

**Investment**  
**Cost Effectiveness Analysis**  
(for the 5-year period ending December 31, 2019)

**New Zealand Superannuation Fund**



# Key takeaways

## Returns

- Your 5-year net total return was 11.3%. This was above the Global median of 7.4% and above the peer median of 7.7%.
- Your 5-year policy return was 9.3%. This was above the Global median of 7.1% and above the peer median of 7.0%.
- Differences in total returns reflect in large part home-market biases and the relative performance of currencies. So they are not the primary focus of this report.

## Value added

- Your 5-year net value added was 2.0%. This was above the Global median of 0.2% and above the peer median of 0.3%.

## \$ Contribution versus median performance

Your fund is approximately \$4.0 billion better off because you earned more than the Global median net value added of 0.2% over 5-years.

## Cost

- Your investment cost of 32.3 bps was below your benchmark cost of 40.7 bps. This suggests that your fund was low cost compared to your peers.
- Your fund was low cost because you had a lower cost implementation style.
- Your costs decreased by 11.7 bps, from 44.0 bps in 2015 to 32.3 bps in 2019, primarily due to lower hedge fund base and performance fees.

## Risk

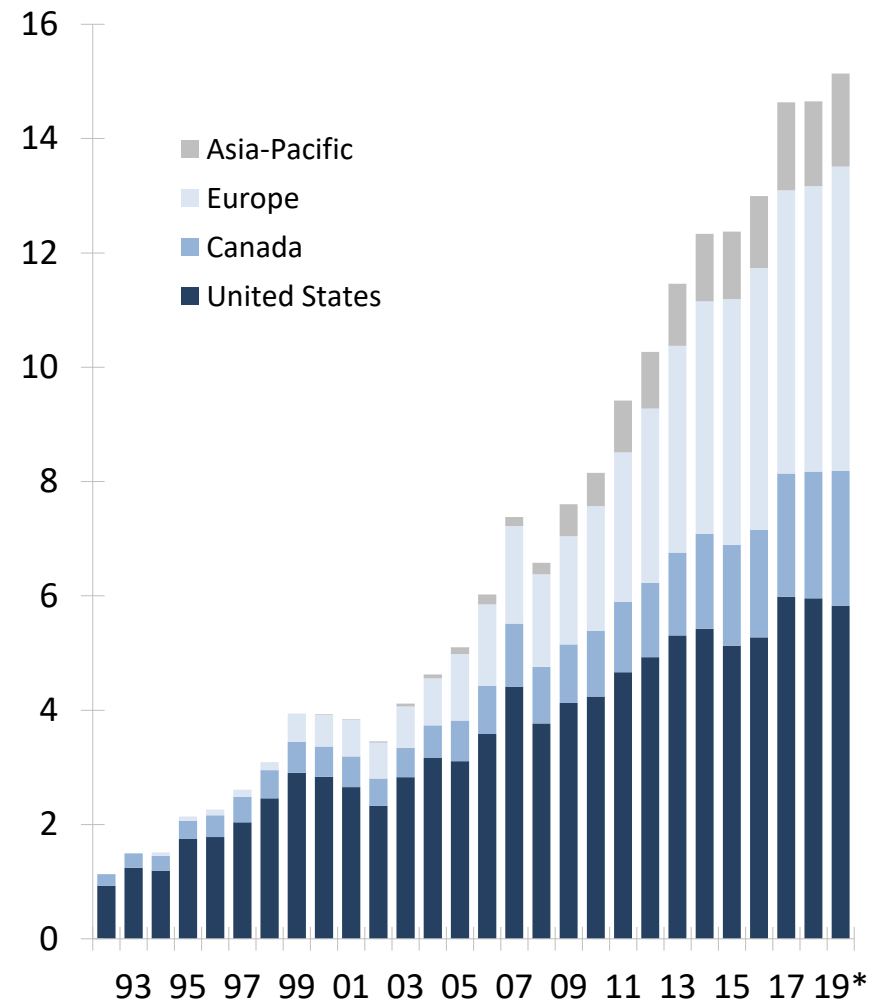
- Your asset risk of 13.3% was above the Global median of 9.1%.

## This benchmarking report compares your cost and return performance to the 296 funds in CEM's extensive pension database.

- 152 U.S. pension funds participate. The median U.S. fund had assets of \$16.8 billion and the average U.S. fund had assets of \$38.3 billion. Total participating U.S. assets were \$5.8 trillion.
- 67 Canadian funds participate with assets totaling \$2.4 trillion.
- 67 European funds participate with aggregate assets of \$5.3 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 \$1.6 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 Global universe.

