

**Investment**  
**Benchmarking Analysis**  
(for the 10-year period ending December 31, 2022)

**Government Pension Fund Norway**



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# Key Takeaways

## Value added

- Your 10-year net value added was 0.6%. This was above the Global median of 0.5% and close to the peer median of 0.7%.

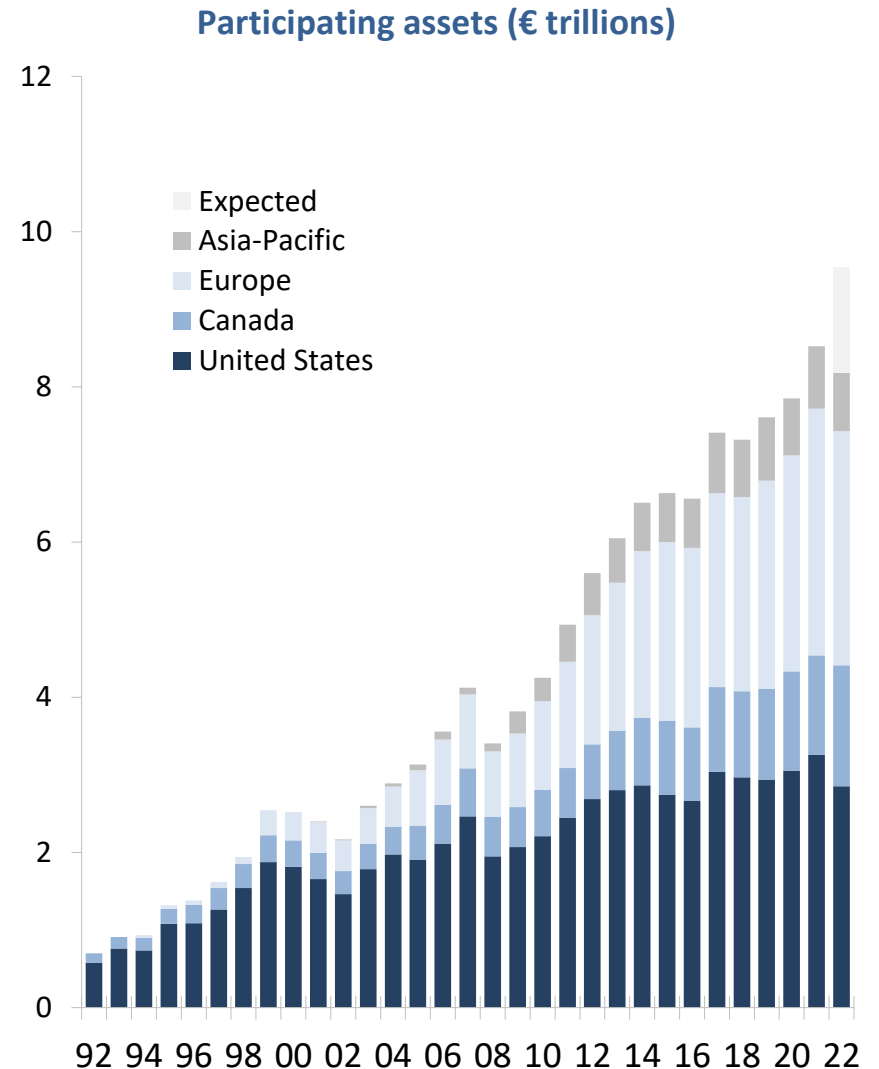
## Cost

- Your investment cost of 6.1 bps in 2022 was below your benchmark cost of 14.0 bps. This suggests that your fund was low cost compared to your peers.
- Your fund was low cost because it had a lower cost implementation style and it paid less than peers for similar services.
- Your costs decreased by 0.5 bps, from 6.6 bps in 2018 to 6.1 bps in 2022, primarily because you paid less in total for similar investment styles.

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

- 147 U.S. pension funds participate. The median U.S. fund had assets of €5.8 billion and the average U.S. fund had assets of €19.4 billion. Total participating U.S. assets were €2.9 trillion.
- 72 Canadian funds participate with assets totaling €1.6 trillion.
- 66 European funds participate with aggregate assets of €3.0 trillion. Included are funds from the Netherlands, Norway, Sweden, Finland, Ireland, Denmark and the U.K.
- 7 Asia-Pacific funds participate with aggregate assets of €754.0 billion. Included are funds from Australia, New Zealand, China and South Korea.
- 2 funds from other regions participate.

