

North Carolina Retirement Systems

Investment Cost Effectiveness Analysis - Summary of Results

For the 5 year period ending December 31, 2019



Michael Reid
Vice President

Key takeaways

Returns

- Your 5-year net total return was 6.5%. This was below the U.S. Public median of 7.5% and below the peer median of 7.5%.
- Your 5-year policy return was 5.9%. This was below the U.S. Public median of 6.9% and below the peer median of 7.0%.

Value added

- Your 5-year net value added was 0.6%. This was above the U.S. Public median of 0.4% and equal to the peer median of 0.6%.

Cost

- Your investment cost of 32.1 bps was below your benchmark cost of 40.1 bps. This suggests that your fund was low cost compared to your peers.
- Your fund was low cost because you paid less than peers for similar services.

Risk

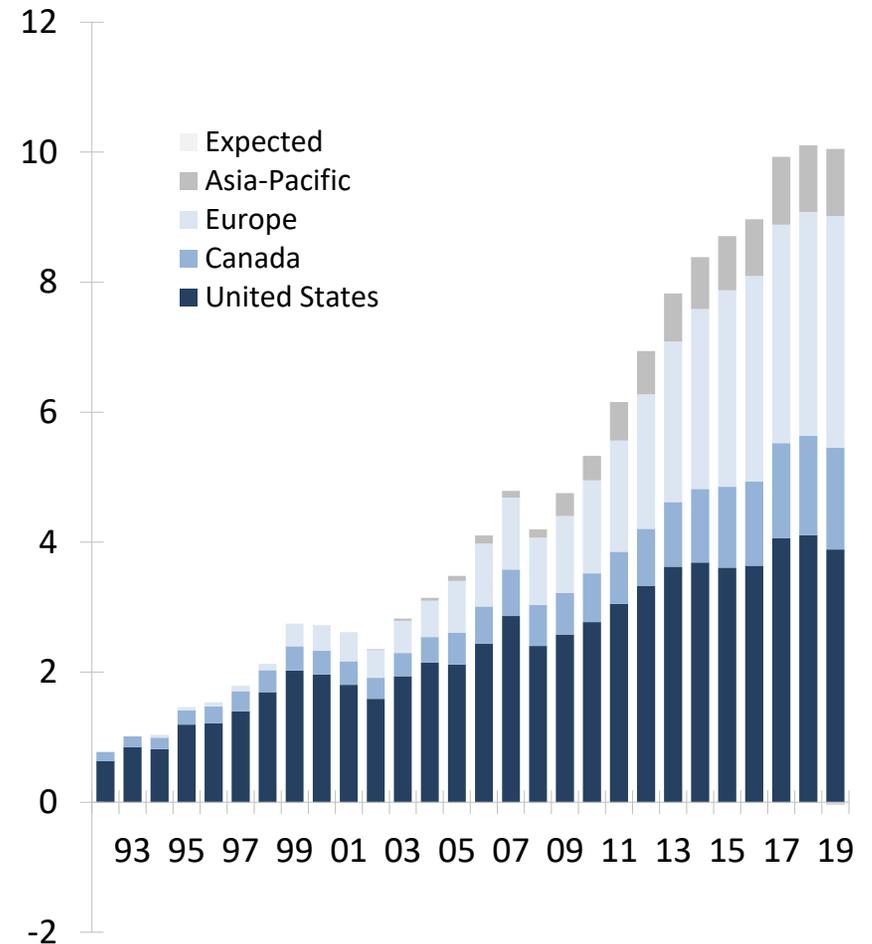
- Your asset risk of 9.5% was below the U.S. Public median of 10.7%.

This benchmarking report compares your cost and return performance to the 294 funds in CEM's extensive pension database.

- 151 U.S. pension funds participate. The median U.S. fund had assets of \$11.4 billion and the average U.S. fund had assets of \$25.7 billion. Total participating U.S. assets were \$3.9 trillion.
- 67 Canadian funds participate with assets totaling \$1.6 trillion.
- 66 European funds participate with aggregate assets of \$3.6 trillion. Included are funds from the Netherlands, Norway, Sweden, Finland, Ireland, Denmark and the U.K.
- 6 Asia-Pacific funds participate with aggregate assets of \$1.0 trillion. Included are funds from Australia, New Zealand, China and South Korea.

The most meaningful comparisons for your returns and value added are to the U.S. Public universe.

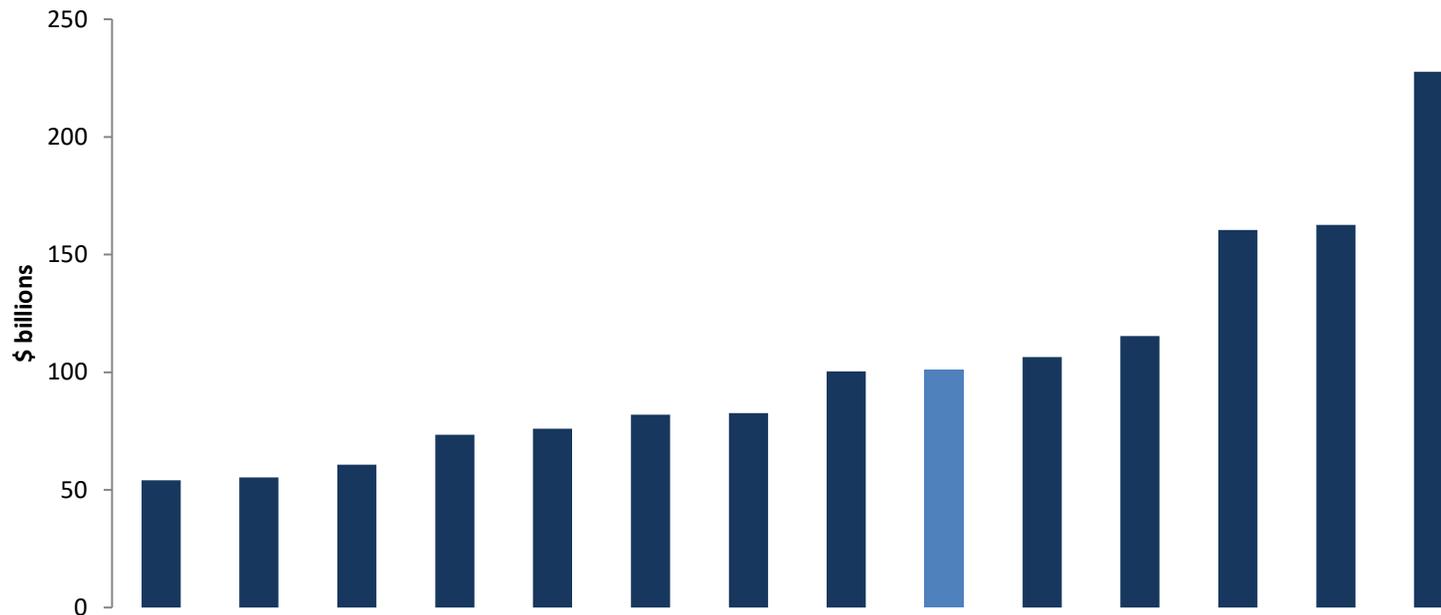
Participating assets (\$ trillions)



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

Peer group for North Carolina Retirement Systems

- 14 U.S. Public sponsors from \$54.1 billion to \$227.7 billion
- Median size of \$91.5 billion versus your \$100.9 billion



To preserve client confidentiality, given potential access to documents as permitted by the Freedom of Information Act, we do not disclose your peers' names in this document. For some of the peers, 2018 cost data was used as a proxy for 2019.

