.5%	2.8%

Risk Trends - 2010 to 2014

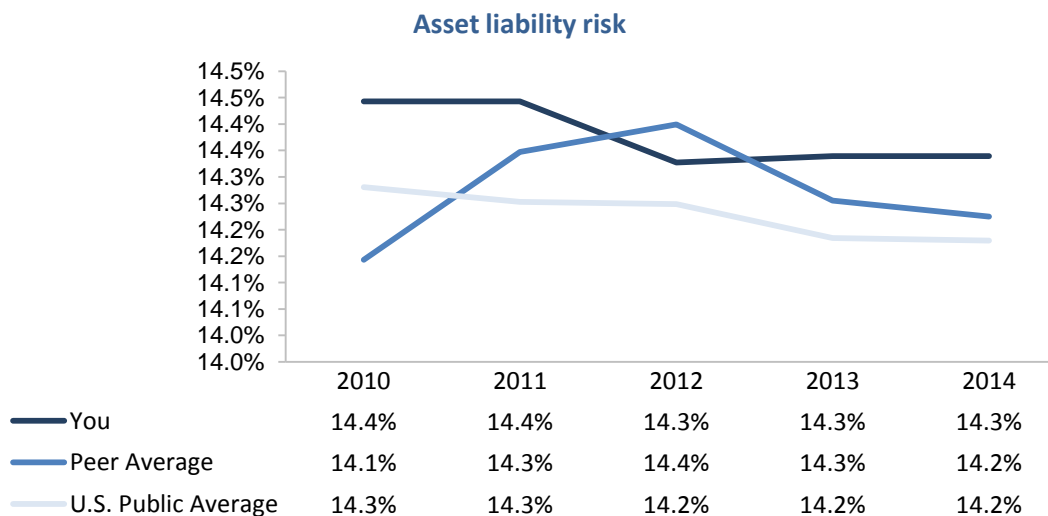
a) Asset risk trends

Asset risk will only change if policy asset mix changes. Between 2010 and 2014 the asset risk for your fund decreased from 10.6% to 10.5%.



b) Asset-liability risk trends

Asset-liability risk will change if policy asset mix changes, or if the nature of your liabilities changes. Between 2010 and 2014 the asset-liability risk for your fund decreased from 14.4% to 14.3%.



Appendix A - Methodology and formula used to calculate liability return and liability proxy portfolio

Risk calculation descriptions

CEM would like to recognize and thank Malcolm Hamilton previously of Mercer for providing the key formulas used to calculate liability returns. We would also like to thank Stijn Oude Brunink previously of ORTEC Consultants in the Netherlands who provided the proofs and made adjustments to Mr. Hamilton's formulas. These formulas and this section use several simplifying assumptions that could cause your fund's individual results to differ from actual. We encourage you to pursue more precise calculations of your liability returns.

Step 1 - Inflation sensitivity

The first step in estimating your liability return is to determine your liabilities' inflation sensitivity. The degree of total inflation sensitivity determines the proportion of inflation-indexed bonds versus nominal bonds that belong in your liability proxy portfolio.

Total inflation sensitivity

- = Inflation protection retirees X % liabilities relating to retirees
- + Inflation protection for active members X (1 - % liabilities relating to retirees)

Inflation protection for retirees

On the survey we asked for the amount of contractual inflation protection provided to retirees.

Your response was 100% which compares to an average of 53% for your peers and 24% for U.S. funds.

Ad hoc inflation protection is not considered because it is not a contractual liability. However, many funds are managed to maintain historic levels of ad hoc increases. If this is the case with your fund, then your inflation protection may have been understated. Please ask for CEM to make that adjustment for you.

Inflation protection for active members

We inferred inflation protection for your active members to be 86% based on your plan type of Final Average.

Final and highest average plans have less than 100% inflation protection because during the averaging period, inflation protection is only 50%, not 100%. This is a natural function of taking an average of more than one year's earnings. Thus the weighted average inflation protection for active members in a 5-year final average plan is around 86% and in a 3-year average plan, 93%. These weighted averages are lower than intuition might suggest because the active members associated with the largest liabilities (i.e., the highest weights) are the ones closest to retirement.

Flat Benefit and Career Average plans are assumed to have 77% inflation protection. Contractually, flat benefit plans have zero inflation protection but negotiated increases tend to closely track inflation. However, just as with Final Average plans, inflation protection between negotiated increases is less than full inflation.

Step 2 - Proportion of liabilities relating to retirees

The second step is to determine how much of your liabilities relate to your retirees versus your active members. This number is used to weight the liability proxy portfolio's obligations to retirees and active members.

This ratio depends on several factors including the ratio of retired and active members, member demographics and the inflation sensitivity of the promise made to these two member groups. Deferred (also known as inactive) members are ignored because even if they are large in number they tend to represent only a very small fraction of the future liability.

Equivalency Table

Retirees as a % of Active + Retirees	% Liabilities Relating to Retirees
0%	0%
10%	22%
20%	35%
30%	45%
40%	55%
50%	63%
60%	71%
70%	79%
80%	86%
90%	93%
100%	100%

Most funds have provided the actual ratio from their actuarial reports (as requested on the survey). If the ratio is not provided, it is estimated based on the "Equivalency" table above.

Your percentage of liabilities that relates to retirees was 64%. The percentage of liability that relates to retirees is higher than the retirees as a percentage of active and retired members because retirees have accrued a higher benefit.

Step 3 - Determining your duration relative to real and nominal yields

Duration enables you to determine the change in value of a cash flow, such as your pension liabilities, caused by a change in interest rates. The relationship between duration and cost of your pension liability is as follows.

Percentage change in pension liability cost

$$= (- \text{Modified duration relative to change in real yields} \times \text{change in real yields}) \\ + (- \text{Modified duration relative to change in nominal yields} \times \text{change in nominal yields})$$

The modified duration of your liabilities with respect to changes in real and nominal yields is determined by the following two formulas.