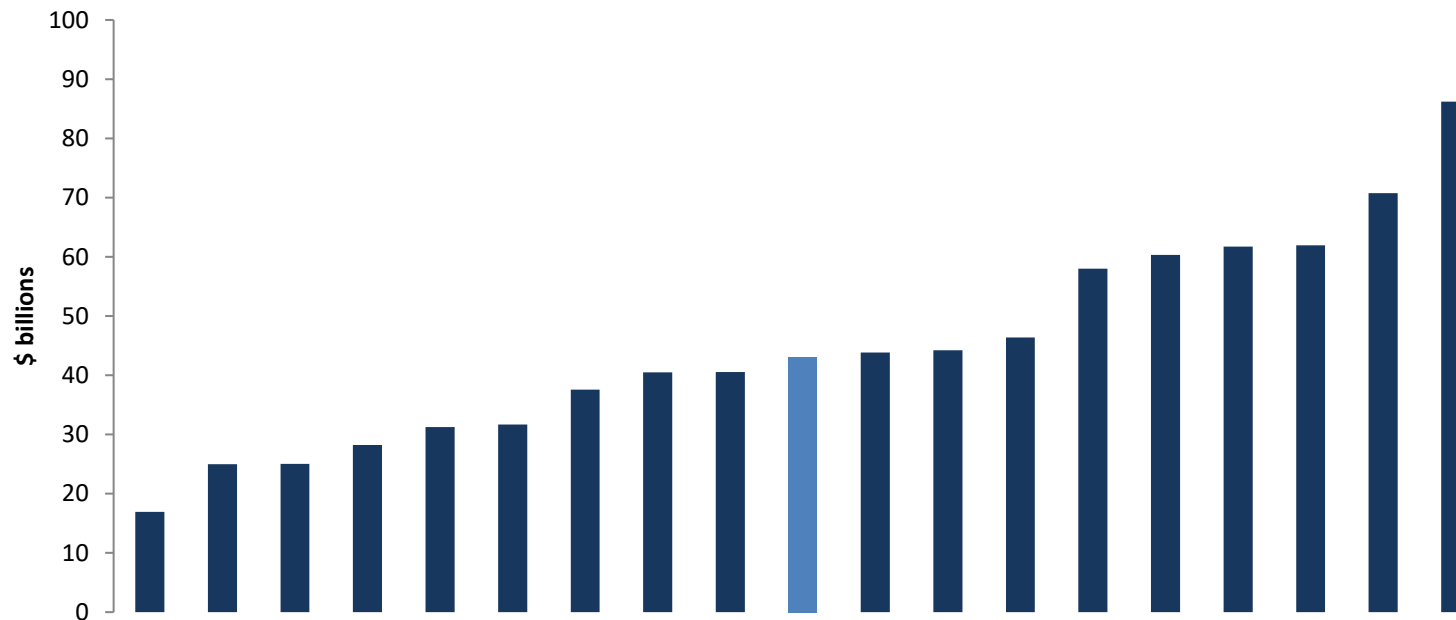
Participating assets (\$ trillions)



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

## Peer group for New Zealand Superannuation Fund

- 19 Global sponsors from \$16.9 billion to \$86.2 billion
- Median size of \$43.1 billion versus your \$43.1 billion



## Your 5-year net total return of 11.3% was the highest in the Global universe.

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.

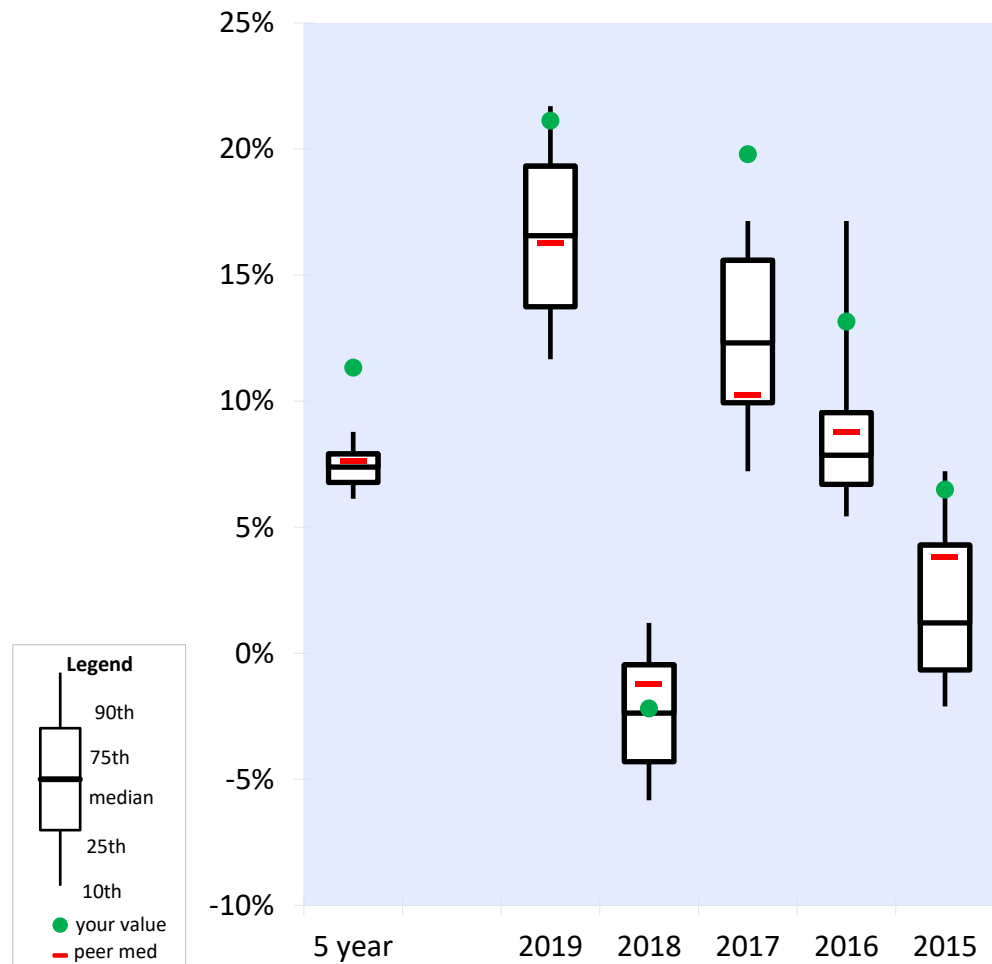
	Your 5-year
Net total fund return	11.3%
- Policy return	9.3%
= Net value added	2.0%