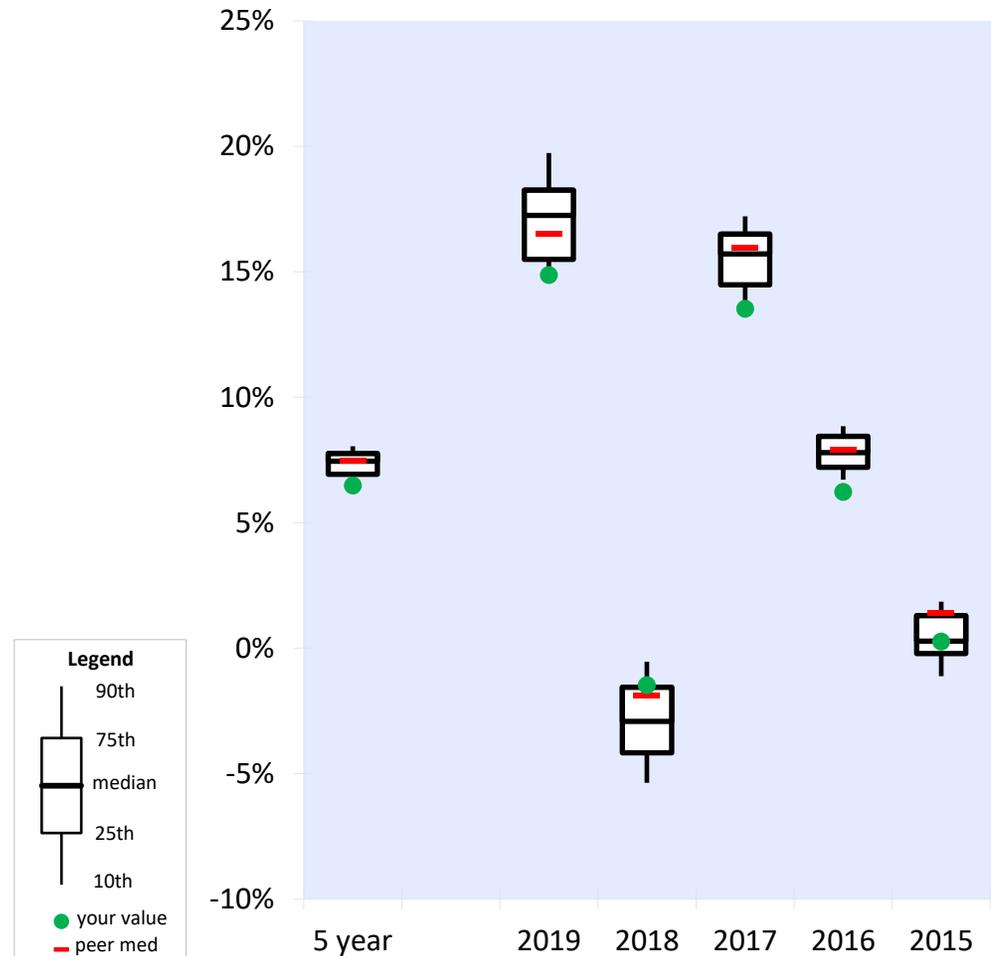
Your 5-year net total return of 6.5% was below both the U.S. Public median of 7.5% and the peer median of 7.5%.

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	6.5%
- Policy return	5.9%
= Net value added	0.6%

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).

U.S. Public net total returns - quartile rankings



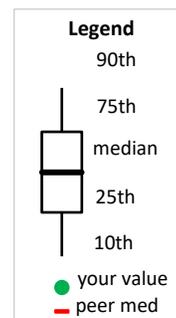
Your 5-year policy return of 5.9% was below both the U.S. Public median of 6.9% and the peer median of 7.0%.

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

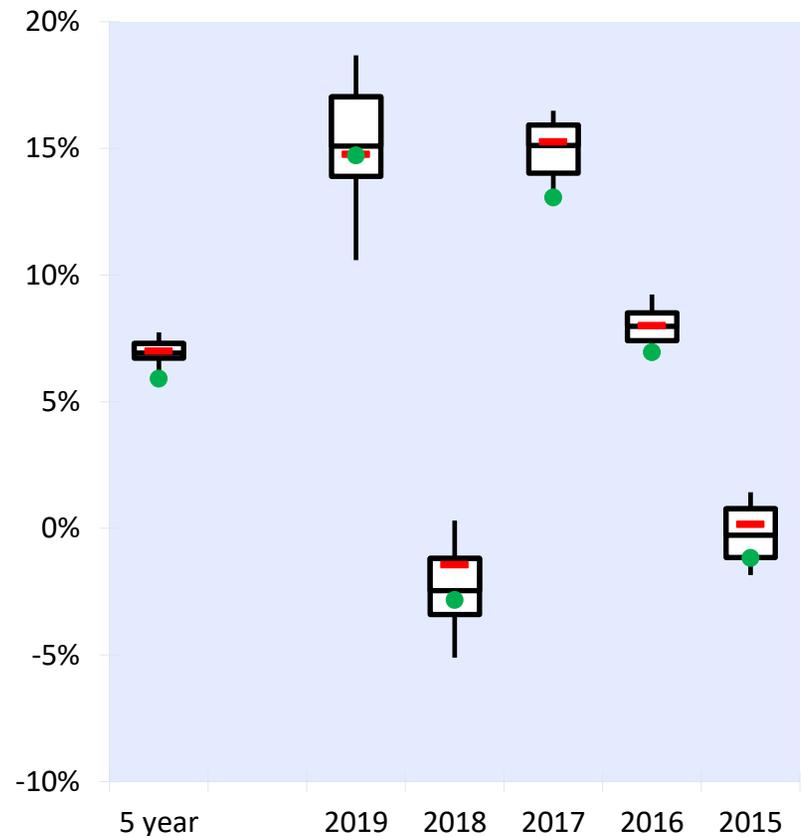
Having a higher or lower relative policy return is not necessarily good or bad. Your policy return reflects your investment policy, which should reflect your:

- 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.



U.S. Public policy returns - quartile rankings



To enable fairer comparisons, the policy returns of all participants, including your fund, were adjusted to reflect private equity benchmarks based on lagged, investable, public-market indices. Prior to this adjustment, your 5-year policy return was 6.0%, 0.1% higher than your adjusted 5-year policy return of 5.9%. Mirroring this, your 5-year total fund net value added would be 0.1% lower.

Your 5-year policy return of 5.9% was below the U.S. Public median of 6.9% primarily because of:

- The negative impact of your lower weight to stocks, which was one of the best performing asset classes over the past 5 years. You had a 42% allocation to stocks while the U.S. public universe had a 48% weight to the asset class.
- The negative impact of your higher weight to U.S. bonds, which was one of the worst performing asset classes over the past 5 years. You had a 25% allocation to U.S. bonds while the U.S. public universe had a 17% weight to the asset class.

	5-year average policy mix ¹			5-year benchmark return	
	Your Fund	U.S. Publ Avg.	More/Less	Your Fund	U.S. Publ Avg.
Stock - U.S.	21%	21%	1%	11.2%	11.0%
Stock - EAFE	0%	5%	-5%	5.7%	5.8%
Stock - ACWI x U.S.	20%	8%	13%	5.7%	5.9%
Stock - Global	0%	11%	-11%	n/a ³	8.5%
Other Stock	1%	4%	-4%	n/a ³	n/a ³
Total Stock	42%	48%	-6%	8.6%	8.8%
Fixed Income - U.S.	25%	17%	8%	3.9%	3.1%
Fixed Inc. - Inflation Index	2%	3%	-1%	1.5%	2.8%
Cash	4%	-1%	5%	1.0%	1.1%
Other Fixed Income	0%	6%	-7%	n/a ³	n/a ³
Total Fixed Income	31%	25%	6%	3.4%	3.7%
Global TAA	2%	1%	1%	5.6%	5.8%
Hedge Funds	3%	4%	-1%	2.1%	3.2%
Commodities	1%	1%	0%	-3.9%	-3.3%
Natural Resources	3%	1%	2%	1.3%	4.1%
REITs	1%	1%	0%	6.9%	6.8%
Real Estate ex-REITs	7%	8%	-1%	7.6%	8.4%
Other Real Assets ²	0%	1%	-1%	n/a ³	n/a ³
Private Equity	8%	9%	-1%	7.4%	7.6%
Private Debt	2%	2%	1%	n/a ³	5.3%
Total	100%	100%	0%		

1. 5-year weights are based only on plans with 5 years of continuous data.

2. Other real assets includes infrastructure.

3. A value of 'n/a' is shown if asset class return are not available for the full 5 years or if they are broad and incomparable.