Modified duration relative to changes in real yields

$$= 10 \times [\text{Inflation protection for active members} \times (1 - \% \text{ of liabilities relating to retirees}) \\ + \text{Inflation protection for retirees} \times (1 - \% \text{ of liabilities relating to retirees}/4) \\ + (\text{Inflation protection for retirees}/10) \times (1.5 - 0.5 \times \% \text{ liabilities relating to retirees})]$$

Modified duration relative to changes in nominal yields

$$= 10 \times [(2 - 5 \times \% \text{ Liabilities relating to retirees}/4 - \text{inflation protection for actives} \times \\ (1 - \% \text{ liabilities relating to retirees}) \\ - (\text{Inflation protection for retirees}/10) \times (8.5 - 2 \times \% \text{ liabilities relating to retirees}) \\ - (\text{Inflation protection for retirees}/10) \times (1.5 - 0.5 \times \% \text{ liabilities relating to retirees})]$$

Step 4 - Determining the liability proxy portfolio

Knowing the sensitivity of your pension liabilities to real and nominal interest rates enables you to construct a liability proxy portfolio using a combination of nominal bonds and inflation-indexed bonds.

Duration of inflation-indexed bonds in your liability proxy portfolio =
 Modified Duration Relative to Change in Real yields ÷ Proportion of inflation-indexed bonds in your liability proxy portfolio (this is the total inflation sensitivity)

Duration of nominal bonds in your liability proxy portfolio =
 Modified Duration Relative to Change in Nominal Yields ÷ Proportion of nominal bonds in your liability proxy portfolio (this is 1 minus the total inflation sensitivity)

Proportion of inflation-indexed bonds in your liability proxy portfolio = total inflation sensitivity

Proportion of nominal bonds in your liability proxy portfolio = 1 - total inflation sensitivity

Step 5 - Liability returns

The return earned on your liability proxy portfolio is the liability return and matches the change in your plan's liabilities in response to changes in market factors. It uses a true market valuation rather than a smoothed actuarial valuation. See page 17 for benchmark details.

Liability Return

- = Proportion indexed bonds in liability proxy portfolio X (CPI + average real yield)
- + Proportion nominal bonds in liability proxy portfolio X average long bond yield
- Modified duration relative to change in real yields X change in real yields
- Modified duration relative to change in nominal yields X change long yields

	Long Nominal Bonds		Inflation Indexed Bonds		CPI
	Year end yield	Change in yield	Year end yield	Change in yield	
2014	2.83	-1.06	0.89	-0.72	0.80
2013	3.89	0.94	1.61	1.46	1.50
2012	2.95	0.06	0.15	-0.38	1.70
2011	2.89	-1.45	0.53	-1.06	3.00
2010	4.34	-0.29	1.59	-0.44	1.50
2009	4.63	1.94	2.03	-0.13	2.70

Appendix B - Methodology used to calculate asset and asset-liability risk

Asset mix

Your asset only mix is a function of your policy asset mix, your currency hedging policy and the presence of any duration overlays.

CEM does not use your specific policy benchmarks. Standard asset class proxies (shown on the next page) are used for each given asset class. Monthly, historical data is used to construct an asset class variance/covariance table. Your specific policy weights are then used to calculate an expected monthly volatility for your policy mix using the following formula, which takes current asset class variances and covariances as expected future variances and covariances.

$$\begin{aligned}\text{Expected monthly variance of policy mix} &= \sum \sum w_x w_y \text{Cov}(X, Y) \\ &= \sum \sum w_x w_y \sigma_x \sigma_y \rho_{x,y}\end{aligned}$$

where

w_x = policy weight of asset class X

σ_x = standard deviation of monthly returns for asset class X

w_y = policy weight of asset class Y

σ_y = standard deviation of monthly returns for asset class Y

$\text{Cov}(X, Y)$ = covariance of X and Y

$\rho_{x,y}$ = Pearson's correlation of the returns for X and Y

Each sum is over all asset classes. Assuming normal distribution of returns, we then solve for expected annual standard deviation as:

$$\begin{aligned}\text{Expected annual standard deviation of policy mix} &= \\ &(\text{Expected monthly variance of policy mix})^{1/2} \times (12)^{1/2}\end{aligned}$$

Hedged and unhedged asset classes are treated as separate asset classes in the model. Funds with hedging policies between 0% and 100% have their policy weight allocated between the hedged and unhedged asset classes according to the proportion hedged.

Duration overlays are also treated as a separate asset class. Their weight is taken as notional value divided by total plan assets. For funds with duration overlays, the sum of weights will be greater than 100%. Rather than calculating a return for every possible duration, CEM's total variance/covariance matrix includes bonds with a continual duration of each whole number. A given fund's duration overlay is then represented by the two constant duration bonds closest to the duration of the overlay, with the total weight divided proportionately between them.

Asset-liability risk

Asset-liability risk is calculated in exactly the same way as asset risk with the addition of a short position in the liability proxy portfolio. This portfolio will typically be represented by up to four bonds with continual duration whose summed weights will equal -100%, and whose real and nominal duration match the liability proxy portfolio.

Appendix C - Asset class benchmarks used

CEM uses the same asset class proxy benchmarks for all participants in calculating risk. The benchmarks used for asset classes in your policy mix and liability proxy portfolio are shown below, along with the annualized standard deviation of monthly returns. Different asset classes have different histories - the start date after which monthly data was used for the given asset class is also shown.

