

**Investment  
Benchmarking Analysis**  
(for the 5-year period ending December 31, 2024)

**UNJSPF**



# Key Takeaways

## Returns

- Your 5-year net total return was 6.0%. This was above both the Global median of 3.9% and the peer median of 4.6%.
- Your 5-year policy return was 5.9%. This was above both the Global median of 3.9% and the peer median of 4.4%.

## Value added

- Your 5-year net value added was 0.0%. This was below both the Global median of 0.4% and the peer median of 0.7%.

## Long-term performance

- Your 15-year net return of 6.7% was above both the Global median of 6.4% and the peer median of 6.3%.

## Cost

- Your investment cost of 39.1 bps was slightly above your benchmark cost of 38.5 bps.
- Your fund was slightly above benchmark cost because it had a higher cost implementation style. This added cost was mostly offset by paying less than peers for similar services.
- Your costs increased by 5.1 bps, from 33.9 bps in 2020 to 39.1 bps in 2024, primarily because you had a higher cost asset mix. This was partly offset by paying less in total for similar investment styles.

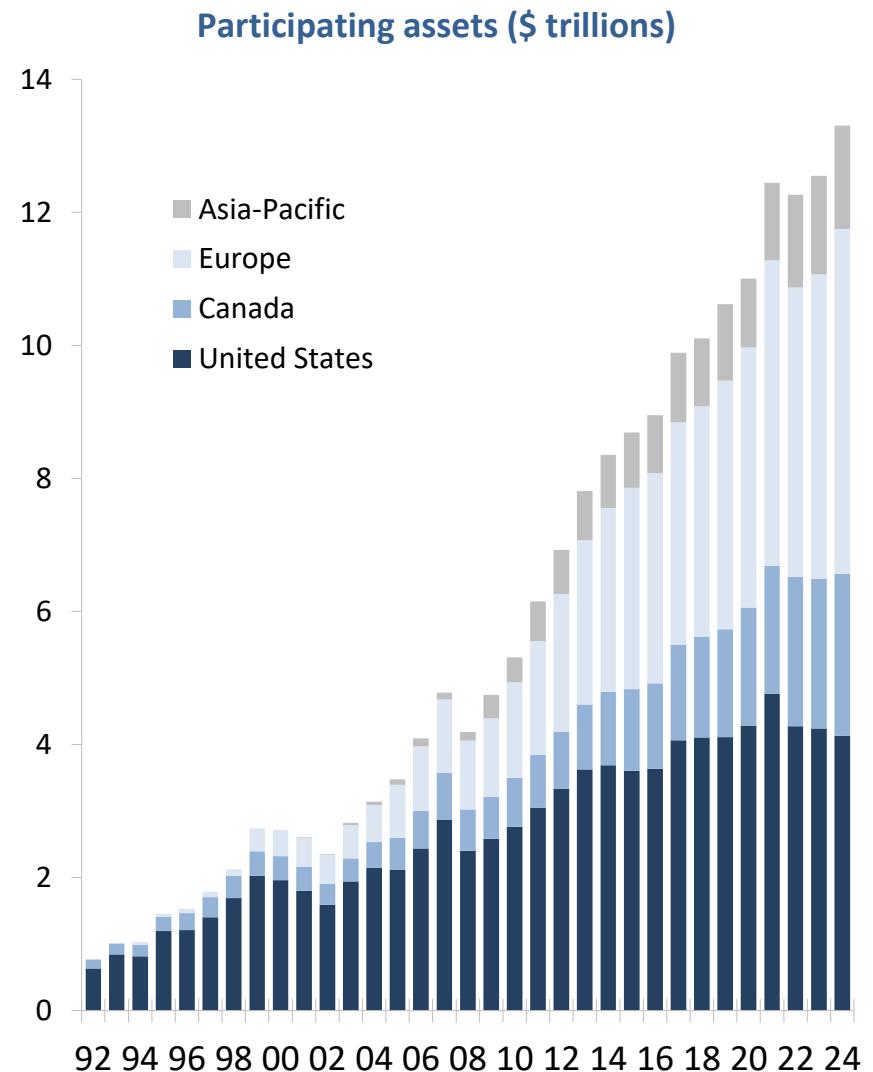
## Risk

- Your asset risk of 9.7% was above the Global median of 9.5%. Your asset-liability risk of 10.9% was above the Global median of 9.4%.
- Your 15-year realized Sharpe ratio of 0.6 was below the Global median of 0.8.
- Your 15-year realized information ratio of 0.0 was below the Global median of 0.2.

## This benchmarking report compares your cost and performance to the 269 funds in CEM's extensive pension database.

- 136 U.S. pension funds participate. The median U.S. fund had assets of \$8.3 billion and the average U.S. fund had assets of \$30.4 billion. Total participating U.S. assets were \$4.1 trillion.
- 61 Canadian funds participate with assets totaling \$2.4 trillion.
- 61 European funds participate with aggregate assets of \$5.2 trillion. Included are funds from the Netherlands, Norway, Sweden, Finland, Ireland, Denmark and the UK.
- 8 Asia-Pacific funds participate with aggregate assets of \$1.6 trillion. Included are funds from New Zealand, South Korea, and Australia.
- 3 funds from other regions participate.

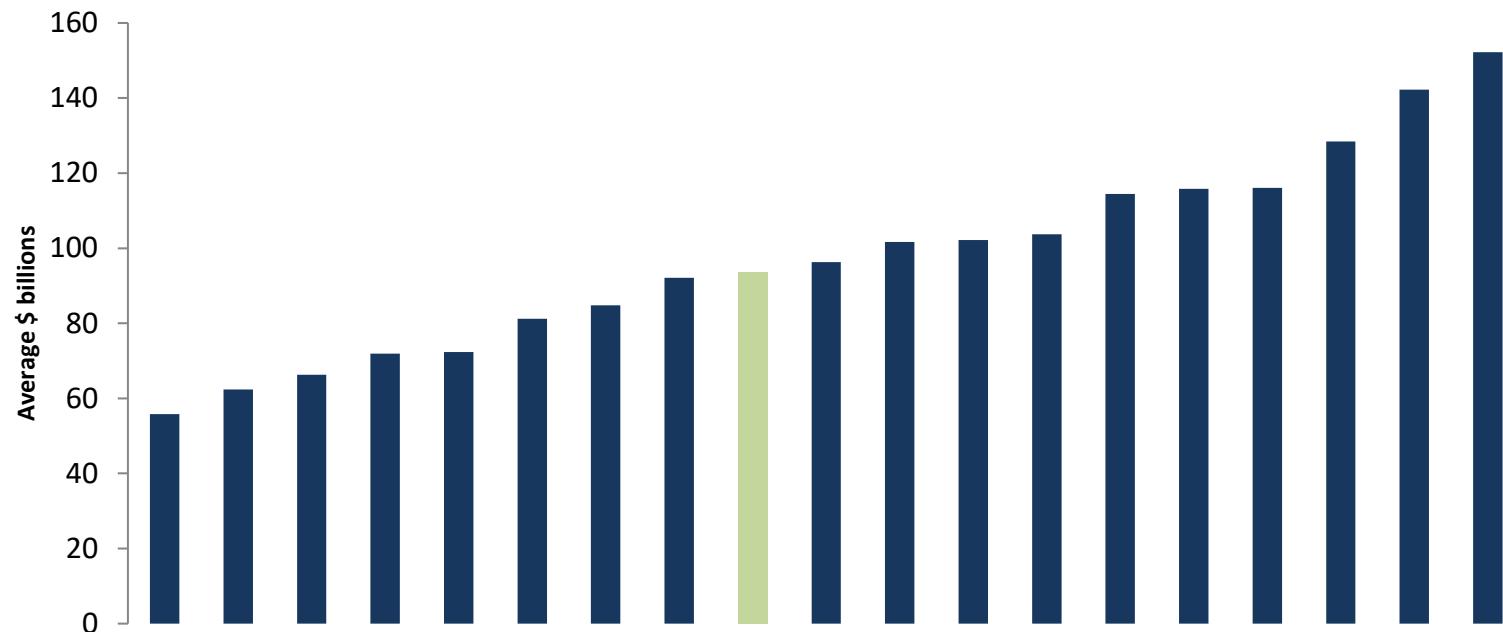
The most meaningful comparisons for your returns and value added are to the Global universe, which consists of 269 funds. The Global universe assets totaled \$13.5 trillion and the median fund had assets of \$9.6 billion.