Net value added is the component of total return from active management.

Your 5-year net value added was 0.6%.

Net value added equals total net return minus policy return.

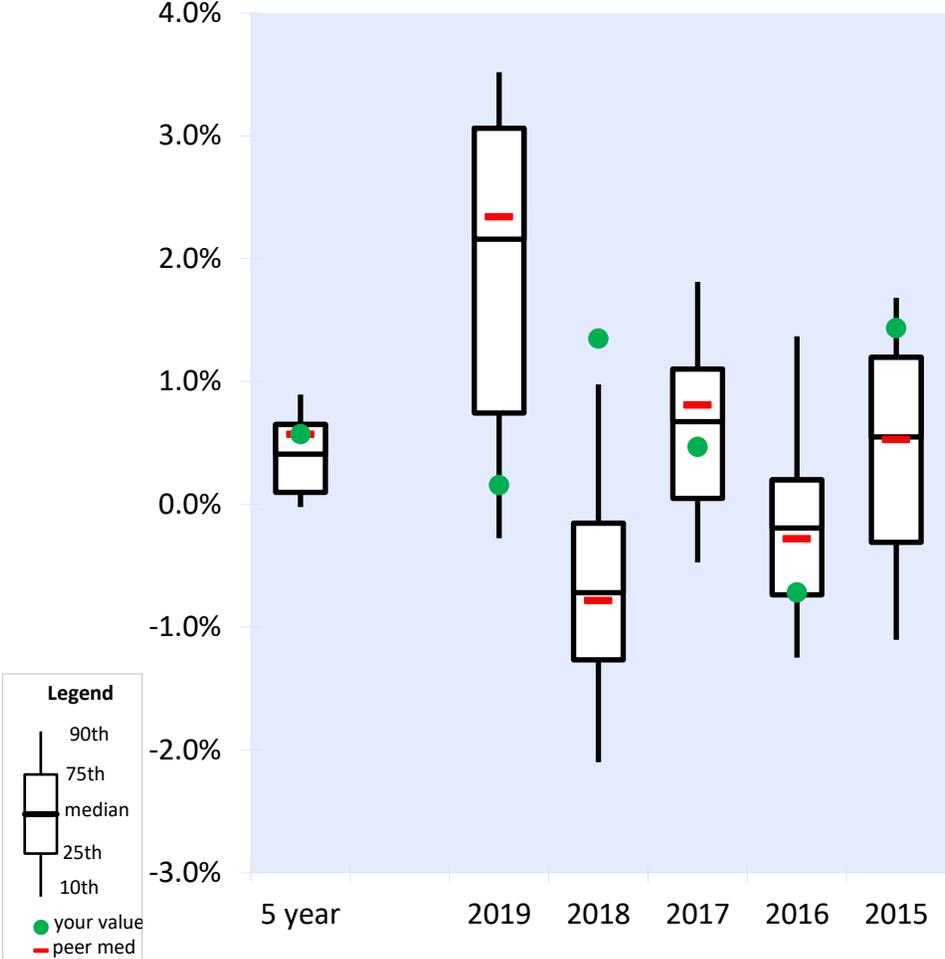
Value added for North Carolina Retirement Systems

Year	Net Return	Policy Return	Net Value Added
2019	14.9%	14.7%	0.2%
2018	-1.5%	-2.8%	1.3%
2017	13.5%	13.1%	0.5%
2016	6.2%	7.0%	-0.7%
2015	0.3%	-1.2%	1.4%
5-Year	6.5%	5.9%	0.6%

Your 5-year net value added of 0.6% compares to a median of 0.6% for your peers and 0.4% for the U.S. Public universe.

Your 0.6% 5-year value added translates into approximately \$2.9 billion of cumulative value added over 5 years, or \$0.8 billion more than if you had earned the U.S. Public median of 0.4%.

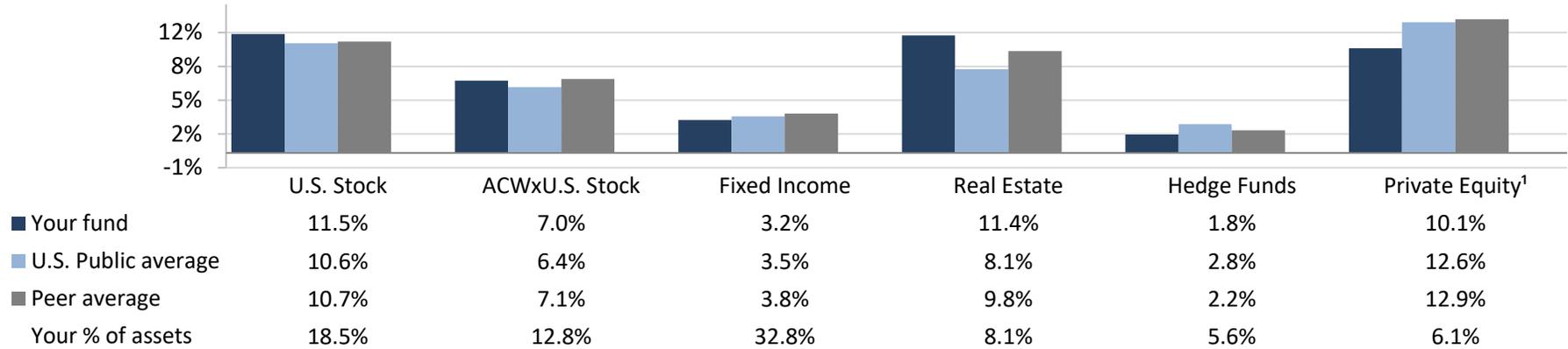
U.S. Public net value added - quartile rankings



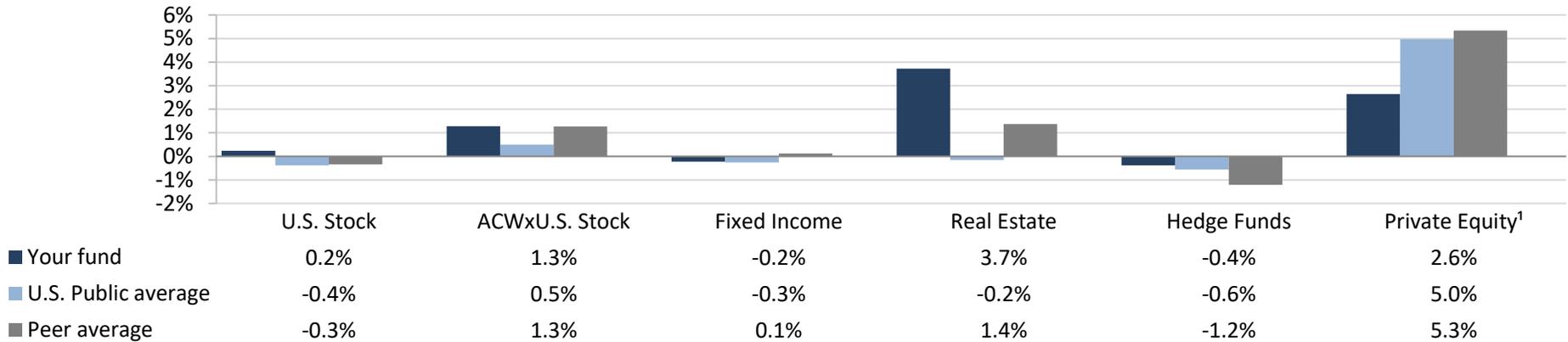
To enable fairer comparisons, the value added for each participant including your fund was adjusted to reflect private equity benchmarks based on investable public market indices. Prior to this adjustment, your fund's 5-year total fund net value added was 0.5%.

Comparisons of your 5-year net return and net value added by major asset class:

5-year average net return by major asset class



5-year average net value added by major asset class



1. To enable fairer comparisons, the private equity benchmarks of all participants, including your fund were adjusted to reflect lagged, investable, public-market indices. Prior to this adjustment, your fund's 5-year private equity net value added was 0.5%.

Your investment costs, excluding private asset performance fees, were \$323.9 million or 32.1 basis points in 2019.