Asset Class	Proxy Benchmark	Start Date	Standard deviation of monthly return - annualized (σ)
Stock: Global	MSCI ACWI	Jan 1988	14.5%
Bonds: U.S.	Barclays US Aggregate	Feb 1976	5.6%
Bonds: Emerging	J.P. Morgan Emerging Markets Bond Index Global	Jan 1994	13.3%
Bonds: Global (Currency Hedged)	Barclays Global Aggregate Hedged	Feb 1990	3.0%
Bonds: Global	Barclays Global Aggregate	Jan 1990	5.5%
Bonds: High Yield	Barclays High Yield	Apr 1990	8.7%
Bonds: Cash	BofA ML U.S. T-BILL 3M	Feb 1978	0.5%
Commodities	Goldman Sachs Commodity	Jan 1970	19.3%
Real Estate	CEM U.S. Real Estate Index Deleveraged	Jan 1983	12.5%
Hedge Fund	HFRI Fund Weighted Hedge Fund	Jan 1990	6.4%
Funded Global TAA	HFRI Fund Weighted Hedge Fund	Jan 1990	6.4%
Private Equity: Diversified or All	S&P Listed Private Equity	Dec 2003	24.1%
Private Equity: Other Non-Listed	S&P Listed Private Equity	Dec 2003	24.1%
Liability: Real Return Bond Duration 13	Real Bond Duration 13	Dec 1985	12.0%
Liability: Real Return Bond Duration 14	Real Bond Duration 14	Jan 1989	12.1%
Liability: Nominal Bond Duration 9	Nominal Bond Duration 9	Aug 1985	8.1%
Liability: Nominal Bond Duration 10	Nominal Bond Duration 10	Dec 1985	9.2%

See page 17 of this section for benchmark details.

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Real Estate is proxied by the MSCI US REIT deleveraged by adding back in a return to debtholders of the Barclays CMBS Inv. Grade Commercial index. Average debt/total assets of REIT index before deleveraging is estimated to be 40%.

Common asset class benchmarks used in United States

CEM uses the same asset class proxy benchmarks for all participants in calculating risk. Common benchmarks used for asset classes in your universe are shown below, along with the annualized standard deviation of monthly returns. Different asset classes have different histories - the start date after which monthly data was used for the given asset class is also shown.

Asset Class	Proxy Benchmark	Start Date	Standard deviation of monthly return - annualized (σ)
Stock: U.S. Broad/All	Russell 3000	Jan 1979	15.1%
Stock: U.S. Large Cap	S&P 500	Feb 1988	14.0%
Stock: U.S. Small Cap	Russell 2000	Jan 1979	19.2%
Stock: EAFE (Currency Hedged)	MSCI EAFE Hedged Exposure to Euro + Japan in (\$US)	Jan 1971	11.9%
Stock: EAFE	MSCI EAFE	Jan 1970	16.6%
Stock: Emerging	MSCI Emerging	Jan 1988	22.4%
Stock: Global	MSCI ACWI	Jan 1988	14.5%
Stock: ACWI x U.S.	MSCI ACWI ex US	Jan 1988	14.3%
Bonds: U.S.	Barclays US Aggregate	Feb 1976	5.6%
Bonds: High Yield	Barclays High Yield	Apr 1990	8.7%
Bonds: Long Bonds	Barclays U.S. Aggregate Long Government/Credit	Feb 1973	9.4%
Bonds: Cash	BofA ML U.S. T-BILL 3M	Feb 1978	0.5%
REITs	MSCI US REIT	Feb 1997	21.2%
Real Estate	CEM U.S. Real Estate Index Deleveraged	Jan 1983	12.5%
Hedge Fund	HFRI Fund Weighted Hedge Fund	Jan 1990	6.4%
Private Equity: Diversified or All	S&P Listed Private Equity	Dec 2003	24.1%
Liability: Real Return Bond Duration 10	Real Bond Duration 10	Aug 1984	9.4%
Liability: Real Return Bond Duration 11	Real Bond Duration 11	May 1985	10.3%
Liability: Nominal Bond Duration 10	Nominal Bond Duration 10	Dec 1985	9.2%
Liability: Nominal Bond Duration 14	Nominal US Bond Duration 14	Feb 1988	12.3%

Source: Datastream

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Real Estate is proxied by the MSCI US REIT deleveraged by adding back in a return to debtholders of the Barclays CMBS Inv. Grade Commercial index. Average debt/total assets of REIT index before deleveraging is estimated to be 40%.