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 5-year global median was 7.4% and the 5-year peer median was 7.7%.

*Returns are reported in local currency.*

Global net total returns - quartile rankings



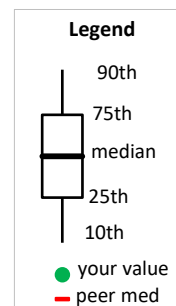
## Your 5-year policy return of 9.3% was above both the Global median of 7.1% and the peer median of 7.0%.

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

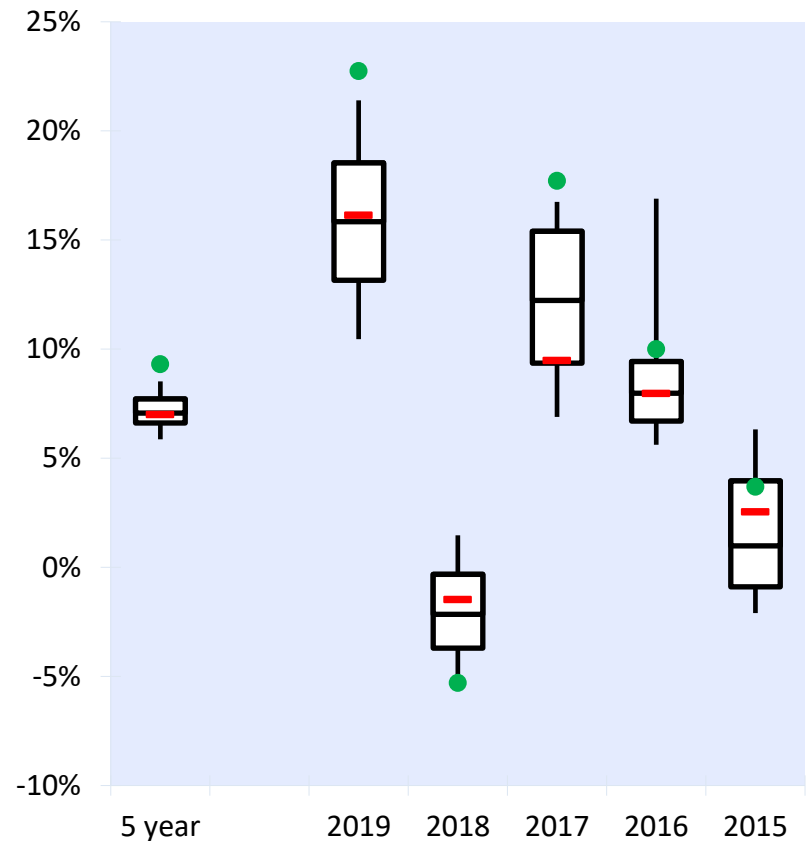
Having a higher or lower relative policy return is not necessarily good or bad. Your policy return reflects your investment policy, which should reflect your:

- 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.



Global policy returns - quartile rankings



To enable fairer comparisons, the policy returns of all participants with policy weight in private equity were adjusted to reflect private equity benchmarks based on lagged, investable, public-market indices.

## Differences in policy return are caused by differences in policy mix and benchmarks. At the end of 2019 your policy mix compared to your peers and the Global universe as follows:

### 2019 Policy asset mix

- Your fund had substantially more stock than the peer and Global averages (your 80% versus a Global average of 41% and peer average of 40%).