Asset management costs by asset class and style (\$000s)	Internal Management			External Management			Total
	Passive	Active	Overseeing of external	Passive fees	Active base fees	Perform. fees ¹	
Stock - U.S. Broad/All			149		5,032		5,181
Stock - U.S. Large Cap	156	0					156
Stock - U.S. Mid Cap	38		141		6,161		6,340
Stock - U.S. Small Cap			123		5,476		5,598
Stock - EAFE			273	161	6,671		7,105
Stock - Emerging			79		1,491		1,570
Stock - ACWI x U.S.			967	1,778	22,100		24,846
Stock - Other			1		298		299
Fixed Income - U.S.		2,021					2,021
Fixed Income - Inflation Indexed			91	17	4,228		4,336
Cash		756					756
Commodities			15		208		223
REITs			88	142	1,237		1,468
Global TAA			238		2,000		2,238
Hedge Funds - External Active			307		35,639	10,475	46,420
Hedge Funds - FoFs			39		5,810	3,812	9,661
Real Estate ex-REITs ¹			499		29,007	7,077	29,505
Real Estate ex-REITs - LP ¹			334		35,764	45,225	36,098
Real Estate ex-REITs - Co-Invest. ¹			75		3,242		3,317
Real Estate ex-REITs - FoFs ¹			12		2,235	347	2,247
Infrastructure - LP ¹			47		5,932	6,217	5,979
Natural Resources - LP ¹			260		35,120	5,924	35,380
Natural Resources - Co-Invest. ¹			25		846	95	871
Diversified Private Equity - FoFs ¹			107		10,951	15,714	11,058
LBO - LP ¹			293		24,966	38,310	25,259
Venture Capital - LP ¹			169		16,082	3,870	16,251
Venture Capital - Co-Invest. ¹			11				11
Private Credit - LP ¹			232		19,410	14,591	19,643
Private Credit - Co-Invest. ¹			28		1,743		1,771
Other Private Equity - LP ¹			165		14,136	1,316	14,302
Other Private Equity - Co-Invest. ¹			6		346		352
Total excluding private asset performance fees							320,261
							31.7bp
Oversight, custodial and other costs ²							
Oversight of the fund							2,053
Trustee & custodial							1,550
Consulting and performance measurement							0
Audit							80
Other							0
Total oversight, custodial & other costs							3,683
							0.4bp
Total investment costs (excl. transaction costs & private asset performance fees)							323,943
							32.1bp

Footnotes

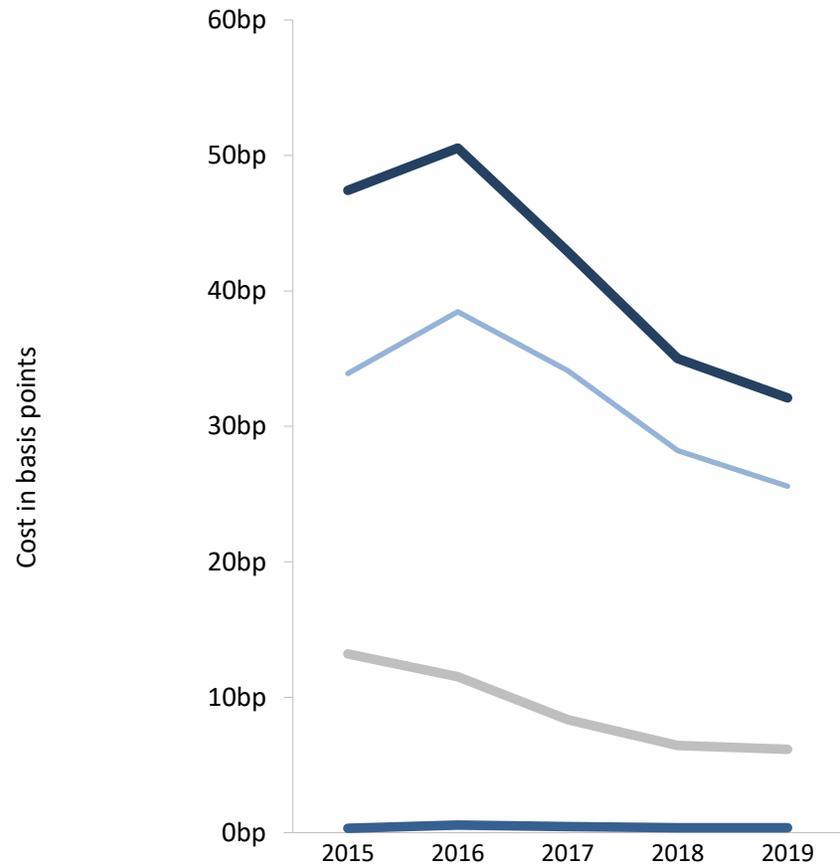
1. Total cost excludes carry/performance fees for real estate, infrastructure, natural resources and private equity. Performance fees are included for the public market asset classes and hedge funds.
2. Excludes non-investment costs, such as benefit insurance premiums and preparing cheques for retirees.

Your costs decreased between 2015 and 2019.

Your costs decreased primarily because:

- Base Fees for both public and private market asset classes have decreased over the past 5 years
- You decreased your investment in the highest cost asset classes. Your holdings of hedge funds, private real assets and private equity decreased from 23% of assets in 2015 to 22% in 2019.
- You increased your use of lower cost passive and internal management from 51% of assets in 2015 to 59% in 2019.
- You decreased your use of funds of funds from 12% of hedge funds, private real assets and private equity in 2015 to 5% in 2019. Funds of funds are higher cost than

Trend in your investment costs

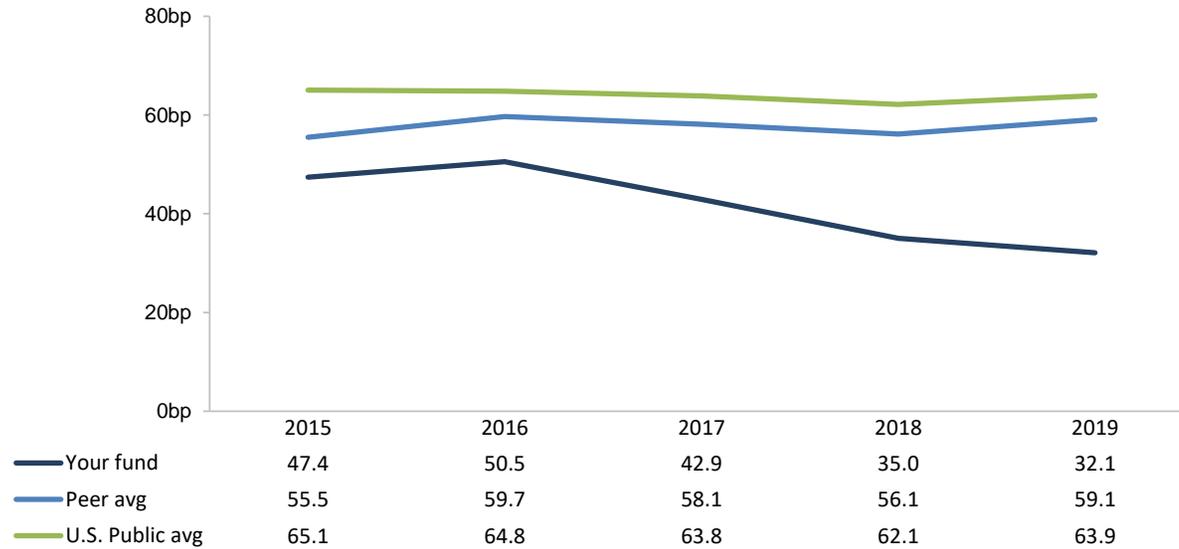


	2015	2016	2017	2018	2019
Public Assets (ex. Hedge funds)	13.2	11.5	8.3	6.4	6.2
Private Assets & Hedge Funds	33.9	38.5	34.1	28.2	25.6
Oversight	0.3	0.6	0.4	0.4	0.4
Total Cost	47.4	50.5	42.9	35.0	32.1

Trend in total investment cost, you versus peers and universe

Trend in total investment cost

(excluding transaction costs and private asset performance fees)