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

### Peer group for UNJSPF

- 19 Global sponsors from \$55.8 billion to \$152.2 billion
- Median size of \$96.3 billion versus your \$93.6 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.

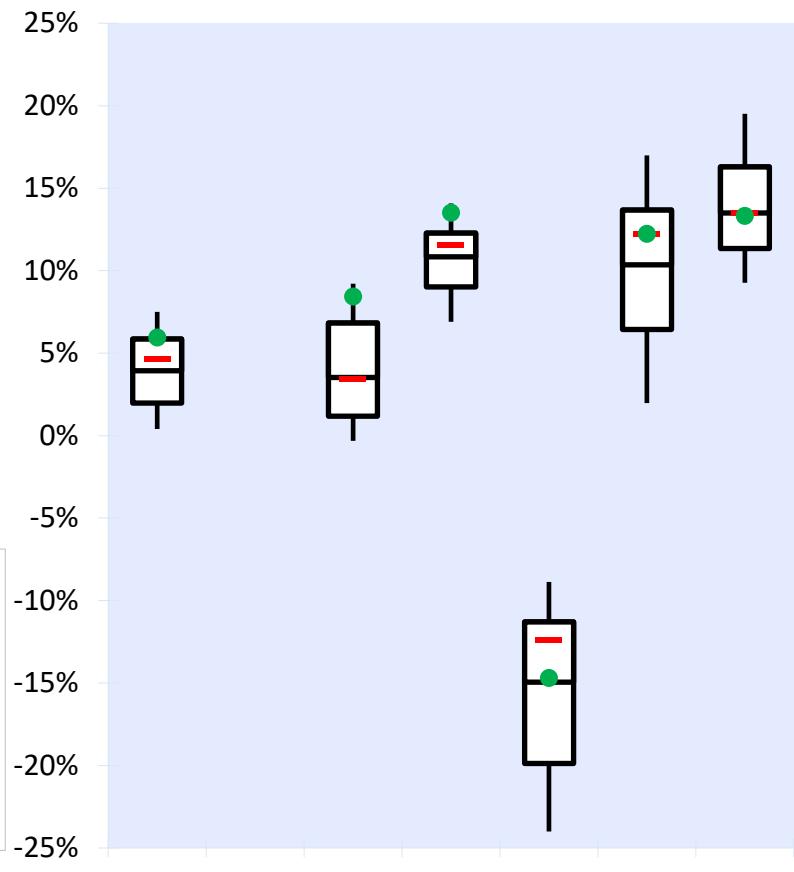
## Your 5-year net total return of 6.0% was above both the Global median of 3.9% and the peer median of 4.6%.

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	6.0%
- Policy return	5.9%
= Net value added	0.0%

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).

Global net total returns - quartile rankings



Actual and policy returns have been converted to your currency using unhedged currency returns. A currency conversion table is provided in Appendix-B of the report.

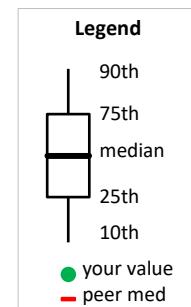
# Your 5-year policy return of 5.9% was above both the Global median of 3.9% and the peer median of 4.4%.

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:

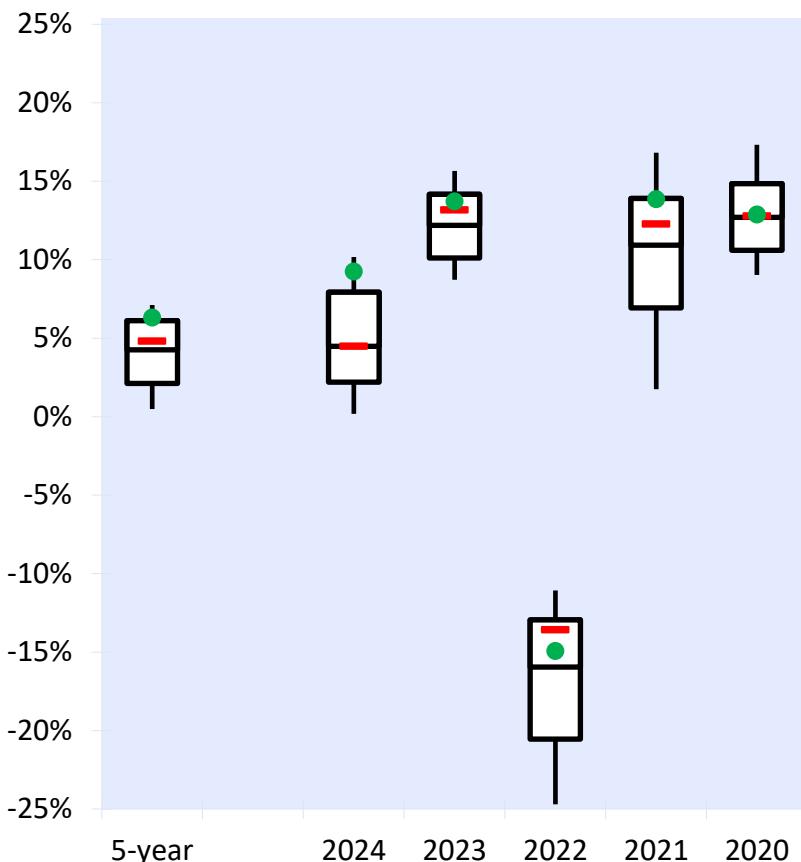
- Long term capital market expectations
- Liabilities
- Appetite for risk

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



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 6.1%, 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.

## Global policy returns - quartile rankings



	5-year	2024	2023	2022	2021	2020
You	5.9%	8.9%	13.3%	-15.3%	13.5%	12.5%
Peer median	4.4%	4.1%	12.8%	-14.0%	11.9%	12.4%
Global median	3.9%	4.1%	11.8%	-16.4%	10.5%	12.3%

## Differences in policy return are caused by differences in policy mix and benchmarks.

Policy asset mix

Asset class	Your fund					Peer avg.	Global avg.
	2020	2021	2022	2023	2024	2024	2024
Stock - Europe	9%	8%	9%	8%	5%	2%	1%
Stock - Asia-Pacific	5%	4%	5%	5%	3%	1%	0%
Stock - U.S.	30%	31%	32%	34%	27%	14%	8%
Stock - Emerging	12%	11%	6%	6%	8%	3%	2%
Stock - Global	0%	0%	0%	0%	0%	10%	16%
Other Stock <sup>1</sup>	2%	1%	0%	0%	0%	7%	8%
Total Stock	57%	56%	51%	52%	43%	38%	34%
Fixed income - U.S.	10%	10%	19%	20%	25%	8%	7%
Fixed income - Emerging	4%	4%	1%	1%	2%	1%	1%
Fixed income - Public mortgages	15%	15%	9%	8%	10%	1%	0%
Cash	1%	1%	2%	2%	1%	-1%	0%
Other Fixed Income <sup>1</sup>	0%	0%	0%	0%	2%	19%	31%
Total Fixed Income	30%	30%	31%	31%	40%	28%	39%
Hedge funds	0%	0%	0%	0%	0%	2%	2%
Real estate incl. REITs	7%	7%	9%	8%	9%	11%	8%
Other Real Assets <sup>1</sup>	0%	0%	0%	0%	2%	5%	5%
Private equity - Aggregate	6%	7%	8%	9%	7%	11%	7%
Private debt - Aggregate	0%	0%	0%	0%	0%	5%	4%
Total	100%	100%	100%	100%	100%	100%	100%

1. Other stock includes: Stock - EAFE. Other fixed income includes: Fixed income - Canada, Fixed income - Europe gov't, Fixed income - U.S. gov't, Fixed income - Long bonds, Fixed income - Inflation indexed, Fixed income - High yield, Fixed income - EAFE, Fixed income - Global and Fixed income - Bundled LDI. Other real assets include: Commodities, Natural resources and Infrastructure.

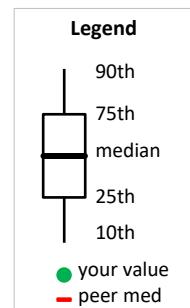
# Net value added is the component of total return from active management. Your 5-year net value added was 0.0%.

Net value added equals total net return minus policy return.