Asset class	Your fund	Peer avg.	Global avg.
Stock - Europe & Far East	5%	2%	3%
Stock - U.S.	0%	5%	10%
Stock - Emerging	10%	4%	3%
Stock - Global	65%	19%	15%
Other Stock <sup>1</sup>	0%	11%	10%
<b>Total Stock</b>	<b>80%</b>	<b>41%</b>	<b>41%</b>
Fixed Income - Long Bonds	0%	12%	13%
Fixed Income - Global	20%	8%	3%
Cash	0%	2%	0%
Other Fixed Income <sup>1</sup>	0%	17%	23%
<b>Total Fixed Income</b>	<b>20%</b>	<b>38%</b>	<b>39%</b>
Hedge Funds	0%	5%	3%
Real Estate incl. REITs	0%	7%	7%
Other Real Assets <sup>1</sup>	0%	3%	3%
Private Equity	0%	5%	5%
Private Debt	0%	2%	2%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

1. Other stock includes Canadian and ACWIxUS stock. Other fixed income includes Canada, U.S., Capital Indexed and EAFE bonds. Real assets includes commodities, natural resources and infrastructure.

## Your fund uses derivatives to adjust exposure to several asset classes.

For the purposes of comparing your costs and value added to other participants, CEM looks at investments before the impact of derivatives. This allows us to compare, for example, the cost of the global stock assets in your plan to similar assets in your peers' plans. Our report will reflect your assets as they appear in the middle column - before derivatives.

Asset class	Policy mix	Actual asset mix	
		excluding derivatives	including derivatives
Europe & Far East Stock	5%	4%	4%
Emerging Market Stock	10%	6%	11%
Global Stock	65%	46%	55%
<b>Total Stock</b>	<b>80%</b>	<b>56%</b>	<b>70%</b>
U.S. Bonds	0%	0%	0%
Global Bonds	20%	9%	9%
Cash	0%	12%	-1%
<b>Total Fixed Income</b>	<b>20%</b>	<b>21%</b>	<b>8%</b>
Hedge Funds	0%	6%	6%
Natural Resources	0%	6%	7%
Infrastructure	0%	2%	2%
Real Estate ex-REITs	0%	0%	0%
Diversified Private Equity	0%	1%	1%
Other Private Equity	0%	7%	7%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>



**Net value added is the component of total return from active management.  
Your 5-year net value added was 2.0%.**

Net value added equals total net return minus policy return.

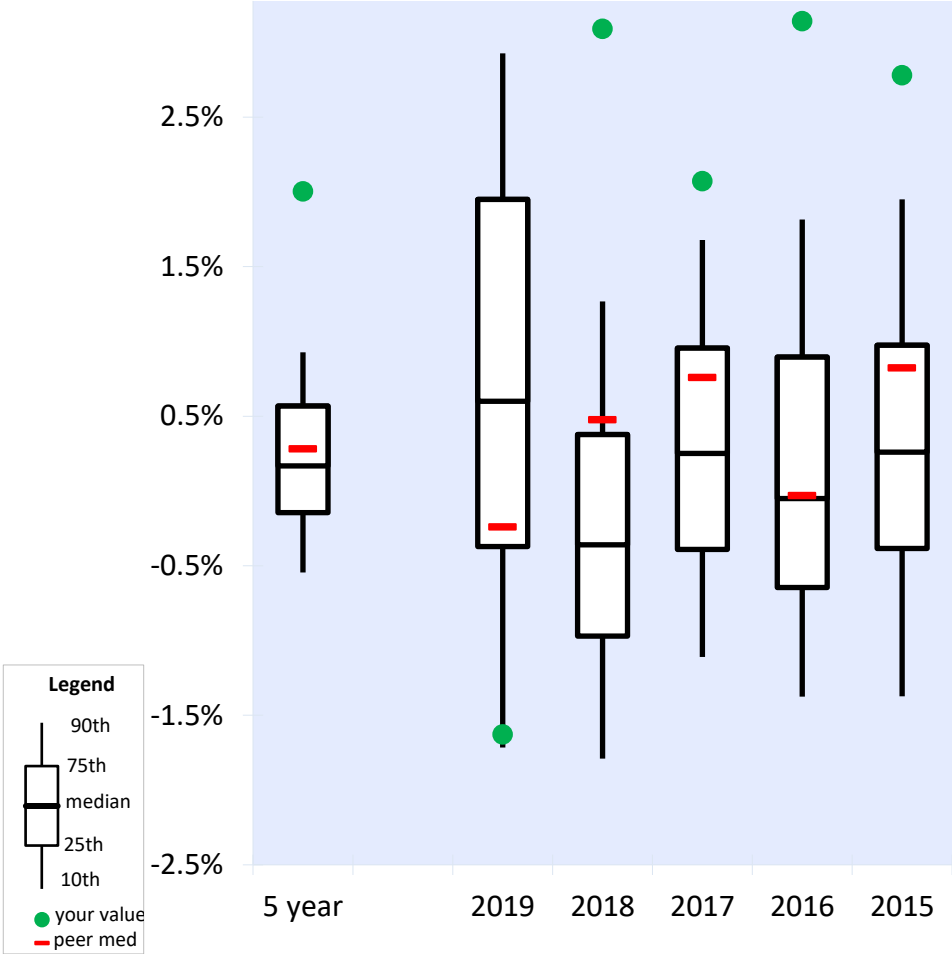
**Value added for New Zealand Superannuation Fund**

Year	Net Return	Policy Return	Net Value Added
2019	21.1%	22.7%	-1.6%
2018	-2.2%	-5.3%	3.1%
2017	19.8%	17.7%	2.1%
2016	13.2%	10.0%	3.2%
2015	6.5%	3.7%	2.8%
5-Year	11.3%	9.3%	2.0%

Your 5-year net value added of 2.0% compares to a median of 0.3% for your peers and 0.2% for the Global universe.