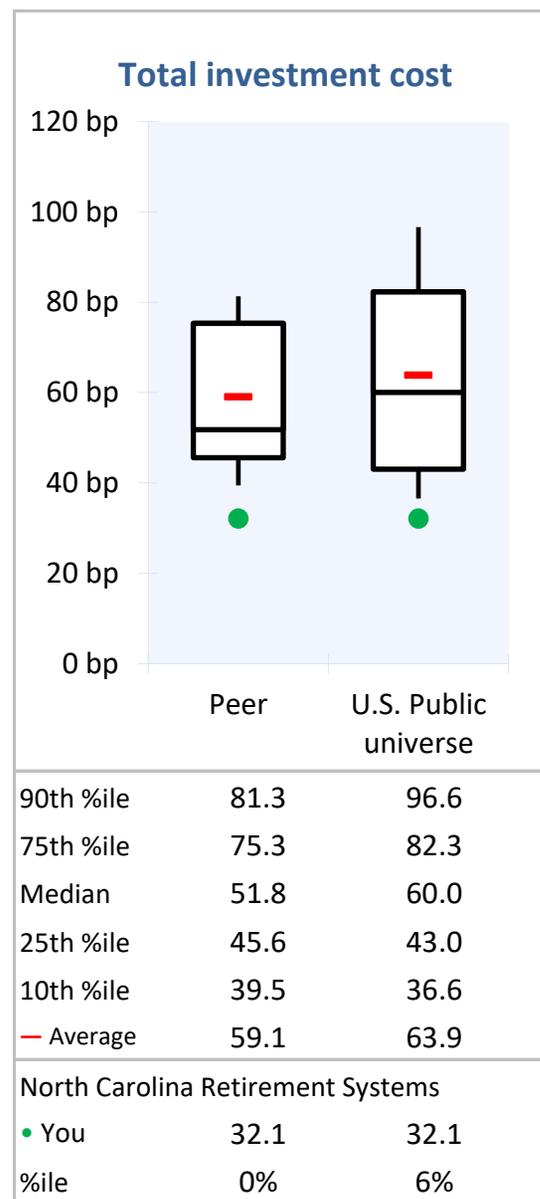
Trend analysis is based on 45 U.S. Public funds and 13 peer funds with 5 or more consecutive years of data.

Your total investment cost of 32.1 bps was the lowest of the peers and was substantially below the peer median of 51.8 bps. You are the lowest cost fund in your peer group.

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 25% of your funds assets at the end of 2019 versus a peer average of 30%.
- Fund size. Bigger funds have advantages of scale.

Therefore, to assess whether your costs are high or low given your unique asset mix and size, CEM calculates a benchmark cost for your fund. This analysis is shown on the following page.



Benchmark cost analysis suggests that, after adjusting for fund size and asset mix, your fund was low cost by 8.0 basis points in 2019.

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 32.1 bp was below your benchmark cost of 40.1 bp. Thus, your cost savings were 8.0 bp.

Your cost versus benchmark

	\$000s	basis points
Your total investment cost	323,943	32.1 bp
Your benchmark cost	404,196	40.1 bp
Your excess cost	(80,253)	(8.0) bp

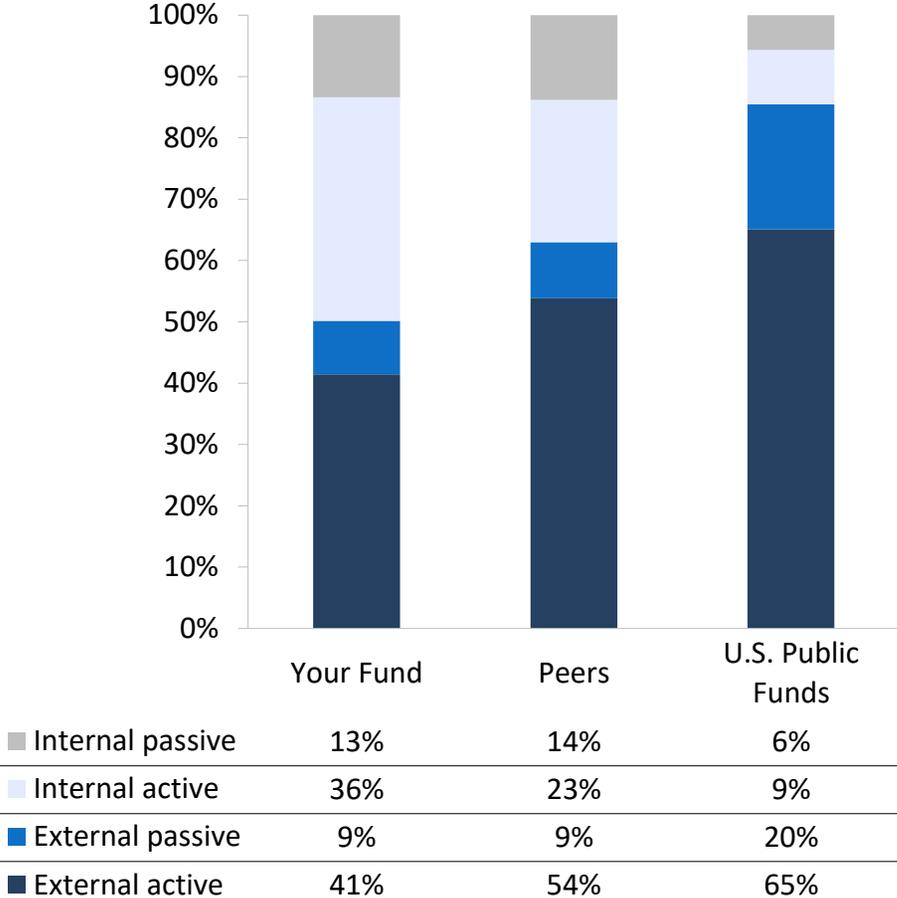
Differences in cost performance are often caused by differences in implementation style.

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 less external active management than your peers (your 41% versus 54% for your peers).
- Within external active holdings, fund of funds usage because it is more expensive than direct fund investment. You had similar amounts in fund of funds. Your 5% of hedge funds, real estate and private equity in fund of funds compared to 4% for your peers.

Implementation style¹



1. The graph above does not take into consideration the impact of derivatives. The values in the graph above are calculated using average holdings.

Your fund was low cost because you paid less than peers for similar services.

Reasons for your low cost status

	Excess Cost/ (Savings)	
	\$000s	bps
1. Higher cost implementation style		
• Use of passive management vs. higher cost active	(13,359)	(1.3)
• Use of external management vs. lower cost internal	16,817	1.7
• More LPs as a percentage of external	16,173	1.6
• More fund of funds	9,024	0.9
• Less co-investment as a percentage of LP/Co	6,814	0.7
• Less overlays	(2,353)	(0.2)
	<u>33,117</u>	<u>3.3</u>
2. Paying less than peers for similar services		
• External investment management costs	(99,135)	(9.8)
• Internal investment management costs	(7,386)	(0.7)
• Oversight, custodial & other costs	(6,849)	(0.7)
	<u>(113,370)</u>	<u>(11.2)</u>
Total savings	(80,253)	(8.0)

The table below summarizes why you are high/low cost relative to the peer-median by asset class.