Value added for UNJSPF

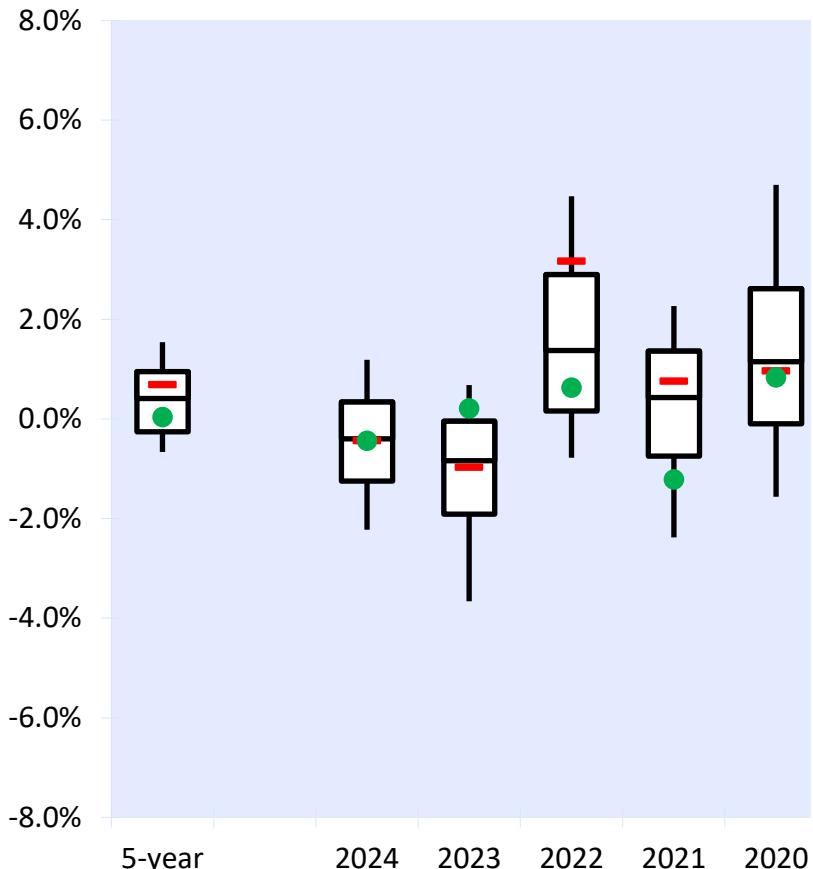
Year	Net return	Policy return	Net value added
2024	8.4%	8.9%	-0.4%
2023	13.5%	13.3%	0.2%
2022	-14.7%	-15.3%	0.6%
2021	12.2%	13.5%	-1.2%
2020	13.3%	12.5%	0.8%
5-Year	6.0%	5.9%	0.0%

Your 5-year net value added of 0.0% compares to a median of 0.7% for your peers and 0.4% for the Global universe.



To enable fairer comparisons, the value added for each participant including your fund was adjusted to reflect private equity benchmarks based on lagged, investable public market indices. Prior to this adjustment, your fund's 5-year total fund net value added was -0.1%.

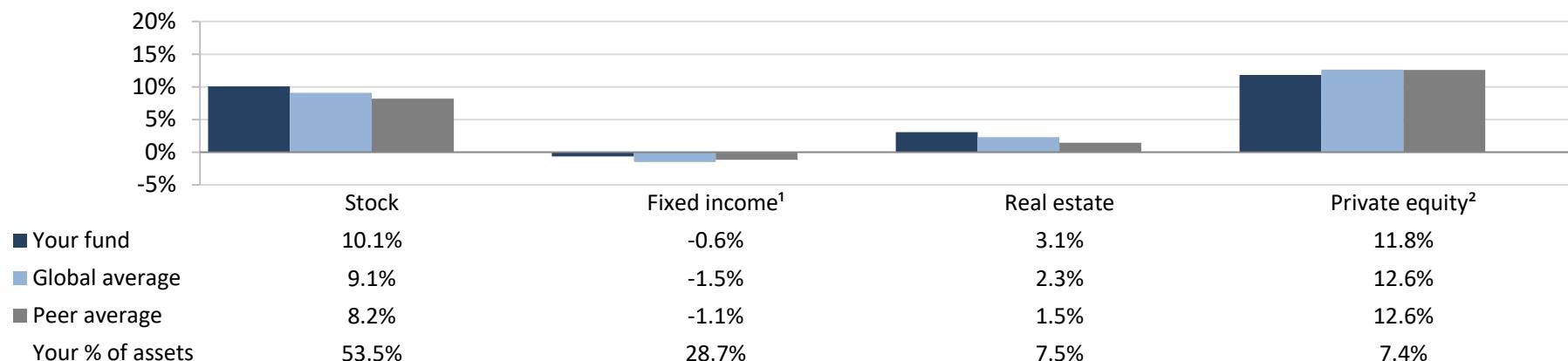
Global net value added - quartile rankings



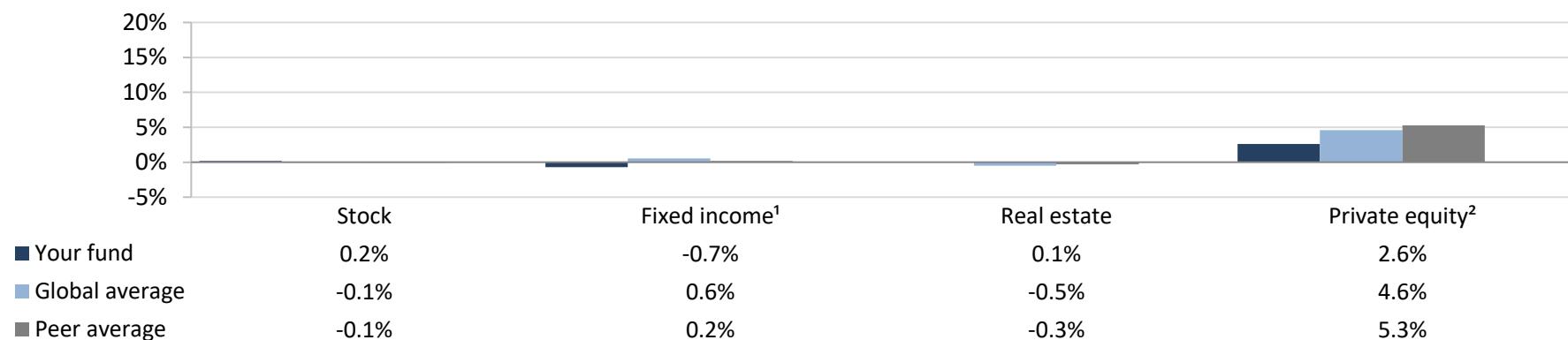
You	0.0%	-0.4%	0.2%	0.6%	-1.2%	0.8%
Peer median	0.7%	-0.4%	-1.0%	3.2%	0.8%	1.0%
Global median	0.4%	-0.4%	-0.8%	1.4%	0.4%	1.1%