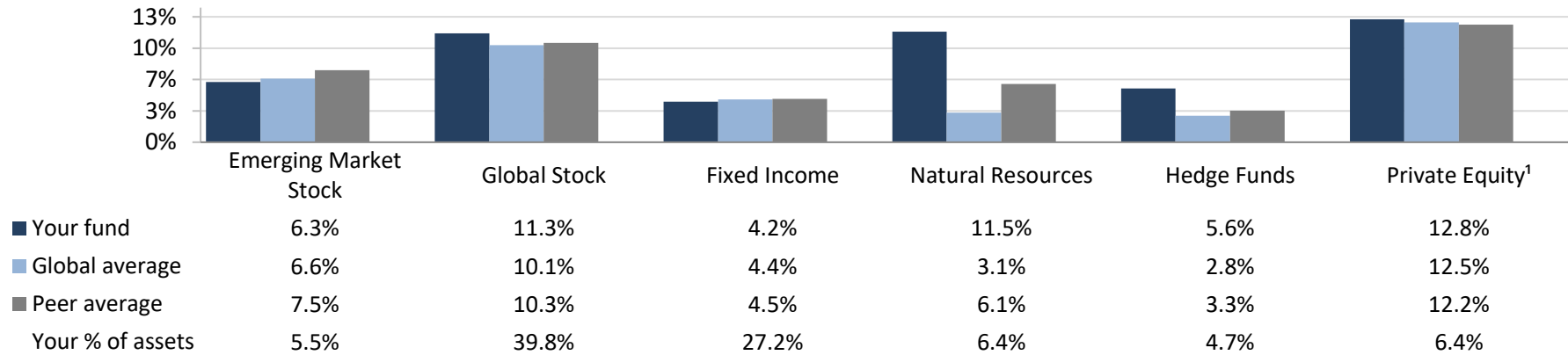
Your 2.0% 5-year value added translates into approximately \$4.4 billion of cumulative value added over 5 years, or \$4.0 billion more than if you had earned the Global median of 0.2%.