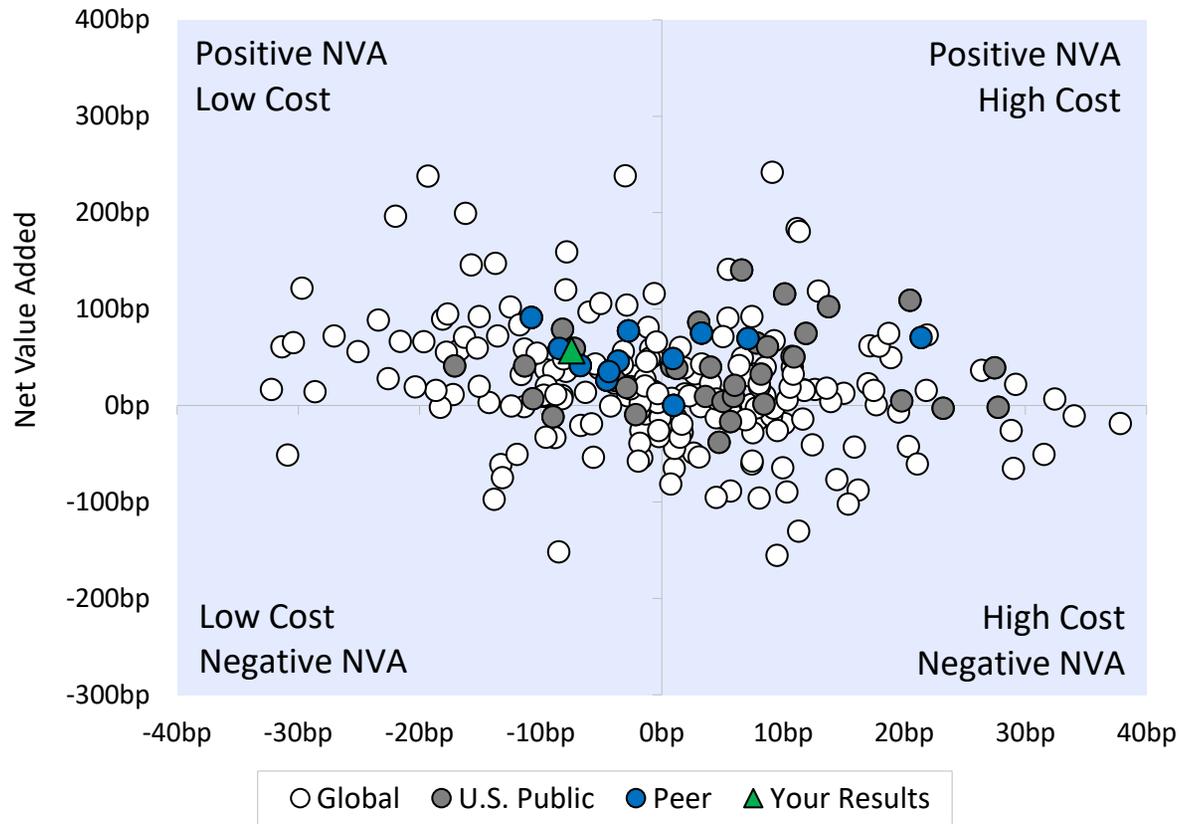
Why are you high/(low) cost by asset class?

Asset class/category	Style weighted cost			Your average assets (or fee basis) ²	Due to impl. style	Due to paying more/(less)	Total more/(less)
	Your cost	Peer median ¹ = Benchmark	More/(less)				
Asset management costs	(A)	(B)	(C = A - B)	(D)			(C x D)
Stock - U.S. Broad/All	37.1 bp	9.6 bp	27.6 bp	1,395	3,812	36	3,848
Stock - U.S. Large Cap	0.1 bp	3.7 bp	(3.5) bp	10,878	-3,273	-546	-3,819
Stock - U.S. Mid Cap	16.1 bp	18.9 bp	(2.8) bp	3,936	-898	-187	-1,084
Stock - U.S. Small Cap	48.6 bp	37.1 bp	11.5 bp	1,152	2,720	-1,397	1,323
Stock - EAFE	23.8 bp	23.0 bp	0.8 bp	2,982	1,788	-1,557	231
Stock - Emerging	21.2 bp	44.0 bp	(22.8) bp	741	1,265	-2,957	-1,692
Stock - ACWI x U.S.	17.6 bp	28.6 bp	(11.0) bp	14,135	-10,013	-5,547	-15,559
Stock - Other	123.6 bp	123.6 bp	0.0 bp	24	0	0	0
Fixed Income - U.S.	0.8 bp	4.5 bp	(3.8) bp	26,771	-3,462	-6,653	-10,115
Fixed Income - Inflation Indexed	34.7 bp	4.0 bp	30.7 bp	1,251	1,207	2,632	3,839
Cash	0.8 bp	0.8 bp	0.0 bp	10,008	0	0	0
Commodities	10.8 bp	26.0 bp	(15.2) bp	207	255	-570	-315
REITs	18.7 bp	16.5 bp	2.2 bp	784	215	-39	176
Real Estate ex-REITs	90.3 bp	82.6 bp	7.6 bp	7,883	10,800	-4,783	6,017
Infrastructure	136.4 bp	113.8 bp	22.6 bp	438	997	-8	990
Natural Resources	74.2 bp	114.2 bp	(40.1) bp	4,887	7,162	-26,737	-19,575
Hedge Funds	113.8 bp	116.6 bp	(2.8) bp	3,672	2,517	-3,528	-1,011
Global TAA	13.8 bp	35.5 bp	(21.7) bp	1,621	4,058	-7,578	-3,520
Diversified Private Equity	156.9 bp	151.6 bp	5.2 bp	705	5,462	-5,093	370
Venture Capital	126.7 bp	163.1 bp	(36.4) bp	1,283	-188	-4,478	-4,666
LBO	117.0 bp	160.6 bp	(43.6) bp	2,159	1,863	-11,281	-9,418
Other Private Equity	63.5 bp	63.5 bp	(0.0) bp	2,307	0	0	-0
Private Credit	80.4 bp	102.3 bp	(22.0) bp	2,664	7,996	-13,849	-5,853
Derivatives and overlays	0.0 bp	0.2 bp	(0.2) bp	100,908	-2,353	0	-2,353
Total asset management	31.7 bp	39.0 bp	(7.3) bp	100,908	33,117	-106,521	-73,404
Oversight, custody and other costs³							
Oversight of the Fund	0.2 bp	0.6 bp	(0.4) bp				
Trustee & Custodial	0.2 bp	0.3 bp	(0.1) bp				
Consulting	0.0 bp	0.0 bp	0.0 bp				
Audit	0.0 bp	0.0 bp	(0.0) bp				
Other	0.0 bp	0.1 bp	(0.1) bp				
Total oversight, custody & other	0.4 bp	1.0 bp	(0.7) bp	100,908	n/a	-6,849	-6,849
Total	32.1 bp	40.1 bp	(8.0) bp	100,908	33,117	-113,370	-80,253

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.
2. Total fund average holdings is used as the base when calculating the relative cost impact of the overlay programs.
3. Benchmarks for oversight total and individual lines are based on peer medians. Sum of the lines may be different from the total.

Your 5-year performance placed in the positive value added, low cost quadrant of the cost effectiveness chart.

5-Year net value added versus excess cost
 (Your 5-year: net value added 57 bps, cost savings 7 bps ¹)

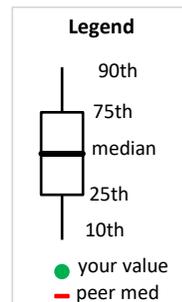
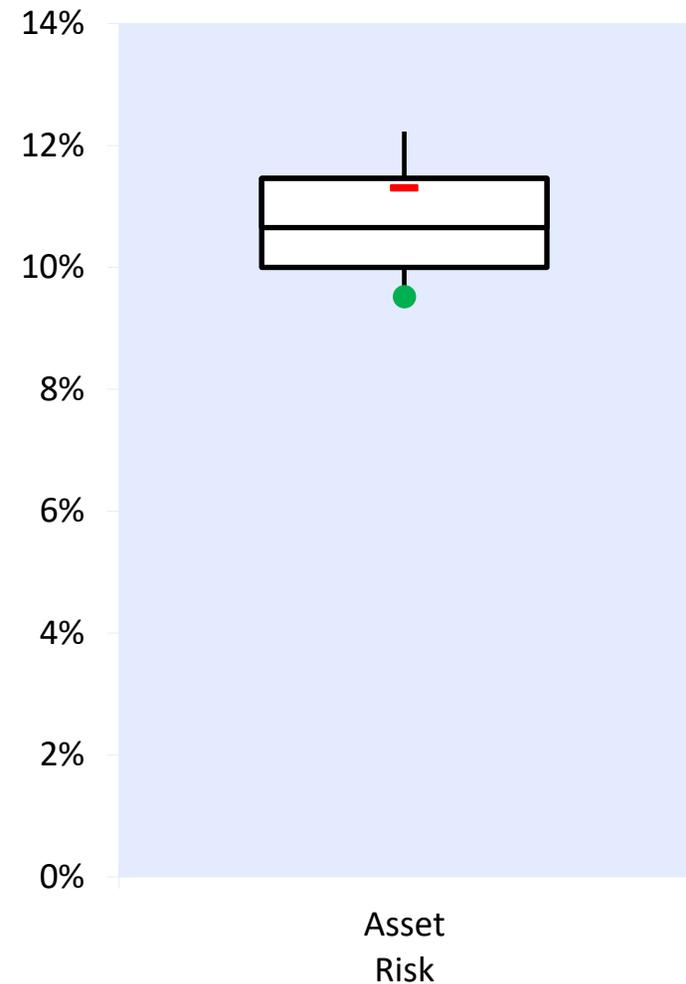