## 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

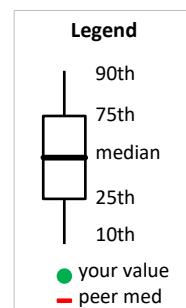


1. Excludes cash and leverage.

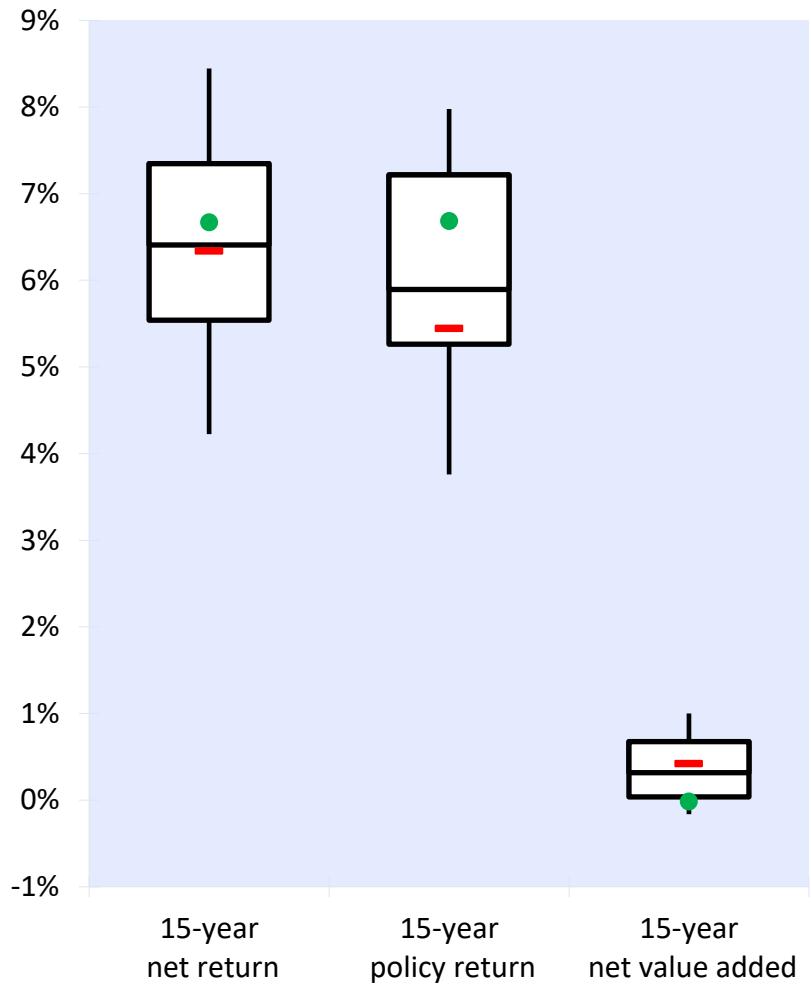
2. To enable fairer comparisons, the private equity benchmarks of all participants, including your fund were adjusted to reflect lagged, investable, public-market indices. Prior to this adjustment, your fund's 5-year private equity net value added was -0.2%.

## Your fund had higher long-term net return and policy return relative to the Global median.

- Your 15-year net return of 6.7% was above the Global median of 6.4% and above the peer median of 6.3%.
- Your 15-year policy return of 6.7% was above the Global median of 5.9% and above the peer median of 5.4%.
- Your 15-year net value added of 0.0% was slightly below the Global median of 0.3% and below the peer median of 0.4%.



Global long term returns and value add - quartile rankings  
(15-year period ending December 31, 2024)



# Your investment costs were \$365.9 million or 39.1 basis points in 2024.

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 <sup>1</sup>	
Stock - U.S.	14,402	361		13,597		28,360
Stock - Europe	2,569	102		2,128		4,799
Stock - Asia-Pacific	2,690	18		244		2,952
Stock - Emerging	6,089	54	332	1,468		7,944
Stock - Global		34		1,150		1,184
Stock - other	1,138					1,138
Fixed income - U.S.	4,554	581	1,608			6,743
Fixed income - Emerging	1,193					1,193
Fixed income - Global		28				28
Fixed income - High yield		512		4,293		4,804
Fixed income - Public mortgages	6,138					6,138
Fixed income - other	408					408
Cash	656					656
Infrastructure - LP/Value add		331		4,353		4,684
Real estate		1,157		22,672		23,829
Real estate - LP/Value add		4,911		61,674	9,655	76,240
Real estate - Co-invest.		10				10
Private equity - Diversified - LP/Value add	5,644		115,920	61,468		183,031
Private equity - Diversified - Co-invest.	623		0	22		645
Private credit - Core/Evergreen		18		437		455
Total					355,241	37.9bp
<b>Oversight, custodial and other costs<sup>2</sup></b>						
Oversight & consulting					5,134	
Trustee & custodial					1,408	
Audit					8	
Other					4,132	
Total oversight, custodial & other costs					10,682	1.1bp
Total investment costs (excl. transaction costs)					365,923	39.1bp

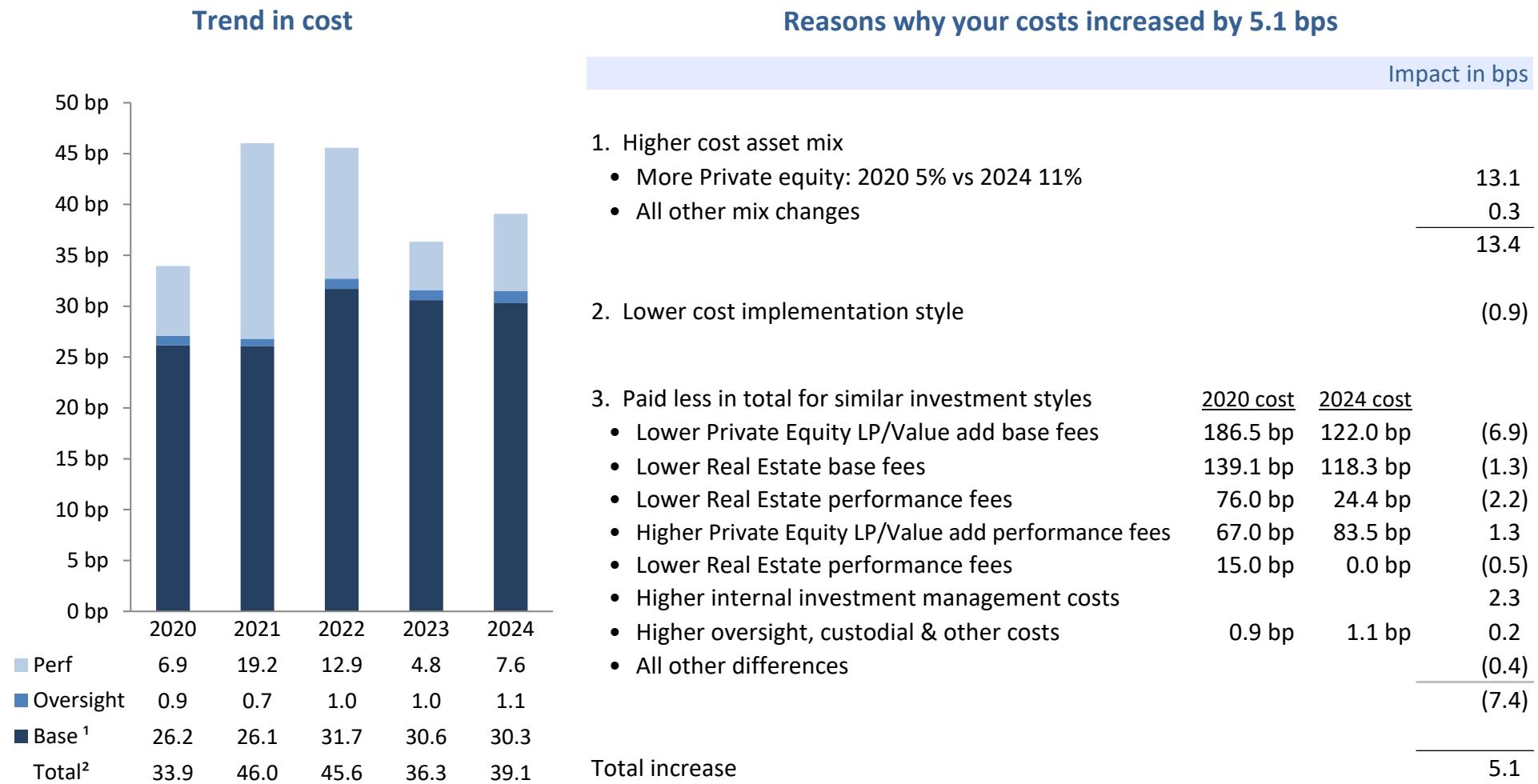
## Footnotes

1. Total cost includes carry/performance fees for all asset classes.

2. Excludes non-investment costs, such as benefit insurance premiums and preparing cheques for retirees.

\* Internal FTE and support costs have been allocated to asset classes based on CEM methodology. Refer to Appendix A2 for details.

Your costs increased by 5.1 bps, from 33.9 bps in 2020 to 39.1 bps in 2024, primarily because you had a higher cost asset mix. This was partly offset by paying less in total for similar investment styles.