The most meaningful comparisons for your returns and value added are to the Global universe, which consists of 294 funds.



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

### Peer group for Government Pension Fund Norway

- 16 Global sponsors from €17.8 billion to €124.7 billion
  - Median size of €57.7 billion versus your €30.3 billion
  - Median size of internal equity program of €18.2 billion versus your €15.6 billion
- Your global peer group is composed of 3 Canadian funds, 7 European funds, 5 U.S. funds and 1 Asia-Pacific fund.
  - In the report there are also comparisons to CEM's Global database of participants.

# Net value added is the component of total return from active management. Your 10-year net value added was 0.6%.

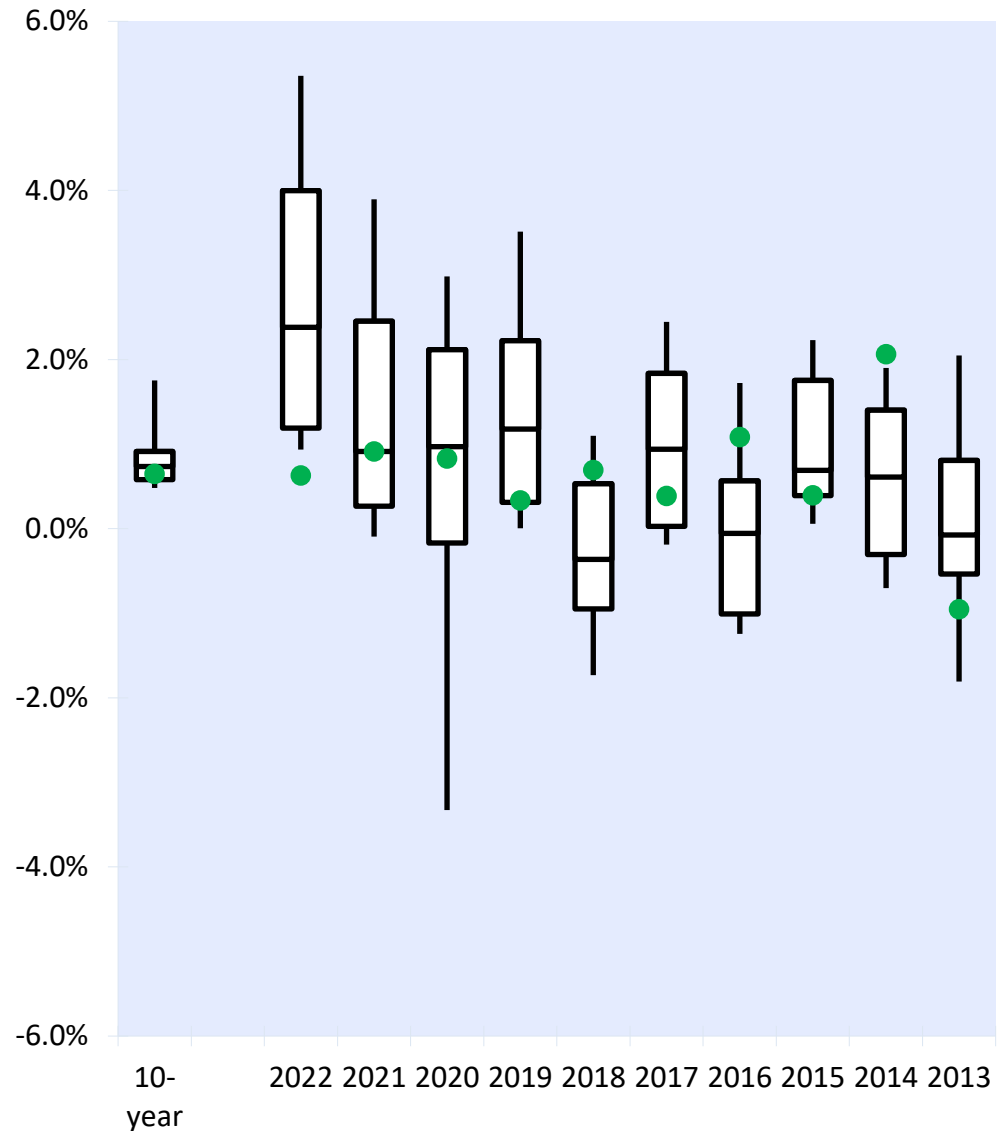
Net value added equals total net return minus policy return.