	2019	2018	2017	2016	2015	5-year
Net value added	15.7bp	134.9bp	46.8bp	(71.7) bp	143.5bp	57.3bp
Excess Cost	(8.0) bp	(10.3) bp	(7.0) bp	(10.0) bp	(2.0) bp	(7.5) bp

Comparison of risk levels

Your asset risk of 9.5% was below the U.S. Public median of 10.7%. 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.

U.S. Public risk levels at December 31, 2019



Appendix: Differences in implementation style cost you 3.3 bp relative to your peers.

Calculation of the cost impact of differences in implementation style

Asset class by implementation choice*	Assets by style (\$mils) ¹	Style %			Benchmark cost		More/ (less) ²	Cost/ (savings) in \$000s	bps
		Your fund	Peer average	More/ (less)					
	A			B		C	A X B X C		
	Total assets	Passive % of total assets			Passive	Active			
<u>Passive vs. Active</u>									
Stock - U.S. Broad/All	1,395	0.0%	71.2%	(71.2%)	1.2 bp	30.3 bp	(29.1) bp	2,895	
Stock - U.S. Large Cap	10,878	100.0%	58.0%	42.0%	0.6 bp	7.8 bp	(7.2) bp	(3,273)	
Stock - U.S. Mid Cap	3,936	66.4%	34.2%	32.3%	0.9 bp	28.2 bp	(27.3) bp	(3,475)	
Stock - U.S. Small Cap	1,152	0.0%	12.5%	(12.5%)	1.9 bp	42.1 bp	(40.3) bp	578	
Stock - EAFE	2,982	21.5%	27.3%	(5.7%)	3.3 bp	30.4 bp	(27.1) bp	462	
Stock - Emerging	741	0.0%	17.5%	(17.5%)	4.3 bp	52.5 bp	(48.1) bp	624	
Stock - ACWI x U.S.	14,135	54.6%	27.1%	27.4%	4.0 bp	37.7 bp	(33.7) bp	(13,052)	
Fixed Income - U.S.	26,771	0.0%	15.5%	(15.5%)	1.5 bp	5.1 bp	(3.6) bp	1,479	
Fixed Income - Inflation Indexed	1,251	4.6%	58.9%	(54.3%)	2.0 bp	6.8 bp	(4.8) bp	325	
Commodities	207	0.0%	31.6%	(31.6%)	2.4 bp	36.9 bp	(34.5) bp	225	
REITs	784	51.3%	44.1%	7.2%	2.0 bp	27.9 bp	(25.9) bp	(146)	
More passive								(13,359)	(1.3) bp
		Passive assets	Internal passive % of passive assets		Internal passive	External passive	More/ less		
<u>Internal passive vs. external passive</u>									
Stock - EAFE	642	0.0%	50.2%	(50.2%)	3.8 bp	2.9 bp	0.9 bp	(30)	
Stock - ACWI x U.S.	7,712	0.0%	42.9%	(42.9%)	2.4 bp	5.3 bp	(2.9) bp	960	
Fixed Income - Inflation Indexed	58	0.0%	89.8%	(89.8%)	2.1 bp	1.6 bp	0.4 bp	(2)	
REITs	402	0.0%	87.0%	(87.0%)	1.4 bp	5.6 bp	(4.2) bp	147	
Less int. passive as % of total passive								1,074	0.1 bp

* Implementation styles where you are exactly the same as your peers (i.e. style impact is zero) are not shown.

1. Amount fees are based on¹ is the basis for calculating costs for private assets.

2. The 'style premium' is calculated as the difference between the style-weighted peer-median cost of the two styles being compared.

Appendix: Differences in implementation style and their impact are shown below

Asset class by implementation choice*	Assets by style (\$mils) ¹	Your fund	Style % Peer average	More/ (less)	Benchmark cost		More/ (less) ²	Cost/ (savings) in \$000s	bps
<u>Internal active vs. external active</u>	Active assets	Internal active % of active assets			Internal active	External active			
Stock - U.S. Broad/All	1,395	0.0%	19.4%	(19.4%)	3.1 bp	36.9 bp	(33.8) bp	917	
Stock - U.S. Large Cap	0	100.0%	81.5%	18.5%	4.0 bp	24.6 bp	(20.6) bp	(0)	
Stock - U.S. Mid Cap	1,321	0.0%	57.8%	(57.8%)	14.0 bp	47.7 bp	(33.7) bp	2,577	
Stock - U.S. Small Cap	1,152	0.0%	33.4%	(33.4%)	5.1 bp	60.7 bp	(55.6) bp	2,142	
Stock - EAFE	2,340	0.0%	22.3%	(22.3%)	10.3 bp	36.2 bp	(26.0) bp	1,357	
Stock - Emerging	741	0.0%	18.5%	(18.5%)	14.4 bp	61.1 bp	(46.7) bp	641	
Stock - ACWI x U.S.	6,423	0.0%	10.5%	(10.5%)	10.0 bp	41.0 bp	(31.0) bp	2,079	
Fixed Income - U.S.	26,771	100.0%	81.8%	18.2%	3.2 bp	13.4 bp	(10.1) bp	(4,941)	
Fixed Income - Inflation Indexed	1,193	0.0%	63.1%	(63.1%)	2.5 bp	14.2 bp	(11.7) bp	884	
Commodities	207	0.0%	4.2%	(4.2%)	3.0 bp	38.3 bp	(35.3) bp	31	
REITs	382	0.0%	20.4%	(20.4%)	6.1 bp	33.5 bp	(27.4) bp	214	
Real Estate ex-REITs	7,883	0.0%	9.4%	(9.4%)	27.0 bp	88.4 bp	(61.4) bp	4,571	
Infrastructure	438	0.0%	6.5%	(6.5%)	20.9 bp	120.2 bp	(99.3) bp	281	
Natural Resources	4,887	0.0%	0.7%	(0.7%)	17.4 bp	114.9 bp	(97.6) bp	351	
Global TAA	1,621	0.0%	50.6%	(50.6%)	11.1 bp	60.6 bp	(49.5) bp	4,058	
Diversified Private Equity	705	0.0%	0.7%	(0.7%)	41.8 bp	152.4 bp	(110.6) bp	51	
Venture Capital	1,283	0.0%	0.1%	(0.1%)	30.0 bp	163.2 bp	(133.2) bp	10	
Private Credit	2,664	0.0%	2.4%	(2.4%)	21.8 bp	104.3 bp	(82.5) bp	520	
Less int. active as % of total active								15,743	1.6 bp
<u>Evergreen vs. LP/Co/FoF</u>	External assets	Evergreen fund % of external			Evergreen	LP/Co/FoF			
Real Estate ex-REITs	7,883	46.9%	59.2%	(12.4%)	64.6 bp	123.1 bp	(58.5) bp	5,719	
Infrastructure	438	0.0%	21.9%	(21.9%)	79.2 bp	131.7 bp	(52.5) bp	504	
Natural Resources	4,887	0.0%	11.6%	(11.6%)	82.3 bp	119.2 bp	(36.9) bp	2,087	
Private Credit	2,664	0.0%	38.5%	(38.5%)	57.1 bp	133.8 bp	(76.7) bp	7,864	
Less evergreen % of external								16,173	1.6 bp

* Implementation styles where you are exactly the same as your peers (i.e. style impact is zero) are not shown.