Appendix D - Correlation Matrix

	Stock: Global	Bonds: U.S.	Bonds: Emerging	Bonds: Global	Bonds: High Yield	Bonds: Cash	Real Assets: Commodities	Real Assets: Real Estate	Hedge Fund	Funded Global TAA	Private Equity: Diversified or All	Private Equity: Other Non-Listed	Nominal Bond: Duration 9	Nominal Bond: Duration 10	Real Return Bond: Duration 13	Real Return Bond: Duration 14
Stock: Global	1.00	0.14	0.61	-0.01	0.61	0.00	0.21	0.54	0.77	0.77	0.82	0.82	-0.06	-0.05	0.09	0.08
Bonds: U.S.	0.14	1.00	0.30	0.10	0.19	0.38	-0.03	0.25	0.07	0.07	0.14	0.14	0.85	0.88	0.58	0.58
Bonds: Emerging	0.61	0.30	1.00	-0.10	0.52	0.00	0.23	0.43	0.62	0.62	0.56	0.56	0.13	0.12	0.25	0.25
Bonds: Global	-0.01	0.10	-0.10	1.00	-0.09	0.03	0.07	-0.08	-0.07	-0.07	-0.01	-0.01	0.07	0.07	-0.04	-0.04
Bonds: High Yield	0.61	0.19	0.52	-0.09	1.00	-0.06	0.13	0.58	0.64	0.64	0.67	0.67	-0.08	-0.06	0.18	0.18
Bonds: Cash	0.00	0.38	0.00	0.03	-0.06	1.00	0.00	-0.06	-0.03	-0.03	-0.03	-0.03	0.17	0.17	0.08	0.01
Real Assets: Commodities	0.21	-0.03	0.23	0.07	0.13	0.00	1.00	0.14	0.30	0.30	0.41	0.41	-0.05	-0.06	0.06	0.07
Real Assets: Real Estate	0.54	0.25	0.43	-0.08	0.58	-0.06	0.14	1.00	0.46	0.46	0.72	0.72	0.07	0.06	0.21	0.20
Hedge Fund	0.77	0.07	0.62	-0.07	0.64	-0.03	0.30	0.46	1.00	1.00	0.72	0.72	-0.08	-0.07	0.09	0.09
Funded Global TAA	0.77	0.07	0.62	-0.07	0.64	-0.03	0.30	0.46	1.00	1.00	0.72	0.72	-0.08	-0.07	0.09	0.09
Private Equity: Diversified or All	0.82	0.14	0.56	-0.01	0.67	-0.03	0.41	0.72	0.72	0.72	1.00	1.00	-0.11	-0.11	0.12	0.13
Private Equity: Other Non-Listed	0.82	0.14	0.56	-0.01	0.67	-0.03	0.41	0.72	0.72	0.72	1.00	1.00	-0.11	-0.11	0.12	0.13
Nominal Bond: Duration 9	-0.06	0.85	0.13	0.07	-0.08	0.17	-0.05	0.07	-0.08	-0.08	-0.11	-0.11	1.00	0.98	0.50	0.50
Nominal Bond: Duration 10	-0.05	0.88	0.12	0.07	-0.06	0.17	-0.06	0.06	-0.07	-0.07	-0.11	-0.11	0.98	1.00	0.51	0.51
Real Return Bond: Duration 13	0.09	0.58	0.25	-0.04	0.18	0.08	0.06	0.21	0.09	0.09	0.12	0.12	0.50	0.51	1.00	0.99
Real Return Bond: Duration 14	0.08	0.58	0.25	-0.04	0.18	0.01	0.07	0.20	0.09	0.09	0.13	0.13	0.50	0.51	0.99	1.00

Correlation Matrix of Common Asset Classes in United States

	Stock: U.S. Broad/All	Stock: U.S. Large Cap	Stock: U.S. Small Cap	Stock: EAFE (Currency Hedged)	Stock: EAFE	Stock: Emerging	Stock: Global	Bonds: U.S.	Bonds: High Yield	Bonds: Cash	Real Assets: Commodities	Real Assets: REITs	Real Assets: Real Estate	Hedge Fund	Private Equity: Diversified or All	Stock: ACWI x U.S.	Bonds: Long Bonds	Real Return Bond: Duration 10	Real Return Bond: Duration 11	Nominal Bond: Duration 10	Nominal Bond: Duration 14
Stock: U.S. Broad/All	1.00	0.92	0.89	0.19	0.65	0.70	0.88	0.21	0.61	-0.03	0.18	0.03	0.59	0.78	0.81	0.79	0.21	0.10	0.09	-0.03	0.02
Stock: U.S. Large Cap	0.92	1.00	0.74	0.09	0.70	0.63	0.83	0.18	0.56	0.06	0.08	0.10	0.51	0.70	0.76	0.73	0.17	0.07	0.07	0.02	0.07
Stock: U.S. Small Cap	0.89	0.74	1.00	0.13	0.59	0.67	0.74	0.13	0.61	-0.08	0.19	0.03	0.63	0.82	0.79	0.70	0.13	0.06	0.04	-0.09	-0.06
Stock: EAFE (Currency Hedged)	0.19	0.09	0.13	1.00	0.15	0.13	0.23	0.09	0.07	0.05	0.13	-0.17	0.10	0.12	0.35	0.18	0.03	-0.02	0.01	-0.09	-0.07
Stock: EAFE	0.65	0.70	0.59	0.15	1.00	0.67	0.94	0.16	0.53	-0.07	0.12	0.07	0.46	0.66	0.82	0.87	0.19	0.13	0.12	-0.01	0.00
Stock: Emerging	0.70	0.63	0.67	0.13	0.67	1.00	0.77	0.01	0.62	-0.08	0.24	0.03	0.45	0.81	0.74	0.77	0.02	0.09	0.09	-0.12	-0.11
Stock: Global	0.88	0.83	0.74	0.23	0.94	0.77	1.00	0.14	0.61	0.00	0.21	0.03	0.54	0.77	0.82	0.91	0.12	0.09	0.09	-0.05	-0.02
Bonds: U.S.	0.21	0.18	0.13	0.09	0.16	0.01	0.14	1.00	0.19	0.38	-0.03	-0.16	0.25	0.07	0.14	0.04	0.95	0.59	0.60	0.88	0.88
Bonds: High Yield	0.61	0.56	0.61	0.07	0.53	0.62	0.61	0.19	1.00	-0.06	0.13	0.17	0.58	0.64	0.67	0.58	0.18	0.18	0.18	-0.06	-0.05
Bonds: Cash	-0.03	0.06	-0.08	0.05	-0.07	-0.08	0.00	0.38	-0.06	1.00	0.00	0.03	-0.06	-0.03	-0.03	-0.03	0.27	0.07	0.09	0.17	0.09
Real Assets: Commodities	0.18	0.08	0.19	0.13	0.12	0.24	0.21	-0.03	0.13	0.00	1.00	0.15	0.14	0.30	0.41	0.16	-0.07	0.04	0.05	-0.06	-0.07
Real Assets: REITs	0.03	0.10	0.03	-0.17	0.07	0.03	0.03	-0.16	0.17	0.03	0.15	1.00	0.06	0.15	0.15	0.07	-0.14	-0.08	-0.08	-0.25	-0.24
Real Assets: Real Estate	0.59	0.51	0.63	0.10	0.46	0.45	0.54	0.25	0.58	-0.06	0.14	0.06	1.00	0.46	0.72	0.46	0.25	0.22	0.21	0.06	0.05
Hedge Fund	0.78	0.70	0.82	0.12	0.66	0.81	0.77	0.07	0.64	-0.03	0.30	0.15	0.46	1.00	0.72	0.76	0.08	0.08	0.08	-0.07	-0.05
Private Equity: Diversified or All	0.81	0.76	0.79	0.35	0.82	0.74	0.82	0.14	0.67	-0.03	0.41	0.15	0.72	0.72	1.00	0.75	0.08	0.12	0.11	-0.11	-0.13
Stock: ACWI x U.S.	0.79	0.73	0.70	0.18	0.87	0.77	0.91	0.04	0.58	-0.03	0.16	0.07	0.46	0.76	0.75	1.00	0.05	0.03	0.03	-0.11	-0.07
Bonds: Long Bonds	0.21	0.17	0.13	0.03	0.19	0.02	0.12	0.95	0.18	0.27	-0.07	-0.14	0.25	0.08	0.08	0.05	1.00	0.54	0.55	0.87	0.88
Real Return Bond: Duration 10	0.10	0.07	0.06	-0.02	0.13	0.09	0.09	0.59	0.18	0.07	0.04	-0.08	0.22	0.08	0.12	0.03	0.54	1.00	1.00	0.53	0.53
Real Return Bond: Duration 11	0.09	0.07	0.04	0.01	0.12	0.09	0.09	0.60	0.18	0.09	0.05	-0.08	0.21	0.08	0.11	0.03	0.55	1.00	1.00	0.52	0.52
Nominal Bond: Duration 10	-0.03	0.02	-0.09	-0.09	-0.01	-0.12	-0.05	0.88	-0.06	0.17	-0.06	-0.25	0.06	-0.07	-0.11	-0.11	0.87	0.53	0.52	1.00	0.96
Nominal Bond: Duration 14	0.02	0.07	-0.06	-0.07	0.00	-0.11	-0.02	0.88	-0.05	0.09	-0.07	-0.24	0.05	-0.05	-0.13	-0.07	0.88	0.53	0.52	0.96	1.00