## Value added for Government Pension Fund Norway

Year	Net return	Policy return	Net value added
2022	-4.5%	-5.1%	0.6%
2021	13.9%	13.0%	0.9%
2020	8.7%	7.9%	0.8%
2019	12.4%	12.0%	0.3%
2018	-0.4%	-1.1%	0.7%
2017	13.2%	12.8%	0.4%
2016	7.0%	5.9%	1.1%
2015	6.9%	6.5%	0.4%
2014	10.6%	8.5%	2.1%
2013	15.6%	16.6%	-1.0%
10-Year	8.2%	7.5%	0.6%

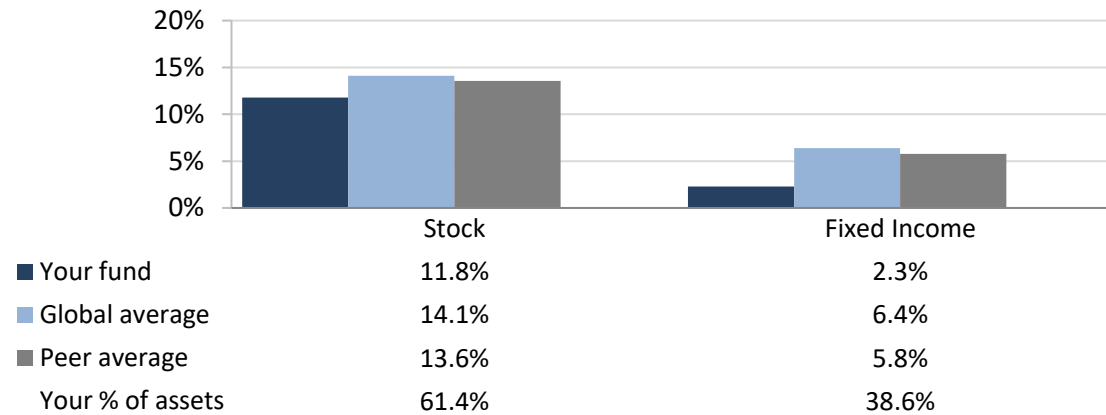
Your 10-year net value added of 0.6% compares to a median of 0.7% for your peers and 0.5% for the Global universe.