1. Amount fees are based on¹ is the basis for calculating costs for private assets.

2. The 'style premium' is calculated as the difference between the style-weighted peer-median cost of the two styles being compared.

Appendix: Differences in implementation style and their impact are shown below

Asset class by implementation choice*	Assets by style (\$mils) ¹	Style %			Benchmark cost	More/ (less) ²	Cost/ (savings) in \$000s		
		Your fund	Peer average	More/ (less)			bps		
<u>LP/Co vs. Fund of funds</u>		LP and Co % of LP/Co/Fund of funds			LP/Co	FoF			
Real Estate ex-REITs	4,189	97.6%	98.2%	(0.6%)	122.2 bp	174.4 bp	(52.2) bp	141	
Infrastructure	438	100.0%	97.0%	3.0%	131.6 bp	134.8 bp	(3.2) bp	(4)	
Natural Resources	4,887	100.0%	99.9%	0.1%	119.2 bp	112.3 bp	7.0 bp	3	
Hedge Funds	3,672	88.3%	97.7%	(9.4%)	114.8 bp	188.1 bp	(73.3) bp	2,517	
Perf. fees (on NAV)	3,672	88.3%	97.7%	(9.4%)	68.6 bp	103.2 bp	(34.5) bp	1,186	
Diversified Private Equity	705	0.0%	94.1%	(94.1%)	147.5 bp	229.1 bp	(81.6) bp	5,412	
Venture Capital	1,283	100.0%	94.1%	5.9%	162.6 bp	172.7 bp	(10.2) bp	(77)	
LBO	2,159	100.0%	94.1%	5.9%	159.9 bp	171.9 bp	(12.0) bp	(154)	
Less fund of funds % of LP/Co/FoF								9,024	0.9 bp
<u>Co-investment vs. LP</u>		LP/Co assets	Co-investment % of limited partnerships			Co-invest.	Limited Partner.		
Real Estate ex-REITs	4,089		16.3%	17.8%	(1.5%)	72.4 bp	133.0 bp	(60.6) bp	369
Infrastructure	438		0.0%	3.8%	(3.8%)	5.5 bp	136.6 bp	(131.1) bp	217
Natural Resources	4,887		7.1%	14.2%	(7.2%)	3.6 bp	138.4 bp	(134.8) bp	4,721
Venture Capital	1,283		6.5%	5.9%	0.6%	16.0 bp	171.8 bp	(155.8) bp	(121)
LBO	2,159		0.0%	5.9%	(5.9%)	11.3 bp	169.2 bp	(158.0) bp	2,017
Private Credit	2,664		11.7%	4.5%	7.2%	114.5 bp	134.7 bp	(20.2) bp	(388)
Less co-investment % of LP/Co								6,814	0.7 bp
<u>Overlays</u>									
Impact of higher use of portfolio level overlays								(2,353)	(0.2) bp
Total impact of differences in implementation style								33,117	3.3 bp

* Implementation styles where you are exactly the same as your peers (i.e. style impact is zero) are not shown.

1. 'Amount fees are based on' is the basis for calculating costs for private assets.

2. The 'style premium' is calculated as the difference between the style-weighted peer-median cost of the two styles being compared.

Appendix: The net impact of paying more/less for external asset management costs saved 8.5 bps.

	Style	Your avg holdings in \$mils (A)	Cost in bps			Cost/ (savings) \$000s (A X B)
			Your Fund	Peer median	More/ (less) (B)	
External asset management						
Stock - U.S. Broad/All	active	1,395	37.1	36.9	0.3	36
Stock - U.S. Small Cap	active	1,152	48.6	60.7	(12.1)	(1,397)
Stock - EAFE	passive	642	2.9	2.9	0.0	0
Stock - Emerging	active	741	21.2	61.1	(39.9)	(2,957)
Stock - ACWI x U.S.*	passive	7,712	2.7	5.3	(2.6)	(2,015)
Stock - ACWI x U.S.	active	6,423	35.5	41.0	(5.5)	(3,532)
Fixed Income - Inflation Indexed*	passive	58	3.7	1.6	2.1	12
Fixed Income - Inflation Indexed*	active	1,193	36.2	14.2	22.0	2,619
Commodities	active	207	10.8	38.3	(27.6)	(570)
REITs*	passive	402	4.7	5.6	(1.0)	(39)
Real Estate ex-REITs	active	3,694	79.9	64.6	15.3	5,647
Real Estate ex-REITs**	FoF	100	81.5	44.4	37.1	372
Underlying base fees	FoF	100	142.2	130.0	12.2	123
Real Estate ex-REITs	CO	667	49.8	72.4	(22.7)	(1,511)
Real Estate ex-REITs	LP	3,422	105.5	133.0	(27.5)	(9,414)
Infrastructure	LP	438	136.4	136.6	(0.2)	(8)
Natural Resources	CO	346	25.2	3.6	21.6	746
Natural Resources	LP	4,541	77.9	138.4	(60.5)	(27,483)
Hedge Funds	active	3,243	110.8	114.8	(4.0)	(1,297)
Performance fees (on NAV)	active	3,243	32.3	68.6	(36.3)	(11,783)
Hedge Funds*	FoF	429	88.6	68.1	20.5	879
Top layer perf. fees (on NAV)*	FoF	429	0.0	14.4	(14.4)	(619)
Underlying base fees	FoF	429	47.6	120.0	(72.4)	(3,110)
Global TAA	active	1,621	13.8 ¹	60.6	(46.8)	(7,578)
Diversified Private Equity	FoF	705	67.7	72.1	(4.4)	(314)
Underlying base fees	FoF	705	89.2	157.0	(67.8)	(4,779)
Venture Capital	CO	84	1.3	16.0	(14.7)	(123)
Venture Capital	LP	1,200	135.5	171.8	(36.3)	(4,355)
LBO	LP	2,159	117.0	169.2	(52.2)	(11,281)
Private Credit	CO	311	56.9	114.5	(57.6)	(1,794)
Total impact of paying more/less for external management						(85,522)
Total in bps						(8.5) bp

Footnotes:

- You paid performance fees in this asset class.
'Excluded' indicates that the asset class was excluded from this analysis due to comparability concerns with peers.
*Universe median used as peer data was insufficient.
**Database median used as peer and universe data was insufficient.
- 'Amount fees are based on' is the basis for calculating costs for private assets.

Appendix: The net impact of paying more/less for internal asset management costs saved 0.7 bps.

Cost impact of paying more/(less) for internal asset management

	Style	Your avg holdings in \$mils	Cost in bps			Cost/ (savings) \$000s
			Your Fund	Peer median	More/ (less)	
<i>Internal asset management</i>		(A)			(B)	(A X B)
Stock - U.S. Large Cap	passive	10,878	0.1	0.6	(0.5)	(546)
Stock - U.S. Mid Cap	passive	2,615	0.1	0.9	(0.7)	(187)
Fixed Income - U.S.	active	26,771	0.8	3.2	(2.5)	(6,653)
Cash	active	10,008	0.8 Excluded		--	--
Total for internal management						(7,386)
Total in bps						(0.7) bp

'Excluded' indicates that the asset class was excluded from this analysis due to comparability concerns with peers.

Appendix: The net impact of differences in oversight, custodial & other costs saved 0.7 bps.

Cost impact of differences in oversight, custodial & other costs

	Your avg holdings in \$mils (A)	Cost in bps			Cost/ (savings) \$000s (A X B)
		Your Fund	Peer median	More/ (less) (B)	
Oversight	100,908	0.2	0.6	(0.4)	
Consulting	100,908	0.0	0.0	0.0	
Custodial	100,908	0.2	0.3	(0.1)	
Audit	100,908	0.0	0.0	(0.0)	
Other	100,908	0.0	0.1	(0.1)	
Total for oversight, custodial, other¹		0.4	1.0	(0.7)	-6,849
Total in bps					(0.7) bp

1. Comparisons on this page are to the Dutch universe, to reflect the unique governance structure in the Netherlands.
 1. Oversight, custodial, and other costs are benchmarked using the peer median cost for the total of the pieces. the individual line items are shown for comparison but not used in the benchmark.