**Global net value added - quartile rankings**

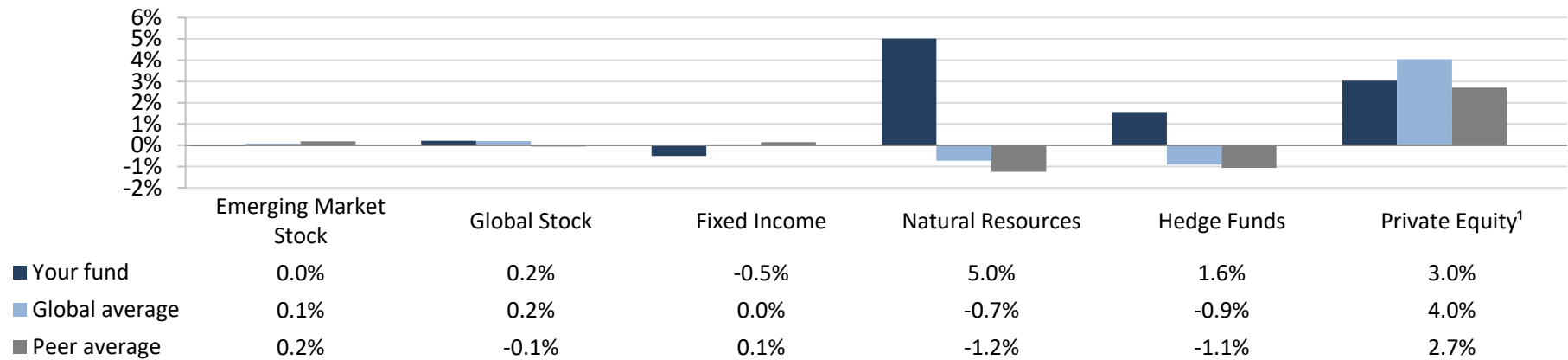


# Comparisons of your 5-year net return and net value added by major asset class:

## 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.

## Your investment costs, excluding private asset performance fees, were \$139.1 million or 32.3 basis points in 2019.

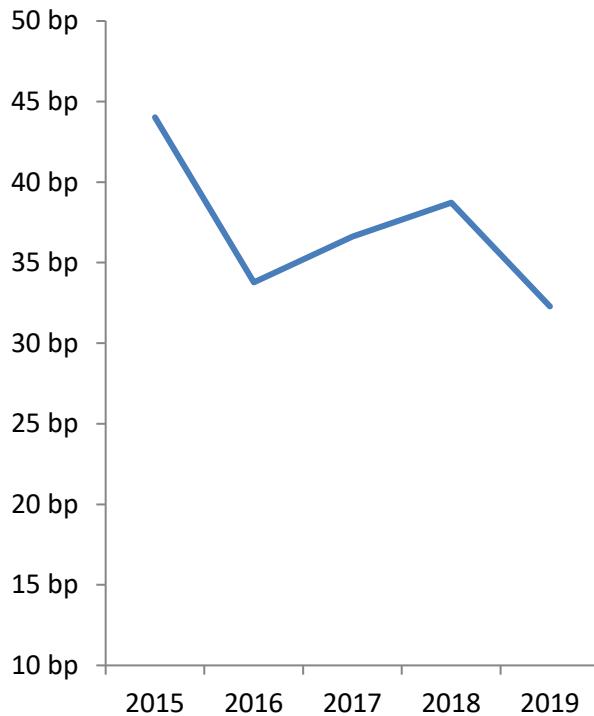
Asset management costs by asset class and style (\$000s)	Internal Management			External Management			Total
	Passive	Active	Overseeing of external	Passive fees	Active base fees	Perform. fees <sup>2</sup>	
Stock - EAFE		3,645	605		3,451		7,701
Stock - Emerging			1,068	1,203	4,318		6,589
Stock - Global			5,036	8,385			13,421
Fixed Income - U.S.	91						91
Fixed Income - Global	142		688	1,702			2,532
Cash		3,009					3,009
Hedge Funds - External Active			2,136		18,517	7,468	28,121
Real Estate ex-REITs <sup>2</sup>		783					783
Real Estate ex-REITs - LP <sup>2</sup>			95		7	15	102
Infrastructure <sup>2</sup>		549	462		1,003	1,896	2,014
Infrastructure - LP <sup>2</sup>			691		2,354	1,608	3,045
Natural Resources <sup>2</sup>		2,667					2,667
Natural Resources - LP <sup>2</sup>			1,312		2,565	1,470	3,877
Diversified Private Equity - LP <sup>2</sup>			2,038		5,889	729	7,927
Diversified Private Equity - FoFs <sup>1 2</sup>			300		659		959
Other Private Equity - LP <sup>2</sup>		4,422					4,422
Other Private Equity - Co-Invest. <sup>2</sup>			2,002		14,044		16,046
Derivatives/Overlays	2,318	8,266					10,584
<b>Total excluding private asset performance fees</b>							<b>113,890</b>
							<b>26.4bp</b>
<b>Oversight, custodial and other costs</b>							
Oversight of the fund							18,511
Trustee & custodial							6,234
Consulting and performance measurement							0
Audit							487
Other							0
<b>Total oversight, custodial &amp; other costs</b>							<b>25,232</b>
							<b>5.9bp</b>
<b>Total investment costs (excl. transaction costs &amp; private asset performance fees)</b>							<b>139,122</b>
							<b>32.3bp</b>

### Footnotes

1. Default underlying costs were added: Diversified Private Equity - FoFs 157 bp. Refer to Appendix A for full details regarding defaults.
2. 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.

# Your costs decreased by 11.7 bps, from 44.0 bps in 2015 to 32.3 bps in 2019, primarily due to lower hedge fund base and performance fees.

Trend in cost



Reasons why you costs decreased by 11.7 bps

			Impact in bps
<b>1. Higher cost asset mix</b>			
• Less Infrastructure & Natural Resources: 9% vs 11%			(2.4)
• More Hedge Funds & Multi-Asset: 6% vs 4%			6.1
• All other mix changes			(1.3)
			<hr/> 2.5
<b>2. Lower cost implementation style</b>			
			(0.6)
<b>3. Paying less, net, for similar investment styles</b>			
	<u>2015 cost</u>	<u>2019 cost</u>	
• Lower Hedge Funds base fees	151.6 bp	86.7 bp	(3.6)
• Higher external Global - External Passive Passive costs	3.7 bp	6.8 bp	1.4
• Lower Infrastructure LP base fees	173.5 bp	119.8 bp	(0.3)
• Higher Private Equity LP base fees	178.2 bp	214.2 bp	0.3
• Lower Hedge Funds performance fees	222.8 bp	31.3 bp	(10.6)
• Higher internal investment management costs			0.1
• Lower oversight, custodial & other costs	7.0 bp	5.9 bp	(1.2)
• All other differences			0.3
			<hr/> (13.6)
<b>Total decrease</b>			<hr/> <b>(11.7)</b>