Peers net value added - quartile rankings

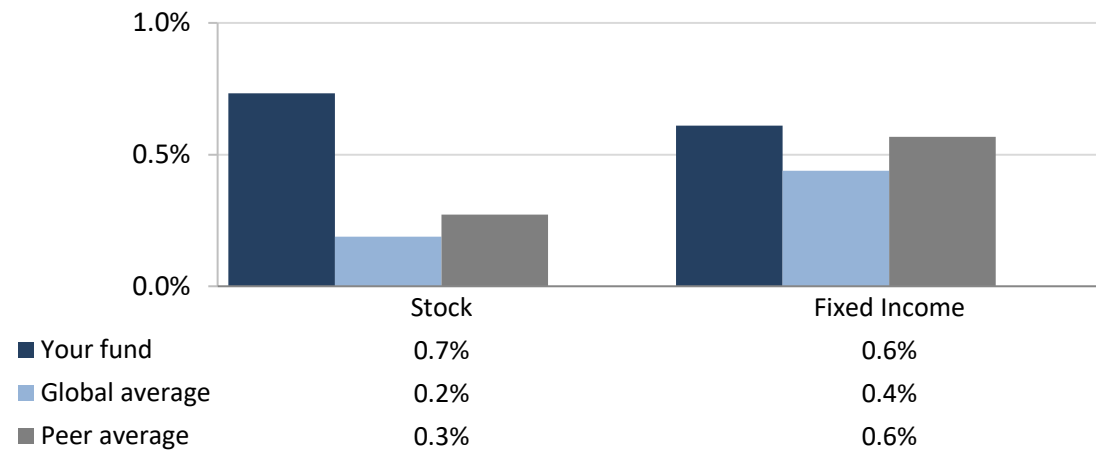


# Comparisons of your 10-year net return and net value added by major asset class:

## 10-year average net return by major asset class



## 10-year average net value added by major asset class



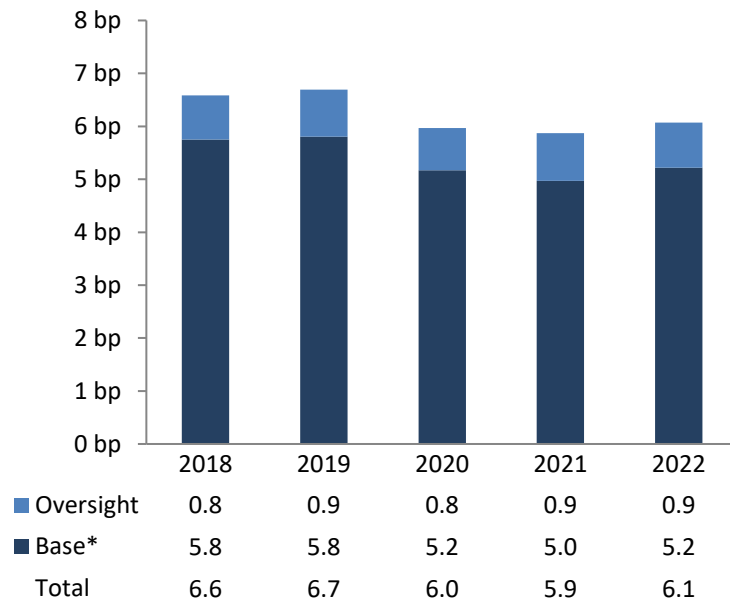
## Your investment costs, excluding private asset performance fees, were €18.4 million or 6.1 basis points in 2022.

Asset management costs by asset class and style (€000s)	Internal Active	Total	
Stock - EAFE	7,649	7,649	
Fixed income - EAFE	8,150	8,150	
Total excluding private asset performance fees		15,799	5.2bp
<b>Oversight, custodial and other costs <sup>1</sup></b>			
Oversight of the fund		1,253	
Trustee & custodial		625	
Consulting and performance measurement		123	
Audit		285	
Other		287	
Total oversight, custodial & other costs		2,573	0.9bp
Total investment costs (excl. transaction costs & private asset performance fees)		18,372	6.1bp



# Your costs decreased by 0.5 bps, from 6.6 bps in 2018 to 6.1 bps in 2022, primarily because you paid less in total for similar investment styles.

Trend in cost



Reasons why your costs decreased by 0.5 bps

	Impact in bps	
1. Lower cost asset mix		(0.0)
2. Similar cost implementation style		0.0
3. Paid less in total for similar investment styles		
Lower internal investment management costs	<u>2013</u>	<u>2022</u>
• Lower internal active EAFE Stock costs	5.2 bp	4.2 bp
• All other internal investment mgmt. differences		0.1
• All other differences		0.0
		<u>(0.5)</u>
Total decrease		<u>(0.5)</u>

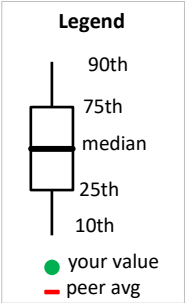
\*Includes fees for managing internal assets and internal costs of monitoring external programs, where allocated.

# Your total investment cost of 6.1 bps was the lowest of the peers and was substantially below the peer median of 40.7 bps.