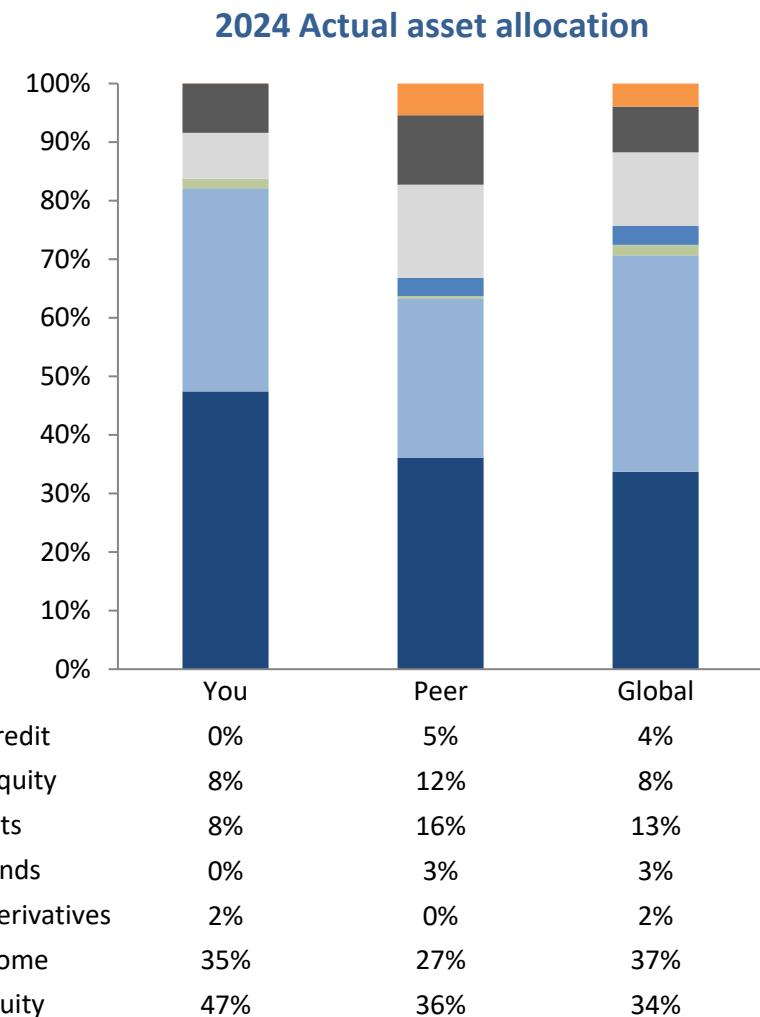
1. Includes fees for managing internal assets and internal costs of monitoring external programs, where allocated.

2. Prior year numbers have been restated to include private market performance fees (actual paid in 2023 and 2024, CEM imputed for 2020-2022).

## High-cost assets equaled 16% of your assets at the end of 2024 versus a peer average of 36%.

Alternative asset classes, such as, real estate (excl. REITs), infrastructure, hedge funds, private equity and private credit are typically higher cost asset classes than public asset classes such as public equity and fixed income. You had a combined public market allocation, including cash and derivatives, of 84% at the end of 2024 versus a peer average of 64%.

Your alternative asset classes represent 16% of your assets, but 79% of your total costs.

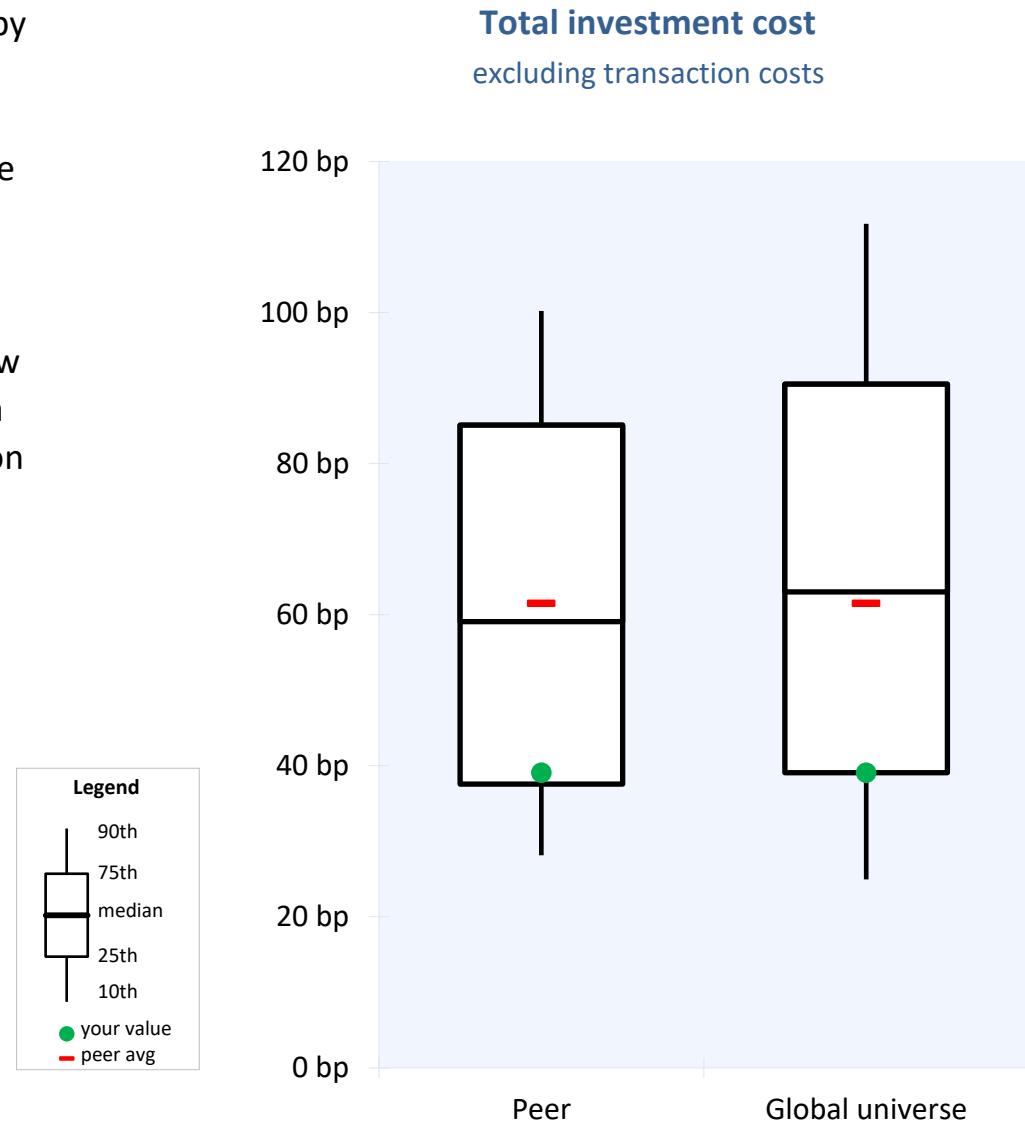


## Before adjusting for asset mix differences, your total investment cost of 39.1 bps was below the peer median of 59.1 bps.

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

- Asset mix - private asset classes are generally more expensive than public asset classes.
- 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 slightly above benchmark cost by 0.6 basis points in 2024.

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 39.1 bp was slightly above your benchmark cost of 38.5 bp. Thus, your excess cost was 0.6 bp.

### Your cost versus benchmark

	\$000s	basis points
Your total investment cost	365,923	39.1 bp
Your benchmark cost	360,379	38.5 bp
Your excess cost	5,544	0.6 bp

**Your fund was slightly above benchmark cost because it had a higher cost implementation style. This added cost was mostly offset by paying less than peers for similar services.**

**Explanation of your cost status**

		Excess Cost/ (Savings)	
		\$000s	bps
<b>1. Higher cost implementation style</b>			
• More active management, less lower cost passive		20,217	2.2
• Use of external management vs. lower cost internal		11,184	1.2
• More LPs as a percentage of external		10,867	1.2
• Less fund of funds		(11,829)	(1.3)
• Less co-investment as a percentage of LP/Co		15,747	1.7
• Less overlays		(3,448)	(0.4)
		<hr/>	<hr/>
		42,738	4.6
<b>2. Paying less than peers for similar services</b>			
• External investment management costs		(27,814)	(3.0)
• Internal investment management costs		3,218	0.3
• Oversight, custodial & other costs		(12,599)	(1.3)
		<hr/>	<hr/>
		(37,195)	(4.0)
<hr/>	<hr/>		
<b>Total excess cost</b>		5,544	0.6

# Your implementation style was 4.6 bps higher cost than the peer average.

Implementation style is the way in which your fund implements asset allocation. Each implementation choice has a cost. Your first choice is how much to implement passively or actively. The table below summarizes your aggregate choices versus peers and their cost impact.