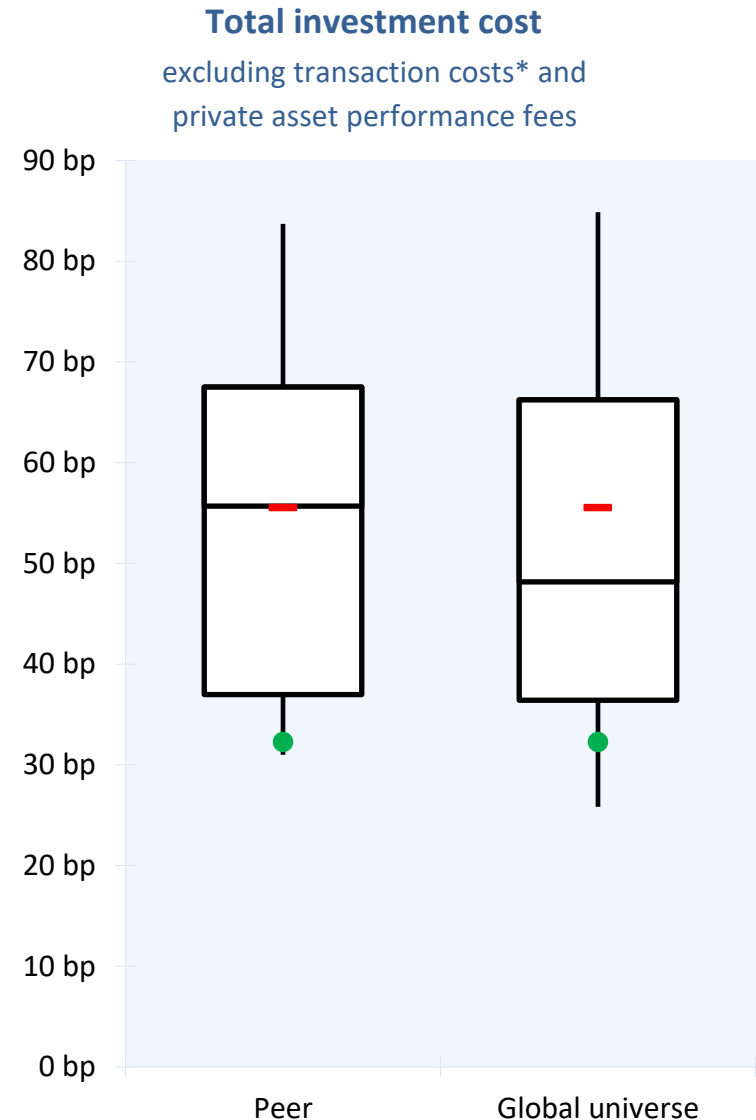
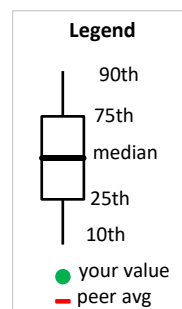
# Your total investment cost of 32.3 bps was below the peer median of 55.7 bps.

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 22% of your funds assets at the end of 2019 versus a peer average of 25%.
- 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.

\* Initial insights into transaction costs are discussed at the end of section 5.



## Benchmark cost analysis suggests that, after adjusting for fund size and asset mix, your fund was low cost by 8.4 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 32.3 bp was below your benchmark cost of 40.7 bp. Thus, your cost savings were 8.4 bp.

### Your cost versus benchmark

	\$000s	basis points
Your total investment cost	139,122	32.3 bp
Your benchmark cost	175,215	40.7 bp
Your excess cost	(36,093)	(8.4) bp

# Your fund was low cost because you had a lower cost implementation style.

## Reasons for your low cost status

	Excess Cost/ (Savings)	
	\$000s	bps
1. Lower cost implementation style		
• Less active management, more lower cost passive	(38,853)	(9.0)
• Less external management, more lower cost internal	(15,025)	(3.5)
• Less LPs as a percentage of external	(611)	(0.1)
• Less fund of funds	(5,270)	(1.2)
• Less co-investment as a percentage of LP/Co	1,041	0.2
• More overlays	7,635	1.8
	<u>(51,084)</u>	<u>(11.9)</u>
2. Paying more than peers for some services		
• External investment management costs	(4,538)	(1.1)
• Internal investment management costs	3,805	0.9
• Oversight, custodial & other costs	15,724	3.6
	<u>14,991</u>	<u>3.5</u>
<b>Total savings</b>	<b>(36,093)</b>	<b>(8.4)</b>