8

Appendices

Appendix A - Data Summary

Appendix B - Data quality

Appendix C - Glossary of terms

Appendix A - Data Summary

South Carolina Retirement Systems Investment Commission

Plan Info	2014	2013	2012
Contact	Jon Rychener	Jon Rychener	Sarah Corbett
Type of fund (corporate, public, other)	Public	Public	Public
Total fund size (mils) as at December 31	29,053.6	28,645.8	26,604.7
Asset-class level holdings provided on survey are: year end or average?	Average	Year End	Year End
Total return for year ended Is the return net or gross?	5.10% Net of all	11.63% Net of all	12.39% Net of all
Total fund policy or benchmark return	4.77%	10.21%	10.67%
Ancillary Data	2014	2013	2012
Do you lend securities?	Yes	Yes	Yes
If yes:			
% of income your custodian keeps for domestic lending?	15	15	15
% of income your custodian keeps for foreign lending?	15	15	15
Domestic net income in 000s	1,620	2,194	
Foreign net income in 000s		1	
Total net income (if breakdown not available) in 000s	1,620	2,195	1,438
Do you use any enhanced passive or tilt strategies?	n/a		No
What is your hedging policy for:			
Foreign Holdings	75%	75%	
Do you participate in directed brokerage programs (i.e., commission recapture and/or soft dollar?)	n/a		No
If yes:			
Gross amount of directed commissions in 000s?	n/a		
Amount recaptured by the fund in 000s?	n/a		
Hard' cash value of invoices/services paid using soft dollars 000s?	n/a		
What were your actuarial fees in 000s?	229	175	189
How many plan members/beneficiaries do you have:			
Active?	226,378	224,534	223,286
Active (no-accrual)?			
Retired?	156,660	152,978	148,607
Other?	175,089	170,974	167,368
What type of plan(s) do you have?	Final Average	Final Average	Final Average
To what extent are your retired members' benefits indexed to inflation?			
Contractual %	100	100	100
Ad hoc %			
If the indexation is subject to a cap, describe the cap	For SCRS and PO	For SCRS and PO	Eligible retirees a
What % of the plan's liabilities pertain to retired members?	64	64	63
Actuarial valuation assumptions for funding purposes:			
Liability discount rate	7.5	7.5	7.5
Salary progression rate	3.5	3.5	3.5
What was your actuarial assumption for expected rate of return?	7.5	7.5	7.5