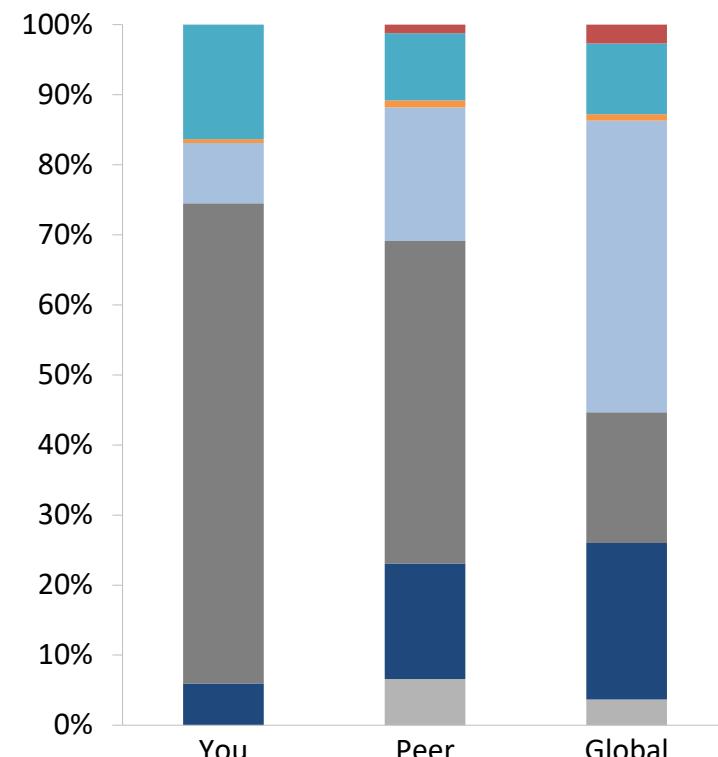
Implementation choices	Impact
More active, less passive	2.2 bp
Less internal as a % of passive	0.0 bp
More internal as a % of active	1.2 bp <sup>2</sup>
More LPs as a % of external	1.2 bp
Less fund of funds	(1.3) bp
Less co-investment as a percentage of LP/Co	1.7 bp
Less overlays	(0.4) bp
<b>Total impact</b>	<b>4.6 bp</b>

The peer and universe style was adjusted to match your asset mix. It equals their average style for each asset class weighted by your fee basis for the asset class. It shows how the average peer would implement your asset mix.

1. Implementation style is shown as a % of total fund fee basis because the fee basis is the primary driver of cost for private assets (e.g., new private equity LP commitments increase costs before LP NAV increases). Style weights are based on average holdings. Cash and derivatives are excluded.

2. Typically, more internal as a % of active is lower cost. But your mix of internal by asset class increased your cost.

## Implementation style<sup>1</sup>



	You	Peer	Global
Fund of funds	0.0%	1.2%	2.7%
LP/Value add	16.3%	9.6%	10.1%
Co-investment	0.5%	1.0%	0.9%
External active	8.7%	19.1%	41.6%
Internal active	68.5%	46.0%	18.7%
External passive	5.9%	16.5%	22.3%
Internal passive	0.0%	6.6%	3.7%

# The table below summarizes why your fund is 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) <sup>2</sup>	Due to impl. style	Due to paying more/(less)	Total more/(less)
	Your cost	Peer median <sup>1</sup> = Benchmark	More/(less)				
<b>Asset management costs</b>	(A)	(B)	(C = A - B)	(D)			(C x D)
Stock - U.S.	10.2 bp	6.8 bp	3.4 bp	27,759	4,949	4,526	9,475
Stock - Europe	8.3 bp	10.7 bp	(2.3) bp	5,763	(1,045)	(308)	(1,354)
Stock - Asia-Pacific	8.7 bp	17.3 bp	(8.6) bp	3,405	(4,401)	1,456	(2,945)
Stock - Emerging	13.3 bp	31.1 bp	(17.8) bp	5,984	(9,617)	(1,058)	(10,676)
Stock - Global	57.6 bp	19.7 bp	37.9 bp	206	556	224	779
Stock - other	8.7 bp	8.7 bp	0.0 bp	1,310	0	0	0
Fixed income - U.S.	3.3 bp	3.5 bp	(0.1) bp	20,214	(2,013)	1,769	(243)
Fixed income - Emerging	8.8 bp	29.1 bp	(20.3) bp	1,352	(2,777)	36	(2,741)
Fixed income - Global	9.1 bp	8.3 bp	0.8 bp	30	(11)	13	3
Fixed income - High yield	26.3 bp	23.4 bp	2.9 bp	1,825	817	(286)	531
Fixed income - Public mortgages	7.3 bp	13.3 bp	(6.0) bp	8,444	(5,105)	0	(5,105)
Fixed income - other	7.5 bp	7.5 bp	0.0 bp	546	0	0	0
Cash	4.2 bp	2.6 bp	1.5 bp	1,580	231	10	241
Real estate	105.1 bp	57.5 bp	47.6 bp	8,605	31,034	9,933	40,967
Performance fees (on NAV)	13.9 bp	2.7 bp	11.2 bp	6,926	2,588	5,189	7,776
Infrastructure	114.3 bp	53.0 bp	61.3 bp	410	2,906	(393)	2,513
Performance fees (on NAV)	0.0 bp	22.6 bp	(22.6) bp	407	3,153	(4,074)	(921)
Private equity - Diversified	116.6 bp	131.2 bp	(14.7) bp	10,481	14,452	(29,816)	(15,364)
Performance fees (on NAV)	78.0 bp	79.9 bp	(1.9) bp	7,879	10,428	(11,900)	(1,472)
Private credit	121.3 bp	86.9 bp	34.4 bp	38	43	86	129
Performance fees (on NAV)	0.0 bp	22.5 bp	(22.5) bp	1	(1)	(2)	(3)
Derivatives/Overlays	0.0 bp	0.4 bp	(0.4) bp	93,631	(3,448)	0	(3,448)
Total asset management	37.9 bp	36.0 bp	1.9 bp	93,631	42,738	(24,596)	18,143
<b>Oversight, custody and other costs<sup>3</sup></b>							
Oversight of the Fund	0.5 bp	1.5 bp	(0.9) bp				
Trustee & Custodial	0.2 bp	0.3 bp	(0.2) bp				
Other	0.4 bp	0.1 bp	0.3 bp				
Total oversight, custody & other	1.1 bp	2.5 bp	(1.3) bp	93,631	n/a	(12,599)	(12,599)
<b>Total</b>	<b>39.1 bp</b>	<b>38.5 bp</b>	<b>0.6 bp</b>	<b>93,631</b>	<b>42,738</b>	<b>(37,195)</b>	<b>5,544</b>

1. The weighted peer median cost for asset management is the style-weighted average of the peer median costs for all implementation styles (e.g., internal passive, external active, fund of fund, etc.).
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.

If your internally managed assets were managed externally and you paid the peer median costs, your costs would increase by around \$214M or 22.9 bps.

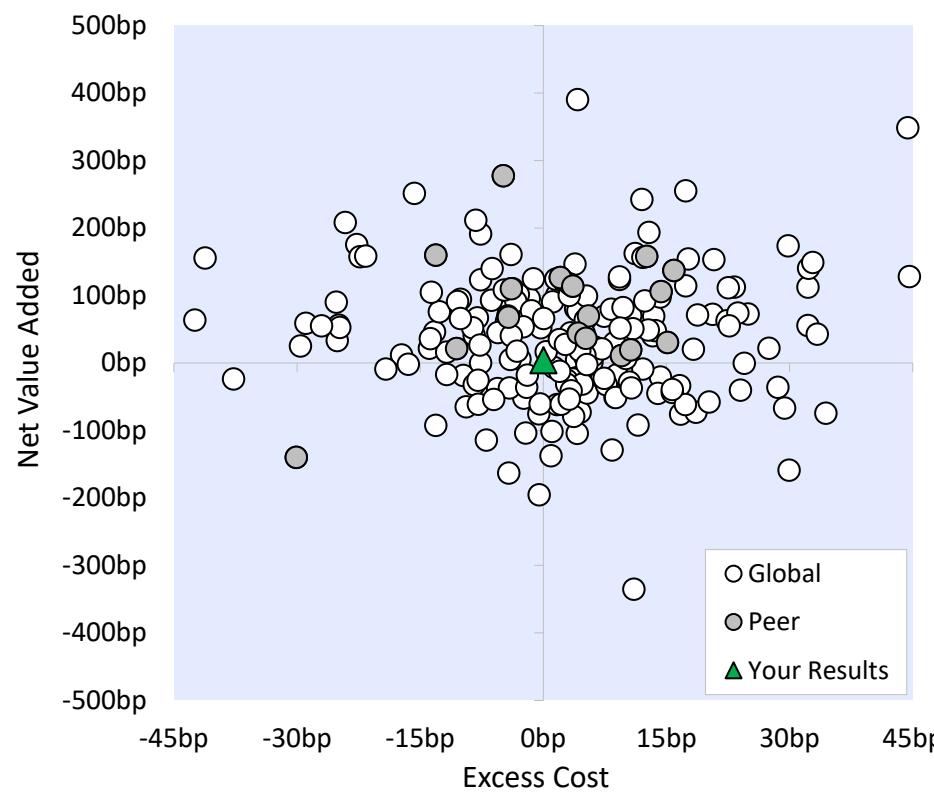
**Cost savings achieved by managing assets in-house**