## 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?

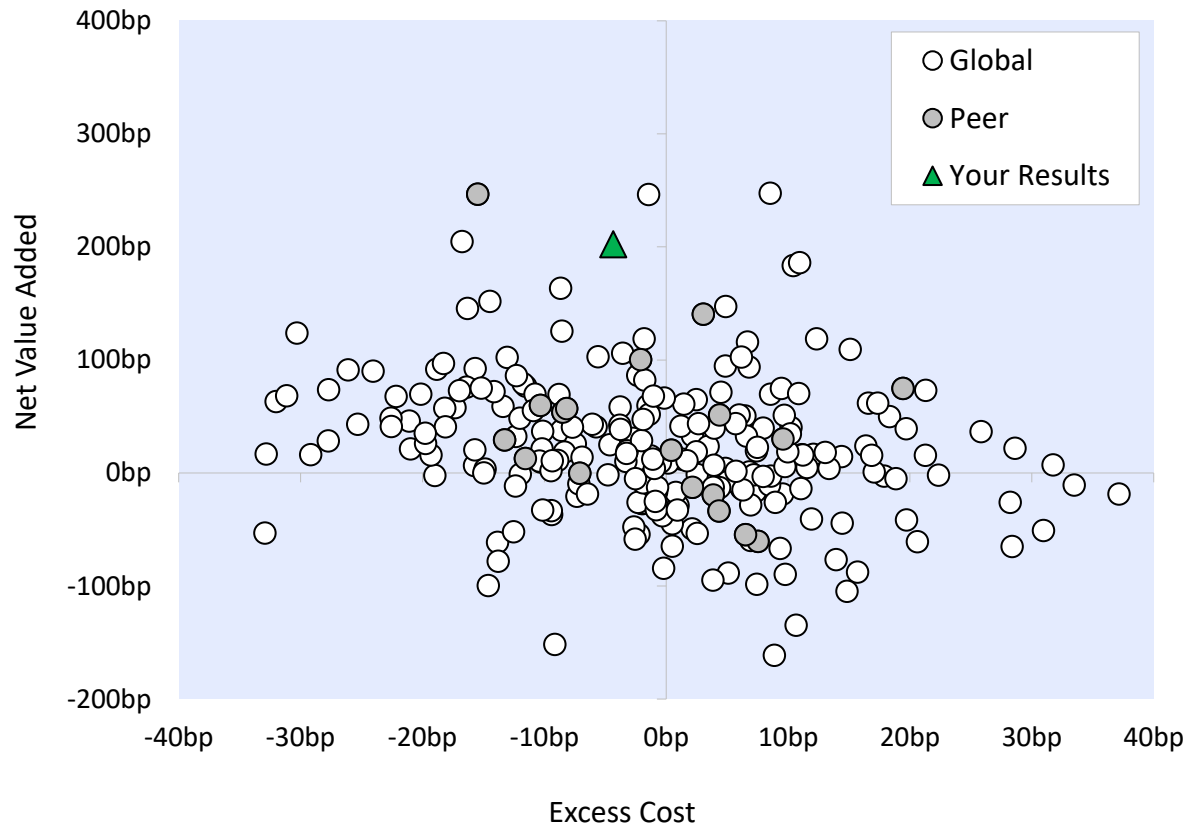
Asset class/category	Your cost	Benchmark = peer weighted median cost <sup>1</sup>	More/(less)	Your average assets (or fee basis) <sup>2</sup>	Due to impl. style	Due to paying more/(less)	Total more/(less)
	(A)	(B)	(C = A - B)	(D)	(C X D)		
<b>Asset management costs</b>							
Stock - EAFE	43.1 bp	22.2 bp	20.9 bp	1,789	549	3,188	3,737
Stock - Emerging	27.8 bp	54.7 bp	(26.9) bp	2,372	-8,056	1,666	-6,390
Stock - Global	6.8 bp	18.4 bp	(11.7) bp	19,843	-28,232	5,064	-23,168
Fixed Income - U.S.	33.7 bp	10.8 bp	22.9 bp	27	-22	84	62
Fixed Income - Global	6.4 bp	11.5 bp	(5.1) bp	3,932	-3,144	1,144	-2,000
Cash	5.8 bp	5.8 bp	0.0 bp	5,147	0	0	0
Real Estate ex-REITs	58.8 bp	73.6 bp	(14.9) bp	151	-784	449	-335
Infrastructure	56.7 bp	79.5 bp	(22.8) bp	892	-2,693	-184	-2,876
Natural Resources	23.5 bp	64.8 bp	(41.3) bp	2,786	-11,636	138	-11,498
Hedge Funds	86.7 bp	107.8 bp	(21.1) bp	2,383	-4,497	-14,800	-19,298
Diversified Private Equity	221.1 bp	134.6 bp	86.6 bp	389	-204	2,517	2,314
Other Private Equity	67.3 bp	67.3 bp	0.0 bp	3,042	0	0	0
Derivatives and overlays	2.5 bp	0.7 bp	1.8 bp	43,095	7,635	0	7,635
<b>Total asset management</b>	<b>26.4 bp</b>	<b>38.5 bp</b>	<b>(12.0) bp</b>	<b>43,095</b>	<b>-51,084</b>	<b>-733</b>	<b>-51,817</b>
Oversight, custody & other	5.9 bp	2.2 bp	3.6 bp	43,095	n/a	15,724	15,724
<b>Total</b>	<b>32.3 bp</b>	<b>40.7 bp</b>	<b>(8.4) bp</b>	<b>43,095</b>	<b>-51,084</b>	<b>14,991</b>	<b>-36,093</b>

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 202 bps, cost savings 4 bps <sup>1</sup>)



1. Your 5-year cost savings of 4 basis points is the average of your cost savings for the past 5 years.

	2019	2018	2017	2016	2015	5-year
Net value added	(161.0) bp	311.0bp	209.0bp	316.0bp	280.0bp	202.3bp
Excess Cost	(8.4) bp	(2.0) bp	(1.4) bp	(3.8) bp	(6.2) bp	(4.4) bp

## Comparison of risk levels

Your asset risk of 13.3% was above the Global median of 9.1%. 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.

Global risk levels at December 31, 2019