Appendix A - Data Summary: Policy Weights and Benchmarks

South Carolina Retirement Systems Investment Commission

Asset Class	Policy Weight		Benchmark	
			Description	Return
U.S. Stock - Broad/All	2014	14.0	Russell 3000 (default)	12.6
	2013		Russell 3000 (default)	33.6
	2012		S&P 500	16.0
Stock - EAFE	2014	8.0	MSCI EAFE net (default)	-4.9
	2013		MSCI EAFE net (default)	22.8
	2012		MSCI EAFE net	17.3
Stock - Emerging	2014	8.0	MSCI Emerging Market net (default)	-2.2
	2013		MSCI Emerging Market net (default)	-2.6
	2012		MSCI Emerging Market net	18.2
Stock - Global	2014	31.0	MSCI All Country world Index (Net)	4.2
	2013	31.0	MSCI All Country world Index	22.8
	2012			
Fixed Income - U.S.	2014	7.0	Barclays US Aggregate	6.0
	2013	7.0	Barclays US Aggregate	-2.0
	2012	12.0	Barclays US Aggregate	4.2
Fixed Income - Emerging	2014	6.0	50% JPM EMBI Global Diversified/50% JPM-GBI-EM Global	0.7
	2013	6.0	JPM EMBI Global Diversified/JPM-GBI-EM Global	-7.1
	2012	6.0	JPM EMBI Global Diversified/JPM-GBI-EM Global	17.2
Fixed Income - Global	2014	3.0	Barclays Global Aggregate (USDH)	7.6
	2013	3.0	Barclays Global Aggregate (USDH)	-0.1
	2012	1.0	Barclays Global Aggregate	4.3
Fixed Income - High Yield	2014	6.0	33%BarCapUS Corp High Yield 2% / 33%S&P LSTA Leveraged Loan Index/33% BarCap MBS	3.4
	2013	6.0	Barclays US Corp High Yield / S&P LSTA Leveraged Loan Index	3.7
	2012	6.0	Barclays US Corp High Yield/S&P LSTA Leveraged Loan Index	14.2
Cash	2014	5.0	90 D T-Bill / BarCap 1-3 Gov Credit	0.5
	2013	5.0	90 D T-Bill / Merrill Lynch US Treasury 0-3Y	0.1
	2012	7.0	90 D T-Bill/Merrill Lynch US Treasury 0-3Y	0.4
Global TAA	2014	10.0	50% MSCI World / 50% Citi WGBI	2.3
	2013	10.0	50% MSCI World / 50% Citi WGBI	10.4
	2012	10.0	50% MSCI World; 50% Citi WGBI	8.7
Hedge Funds	2014	8.0	HFRI Fund Weighted Composite Index	3.0
	2013	8.0	HFRI Fund Weighted Composite Index	9.1
	2012	5.0	HFRX Global Hedge Fund Index	3.5
Commodities	2014	3.0	Bloomberg Commodity Index	-17.0
	2013	3.0	Dow Jones UBS Commodity Index	-9.5
	2012	3.0	Dow Jones UBS Commodity Index	-1.1
Real Estate ex-REITs	2014	5.0	NCREIF ODCE Index + 75 bps	13.2
	2013	5.0	NCREIF ODCE Index + 75 bps	13.8
	2012	3.0	NCREIF	10.5
Diversified Private Equity	2014	9.0	80% Russell 3000 / 20% MSCI EAFE + 300 Bps Quarter Lag	18.0
	2013	9.0	80% Russell 3000 / 20% MSCI EAFE + 300 Bps Quarter Lag	25.1
	2012	8.5	80% Russell 3000/ 20% MSCI EAFE + 300 Bps Quarter Lag	10.7
Private Debt Limited	2014	7.0	S&P/LSTA + 150 Bps 3 Month Lagged	5.4
	2013	7.0	S&P/LSTA + 150 Bps 3 Month Lagged	6.5
	2012	8.5	1/3 Barcap High Yield, 1/3 S&P Levered Loan Index, 1/3 Barcap MBS Index	9.3

Appendix A - Data Summary: Public Market Assets, Returns and Costs

South Carolina Retirement Systems Investment Commission

Asset Class		Assets (millions) and Annual Gross Returns							Investment Fees / Costs in 000s										
		Internally			Externally Managed				Internally		Externally Managed								
		Active		Indexed		Active		# of mgrs	Active		Indexed			Active					
		Assets	Return	Assets	Return	Assets	Return		000s	bps ¹	Fees ³	Over-sight ³	Total 000s	bps ¹	Base Fees ³	Perform Fees	Internal & Other ³	Total 000s	bps ¹
U.S. Stock - Broad/All	2014	2.4	-29.0	983.9	14.4	1,368.6	5.3	8	0.6	2.5	887.6	255.0	1,142.6	11.6	8,857.4		354.7	9,212.1	67.3
	2013	2.1	9.9	725.5	22.8	1,448.7	40.6		0.2	1.0	302.7	91.1	393.8	6.1	9,576.0		181.9	9,757.9	52.3
	2012					2,072.0	18.5	7							10,201.0		313.0	10,514.0	55.1
Stock - EAFE	2014					721.3	-4.3	2							5,120.9		186.9	5,307.8	73.6
	2013					724.3	15.1								1,849.8		91.0	1,940.7	34.2
	2012					281.0	n/a	1							902.7		42.5	945.2	67.3
Stock - Emerging	2014					1,007.2	0.5	4							8,080.4		261.1	8,341.5	82.8
	2013					978.8	-2.7								9,683.0		122.9	9,805.9	54.7
	2012			221.0	n/a	1,749.0	20.0	7			48.1		48.1	4.4	7,440.6		297.6	7,738.2	49.1
Stock - Global	2014			1,316.5	n/a			3			247.5	341.2	588.7	4.5					
	2013							19											
	2012																		
Fixed Income - U.S.	2014	239.0	4.1			2,317.8	5.4	4	44.0	1.8					4,030.6		600.7	4,631.3	20.0
	2013	106.2	2.0			2,240.7	-1.7	4	12.6	1.0					4,398.8		281.4	4,680.2	18.9
	2012	145.0	2.3			2,710.0	6.4	4	55.7	3.3					4,100.4		409.4	4,509.8	19.0
Fixed Income - Global	2014					1,080.1	3.0	3							3,172.4		279.9	3,452.3	32.0
	2013					1,040.6	-1.2	3							3,062.1		130.7	3,192.7	30.5
	2012					1,053.0	11.2	3							3,585.6		159.1	3,744.7	27.5
Fixed Income - Emerging	2014			671.5	2.4	508.1	-2.4	4			305.5	174.0	479.5	7.1	2,628.8		131.7	2,760.5	54.3
	2013			404.1	-7.4	491.0	-9.3	3				50.8	50.8	1.4	1,594.4		61.7	1,656.1	34.2
	2012			299.0	n/a	477.0	20.0	3			223.3		223.3	14.9	1,746.7		117.2	1,863.9	44.7
Fixed Income - High Yield	2014					1,179.0	1.8	7							6,588.8		305.6	6,894.4	58.5
	2013					1,228.4	7.1	9							8,313.4		154.3	8,467.6	63.5
	2012					1,437.0	12.5	7							6,648.1		217.1	6,865.2	63.0
Cash	2014	3,082.0	0.5			2,136.1	-0.2		567.9	1.8					1,657.1		553.6	2,210.7	10.3
	2013	3,681.7	0.4			1,879.6	2.2		437.0	2.0					2,202.0		236.1	2,438.1	14.6
	2012	797.0	0.4			1,460.0	1.6		305.9	3.6					2,309.9		220.5	2,530.4	18.4
Global TAA	2014					2,186.4	5.4	4							12,449.9		566.7	13,016.6	59.5
	2013					1,875.0	3.9	3							11,440.7		235.5	11,676.2	54.4
	2012					2,715.0	13.3	4							11,166.7		410.1	11,576.8	44.8
Commodities	2014							1											
	2013																		
	2012					272.0	n/a	2							2,520.1		41.1	2,561.2	188.3
Hedge Funds	2014					1,354.9	8.6	41							26,097.8	30,515.4	351.2	56,964.4	420.4
	2013					1,691.9	9.0	60							22,892.7	25,003.3	212.5	23,105.2	130.8
	2012					1,842.0	11.1	18							35,507.1		278.2	35,785.3	204.9
										Underlying ²									
										Base Fees	Perf. Fees	Base Fees ³	Perform Fees	Internal & Other ³	Total 000s*	Total bps ¹			
Hedge Funds - Fund of Funds	2014					2,380.7	5.6				36,965.6	32,185.9			9,071.3	479.0	617.1	79,318.8	333.2
	2013					2,936.2	14.5				37,822.2				19,901.6	13,187.5	368.7	58,092.5	198.0
	2012					2,931.0	12.4				48,478.4				22,743.2		442.7	71,664.3	212.6