	Style <sup>1</sup>	Your average holdings (mils) <sup>2</sup>	Cost in bps			Total more/ (less)
			Your (A)	Peer median (C)	More/ (less) (D = B - C)	
Stock - U.S.	Active	25,003	5.8 bp	46.0 bp	(40.2) bp	(100,497)
Stock - Europe	Active	5,257	4.9 bp	56.4 bp	(51.5) bp	(27,084)
Stock - Asia-Pacific	Active	3,350	8.0 bp	47.1 bp	(39.1) bp	(13,085)
Stock - Emerging	Active	5,627	10.8 bp	67.6 bp	(56.8) bp	(31,936)
Stock - Other	Active	1,310	8.7 bp	Excluded	--	--
Fixed income - U.S.	Active	14,620	3.1 bp	13.3 bp	(10.2) bp	(14,953)
Fixed income - Emerging	Active	1,352	8.8 bp	33.0 bp	(24.2) bp	(3,271)
Fixed income - Global	Active	30	9.1 bp	18.7 bp	(9.6) bp	(29)
Fixed income - Public mortgages <sup>1</sup>	Active	8,444	7.3 bp	34.8 bp	(27.5) bp	(23,240)
Fixed income - Other	Active	546	7.5 bp	Excluded	--	--
Fixed income - Cash	Active	1,580	4.2 bp	3.4 bp	0.7 bp	115
<b>Total savings for assets managed in-house</b>					(22.9) bp	(213,980)

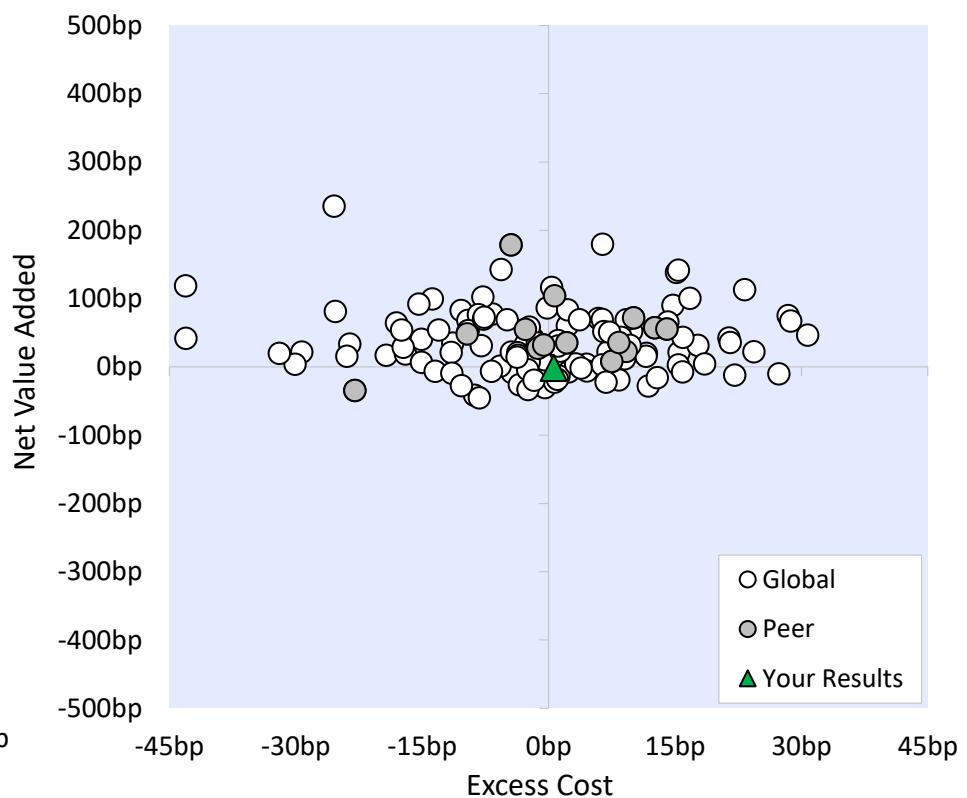
1. Universe median used because peer data was insufficient.

# Your fund achieved a 5-year net value added of 4 bps and excess cost of 0 bps on the cost-effectiveness chart.

**5-year net value added versus excess cost**  
(Your 5-year: net value added 4 bps, excess cost 0 bps<sup>1</sup>)



**15-year net value added versus excess cost**  
(Your 15-year: net value added -1 bps, excess cost 1 bps<sup>1</sup>)



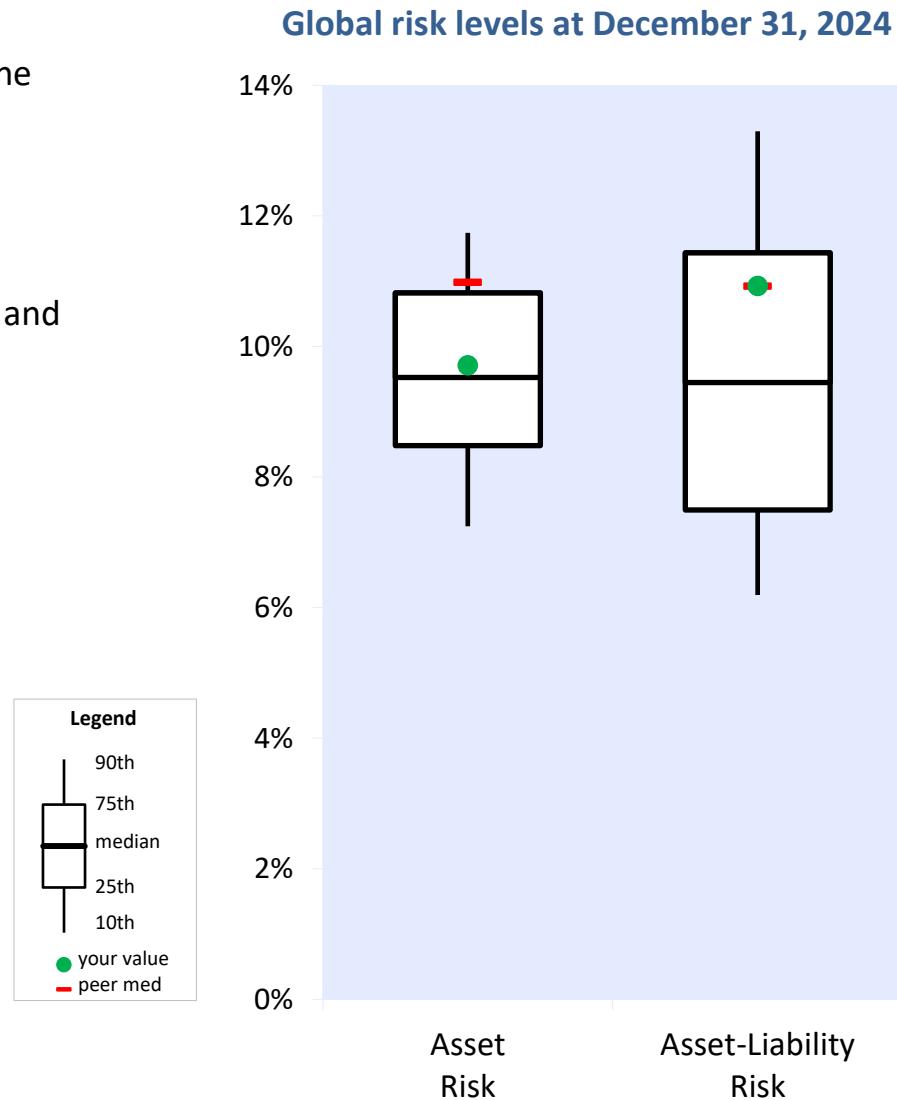
1. Your estimated 15-year excess cost of 0.6 basis points is the average of your peer-based benchmarks for the years available and estimated benchmarks based on a simplified model for years where peer-based benchmarks were missing.