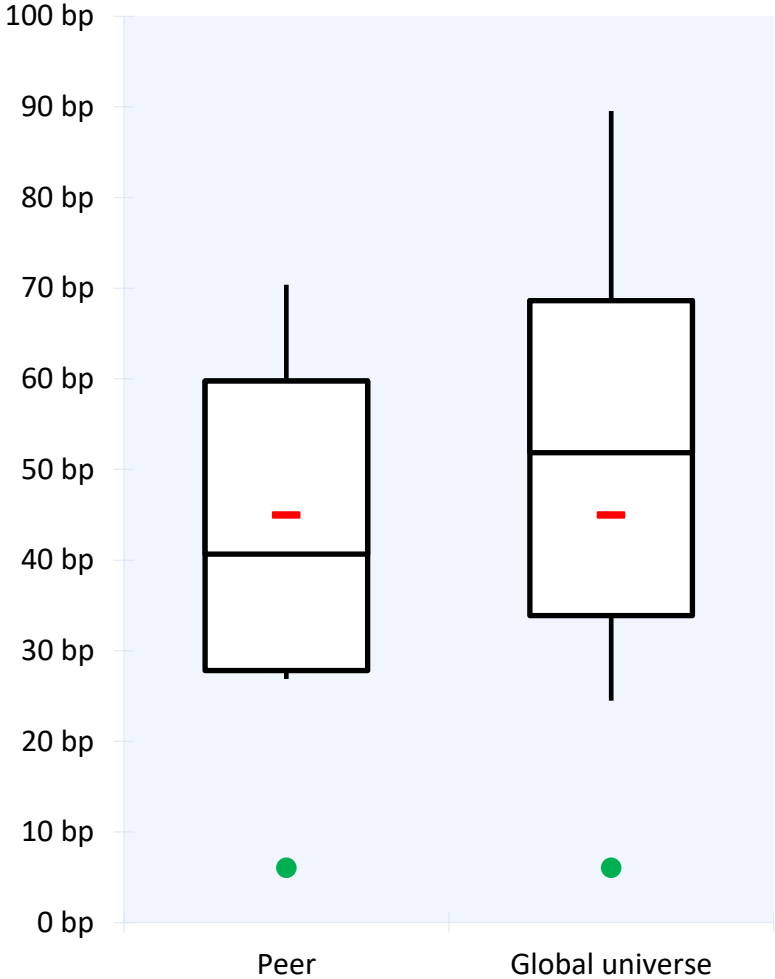
Differences in total investment cost are often caused by two factors that are often outside of management's control:

- Asset mix, particularly holdings of the highest cost asset classes: real estate (excl. REITs), infrastructure, hedge funds, private equity and private credit. These high cost assets equaled 0% of your assets at the end of 2022 versus a peer average of 33%.
- 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.



**Total investment cost**  
excluding transaction costs and private asset performance fees



## Benchmark cost analysis suggests that, after adjusting for fund size and asset mix, your fund was low cost by 7.9 basis points in 2022.

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 6.1 bp was below your benchmark cost of 14.0 bp. Thus, your cost savings were 7.9 bp.

### Your cost versus benchmark

	€000s	basis points
Your total investment cost	18,372	6.1 bp
Your benchmark cost	42,293	14.0 bp
Your excess cost	(23,921)	(7.9) bp

## Your fund was low cost because it had a lower cost implementation style and it paid less than peers for similar services.

### Reasons for your low cost status

	Excess Cost/ (Savings)	
	€000s	bps
1. Lower cost implementation style		
• More active management, less lower cost passive	5,006	1.7
• Less external management, more lower cost internal	(18,277)	(6.0)
• Less overlays	(2,289)	(0.8)
	<u>(15,560)</u>	<u>(5.1)</u>
2. Paying less than peers for similar services		
• Internal investment management costs	(6,305)	(2.1)
• Oversight, custodial & other costs	(2,056)	(0.7)
	<u>(8,361)</u>	<u>(2.8)</u>
<b>Total savings</b>	<b>(23,921)</b>	<b>(7.9)</b>

## Alternative benchmark cost:

	Average holdings in €mils	GPFN cost in bps	Cost comparison with median peer across all management styles (bps)			Cost comparison with median peer with similar management style (bps)		
			Benchmark cost	Difference to benchmark cost	Contribution to total cost difference	Benchmark cost	Difference to benchmark cost	Contribution to total cost difference
<i>Internal asset management</i>								
Stock - Europe	18,216	4.2	13.0	8.8	5.3	8.2	4.0	2.4
Fixed income - Europe	12,052	6.8	9.7	2.9	1.2	6.0	(0.8)	(0.3)
<b>Total, excl. Overlays and overhead</b>		<b>5.2</b>	<b>11.7</b>		<b>6.5</b>	<b>7.3</b>		<b>2.1</b>
Overlay Programs	30,268	0.0	0.8	0.8	0.8	0.8	0.8	0.8
Overhead	30,268	0.9	1.5	0.7	0.7	1.5	0.7	0.7
<b>Total</b>	<b>30,268</b>	<b>6.1</b>	<b>14.0</b>		<b>7.9</b>	<b>9.6</b>		<b>3.5</b>

### Notes:

Internal European stock uses All stock as the benchmark.