1. Cost in basis points = total cost / average of beginning and end of year holdings

2. Default for fees paid to underlying partnerships have been applied.

* Total cost for hedge funds includes performance fees in 2014 only.

Appendix A - Data Summary: Private Market Assets, Returns and Costs

South Carolina Retirement Systems Investment Commission

Asset Class		Assets (millions) and Annual Returns								# Ext Mgrs	Investment Fees / Costs in 000s ¹															
		Internal & Co-Inv		External		Fund of Funds		Internal & Co-Inv			External			Fund of Funds												
		Assets	Return	Amt fees based on	Assets	Return	Amt fees based on	Assets	Return		Total 000s	bps	Base Fees	Perform Fees	Internal & Other	Total ¹ 000s	bps (% of fee basis)	Underlying ² Fees	Base Fees	Perform Fees	Internal & Other	Total ¹ 000s	bps (% of fee basis)			
Real Estate ex-REITs		2014	31.9	23.9						17		8.3	2.6													
		2013	66.1	21.1						23		16.6	1.5													
		2012	151.6	10.1						16		22.9	1.5													
					LPs							Under Oversight			LPs											
		2014			1,168.7	1,078.1	20.8								14,727.5	44,655.6	279.4	15,006.9	128.4							
		2013			1,455.8	1,041.6	23.0								17,312.1	34,841.7	130.8	17,442.9	124.6							
2012			1,343.7	774.4	12.1								16,663.2		117.0	16,780.2	124.9									
Diversified Private Equity		2014	749.2		1,887.0	1,610.4	16.5	358.7	344.7	26.2	56	1,827.0		23,878.2	39,584.3	417.4	24,295.6	128.8	5,918.6	3,097.9	2,564.5	89.3	9,105.8	253.9		
		2013	848.3		2,218.6	1,586.6	22.4	358.7	313.4	15.9	57	714.1		29,380.4	45,323.2	199.2	29,579.7	137.6	7,629.1	3,037.6	2,282.8	39.4	10,706.1	231.5		
		2012	585.4		2,079.3	1,338.6	11.1	566.0	426.0	3.7	36	88.4		29,962.7		218.2	30,180.9	145.1	9,339.0	5,067.8		48.3	14,455.1	255.4		
Private Debt Limited Partnerships		2014	12.6		1,966.0	1,665.2	10.6				31	4.1		23,944.3	30,833.1	431.6	24,375.9	124.0								
		2013	21.6		2,395.5	1,658.9	15.5				30	4.2		33,359.6	47,226.9	208.3	33,567.9	128.5								
		2012	12.2		2,830.0	1,948.8	13.9				19	1.8		36,204.2		294.4	36,498.6	129.0								

1. Cost in basis points = total cost / average of beginning and end of year holdings. Total cost excludes private asset performance fees because of comparability issues.

2. Default for fees paid to underlying partnerships have been applied.

Appendix A - Data Summary: Oversight, Custodial and Other Costs

South Carolina Retirement Systems Investment Commission

Oversight, Custodial and Other Costs			
		000s	bps
Oversight of the fund assets ¹	2014	1,478.1	0.5bp
	2013	1,318.6	0.5bp
	2012	1,039.2	0.4bp
Custodial total	2014	425.6	0.1bp
	2013	317.2	0.1bp
	2012	254.0	0.1bp
Custodial foreign (if available)	2014		
	2013	0.1	0.0bp
	2012		
Custodial domestic (if available)	2014		
	2013	317.2	0.1bp
	2012		
Consulting / performance measurement	2014	998.3	0.3bp
	2013	865.0	0.3bp
	2012	452.3	0.2bp
Audit	2014	816.4	0.3bp
	2013	314.5	0.1bp
	2012	396.7	0.2bp
Other (legal etc)	2014	286.6	0.1bp
	2013	293.4	0.1bp
	2012	950.7	0.4bp
Total	2014	4,004.9	1.4bp
	2013	3,108.7	1.1bp
	2012	3,092.8	1.2bp