	15-year <sup>1</sup>	5-year	2024	2023	2022	2021	2020
Net value added	(1.4) bp	4.0 bp	(43.6) bp	21.0 bp	63.0 bp	(121.3) bp	83.6 bp
Excess cost	0.6 bp	0.0 bp	0.6 bp	1.1 bp	(1.3) bp	(0.2) bp	(0.1) bp

## Your asset risk of 9.7% was above the Global median of 9.5% and your asset-liability risk of 10.9% was also above the Global median of 9.4%.

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.

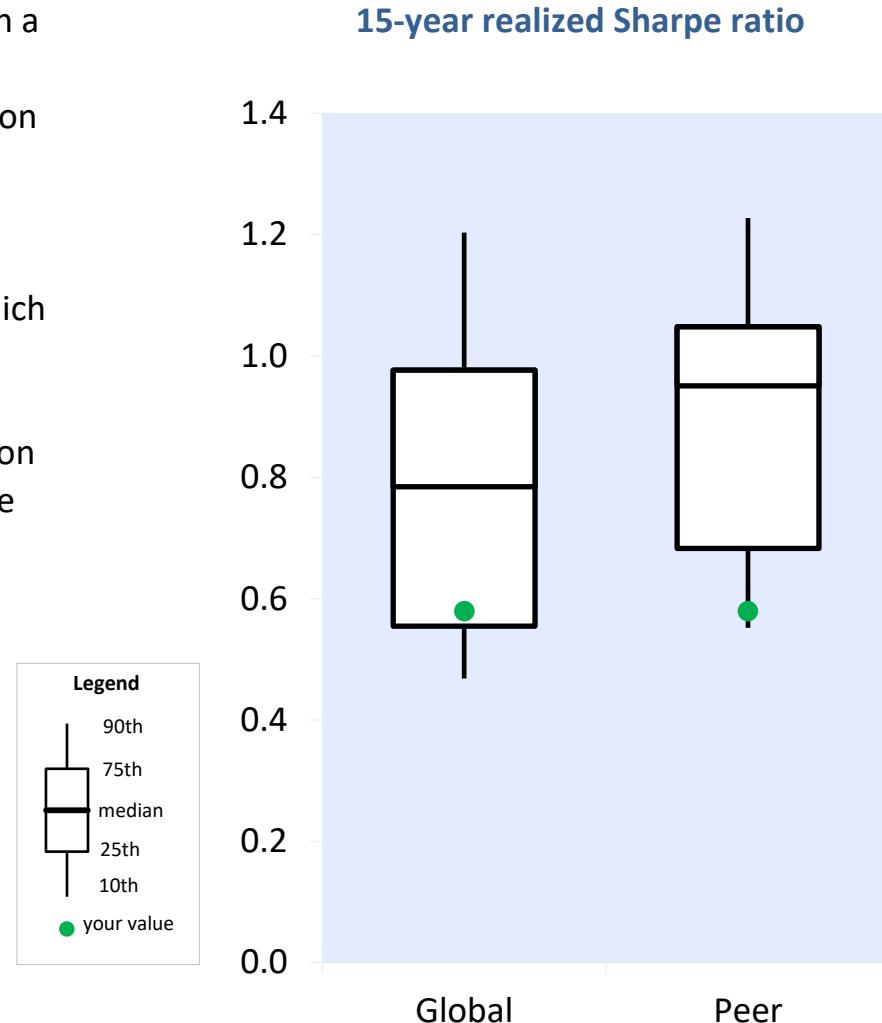


## Your 15-year realized Sharpe ratio of 0.6 was below the Global median of 0.8.

Realized Sharpe ratio measures your portfolio's performance on a risk-adjusted basis. It is calculated as your portfolio's actual net return, minus the risk-free rate, divided by the standard deviation (often called volatility) of your portfolio's excess return.

Sharpe ratios tend to be positive when equity markets have positive returns. Your 15-year realized Sharpe ratio was 0.6, which was lower than the Global universe median of 0.8.

A higher Sharpe ratio can be obtained through some combination of higher net returns and lower volatility. Lower volatility can be the result of either having less risky assets or having better diversification.



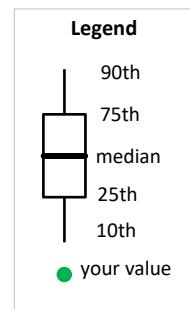
## Your 15-year realized information ratio of 0.0 was below the Global median of 0.2.

Realized information ratio measures your portfolio's active return per unit of active risk. It is calculated as your portfolio's net value added divided by the standard deviation of your portfolio's net value added, which is often called the active risk or tracking error of the portfolio.

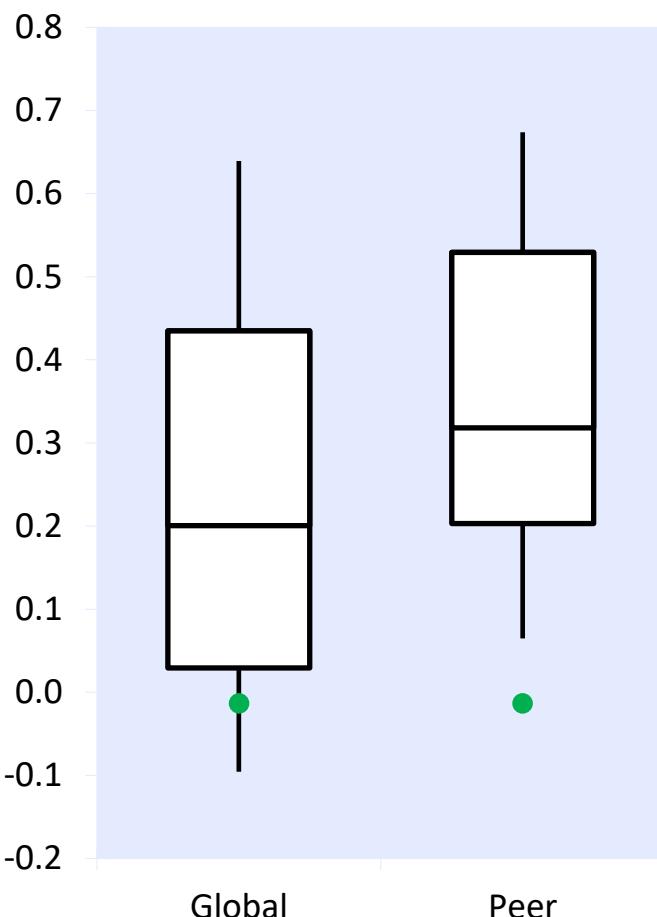
Your 15-year realized information ratio of 0.0 was below the Global median of 0.2.

Information Ratio is positive when net value added is positive, and it is negative when net value added is negative. The median 15-year information ratio in the peer group was 0.3, meaning that most plans managed to generate positive net value added.

Using information ratio as a measure of risk-adjusted performance allows the comparison of success in generating positive net value between funds with different levels of active risk.



15-year realized information ratio



# Summary of key takeaways

## Returns

- Your 5-year net total return was 6.0%. This was above both the Global median of 3.9% and the peer median of 4.6%.
- Your 5-year policy return was 5.9%. This was above both the Global median of 3.9% and the peer median of 4.4%.

## Value added

- Your 5-year net value added was 0.0%. This was below both the Global median of 0.4% and the peer median of 0.7%.

## Long term performance

- Your 15-year net return of 6.7% was above both the Global median of 6.4% and the peer median of 6.3%.

## Cost and cost effectiveness

- Your investment cost of 39.1 bps was slightly above your benchmark cost of 38.5 bps.
- Your fund was slightly above benchmark cost because it had a higher cost implementation style. This added cost was mostly offset by paying less than peers for similar services.
- Your costs increased by 5.1 bps, from 33.9 bps in 2020 to 39.1 bps in 2024, primarily because you had a higher cost asset mix. This was partly offset by paying less in total for similar investment styles.

## Risk

- Your asset risk of 9.7% was above the Global median of 9.5%. Your asset-liability risk of 10.9% was above the Global median of 9.4%.
- Your 15-year realized Sharpe ratio of 0.6 was below the Global median of 0.8.
- Your 15-year realized information ratio of 0.0 was below the Global median of 0.2.