Summary of All Asset Management Costs			
		000s	bps
Investment Management Costs	2014	269,557.2	92.3bp
	2013	227,739.1	82.4bp
	2012	258,959.8	101.2bp
Overlay Costs	2014	1,413.8	0.5bp
	2013	1,490.0	0.5bp
	2012	1,437.0	0.6bp
Oversight, Custodial & Other Costs	2014	4,004.9	1.4bp
	2013	3,108.7	1.1bp
	2012	3,092.8	1.2bp
Total	2014	274,976.0	94.1bp
	2013	232,337.8	84.1bp
	2012	263,489.6	103.0bp

1. Oversight includes the salaries and benefits of executives and their staff responsible for overseeing the entire fund or multiple asset classes and the fees / salaries of the board or investment committee. All costs associated with the above including fees / salaries, travel, director's insurance and attributed overhead should be included.

Appendix A - Data Summary: Overlays

South Carolina Retirement Systems Investment Commission

Overlays		Internal						External							
		Notional amount (mils)	Market value (mils)	Profit/Loss (000s)	Cost (000s)	% of Notion. (bps)	Duration (years)	Notional amount (mils)	Market value (mils)	Profit/Loss (000s)	Base fees (000s)	Perf. fees (000s)	Over-sight (000s)	Total (000s)	% of Notion. (bps)
Rebalancing/	2014							3,687.0	1,188.5		1,105.8		308.0	1,413.8	3.8
Passive Beta	2013							6,553.0	1,654.7		1,282.2		207.8	1,490.0	2.3
	2012							3,973.0	908.0		1,437.0			1,437.0	3.6

Appendix A - Data Summary: Comments and defaults

As discussed with you during the data confirmation process, the following defaults and footnotes are applicable to your data:

- Real Estate Limited Partnerships : Fees are the weighted average management fee of 126 bps per the partnership level detail provided by you. This replaces the cost you provided on the main survey of 132 bps (15 million).
- Diversified Private Equity : Fees are the weighted average management fee of 127 bps per the partnership level detail provided by you. This replaces the cost you provided on the main survey of 124 bps (23 million).
- Diversified Private Equity - Fund of Funds : For comparability with other styles, a default for management fees paid to the 'bottom layer' underlying managers of 165 bps (on amount fees are based on) was used.
- Private Debt Limited Partnerships : Fees are the weighted average management fee of 122 bps per the partnership level detail provided by you. This replaces the cost you provided on the main survey of 102 bps (20 million).

Appendix B - Data quality

The value of the information contained in these reports is only as good as the quality of the data received. CEM's procedures for checking and improving the data include the following.

Improved survey clarity

Twenty years of feedback from survey participants has led to improved definitions and survey clarity. In addition to immediate feedback from participants, CEM has hosted user workshops to solicit additional feedback and to resolve issues, such as trade-offs between more information and effort on the part of participants.

Computer and desktop verification

Survey responses are compared to norms for the survey universe and to each sponsor's prior year data when available. This typically results in questions generated by our online survey engine as well as additional follow-up to clarify responses or with additional questions.

In addition to these procedures, data quality continues to improve for the following reasons:

Learning curve -

This is CEM's 23rd year of gathering this data and experience is teaching the firm and the participants how to do a better job.

Growing universe -

As our universe of respondents continues to increase in size, so does our confidence in the results as unbiased errors tend to average themselves out.

Any suggestions on how to further improve data quality are welcome.

Currency Conversions

For reports where either the peer group or report universe includes funds from multiple countries, we have converted the returns back to the base currency of the fund we prepared the report for. For example, for a Euro zone fund with peers from the U.S. we converted U.S. returns to Euro based on the currency return for the year using December 31 spot rates.

Appendix C - Glossary of terms

Average cost

- Calculated by dividing actual annual costs by the average of beginning and end-of-year holdings. If beginning-of-year holdings are not available, they are estimated using end-of-year holdings before the effect of this year's return on investment.

Benchmark return

- Rate of return on a portfolio of investable assets (such as the S&P500) designated as the benchmark portfolio against which the fund measures its own performance for that asset class.

F statistics

- Measure of the statistical significance of the regression coefficients taken as a group. Generally, regression equations with 5 coefficients and sample sizes greater than 20 are statistically significant if its F statistic is greater than 3.

Global TAA

- Fully funded segregated asset pool dedicated to active asset allocation.

Impact coefficient

- Estimate of the impact on the dependent variable in a regression of a change in the value of a given explanatory variable

Level of significance

- Degree to which sample data explains the universe from which they are extracted.

N-year peers

- Subset of peer group that have participated in our study for at least the consecutive n years.

Oversight of the fund

- Resources devoted to the oversight of the fund.

Overlay

- Derivative based program (unfunded other than margin requirements), designed to enhance total portfolio return (such as a tactical asset allocation program) or to achieve some specific mandate such as currency hedging.

Passive proportion

- Proportion of assets managed passively, i.e., indexed to broad capital market benchmarks or dedicated to replicate market benchmarks.

Policy mix

- Reflects long-term policy or target asset weights. Policy asset mix is often established by a fund's investment committee or board and is determined by such long term considerations as liability structure, risk tolerance and long term capital markets prospects.

Policy return

- The return you would have earned if you had passively implemented your policy mix decision through your benchmark portfolios. Your policy return equals the sum of your policy weights multiplied by your asset class benchmarks for each asset class.

R squared (coefficient of determination)

- The percentage of the differences in the dependent variable explained by the regression equation. For example, an R squared of 1 means 100% of the differences are explained and an R squared of 0 means that none of the differences are explained.

Value added

- the difference between your total actual return and your policy return. It is a measure of actual value produced over what could have been earned passively.