Internal European fixed income uses All fixed income as the benchmark.

Rounding may cause summation issues

## High-level estimate of management costs incurred if GPFN were managed passively:

	Average holdings in €mils	Current cost in bps	Benchmark target cost in bps
<i>Internal asset management</i>			
Stock - Europe	18,216	4.2	3.5
Fixed income - Europe	12,052	6.8	1.7
Overhead	30,268	0.9	0.9
<b>Total</b>	<b>30,268</b>	<b>6.1</b>	<b>3.6</b>

### Notes:

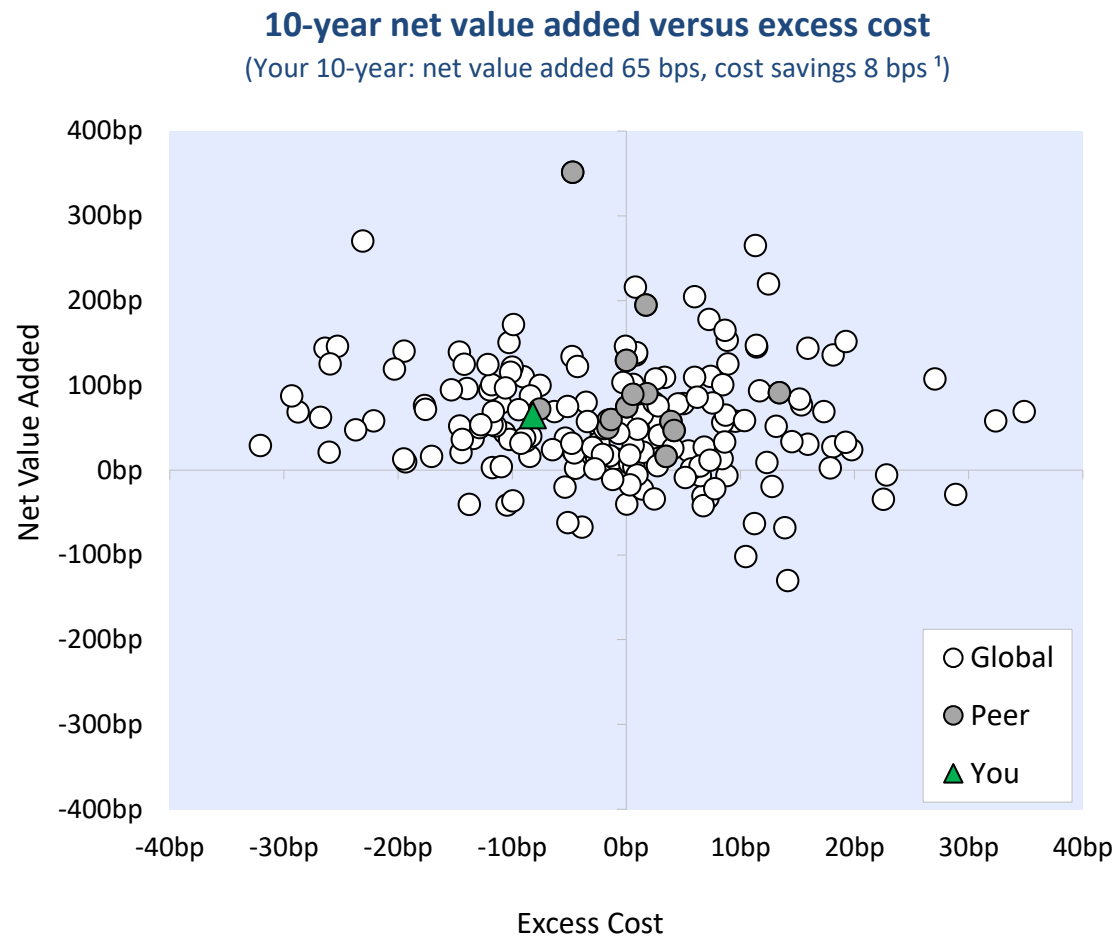
Internal European stock uses All stock as the benchmark.

Internal European fixed income uses All fixed income as the benchmark.

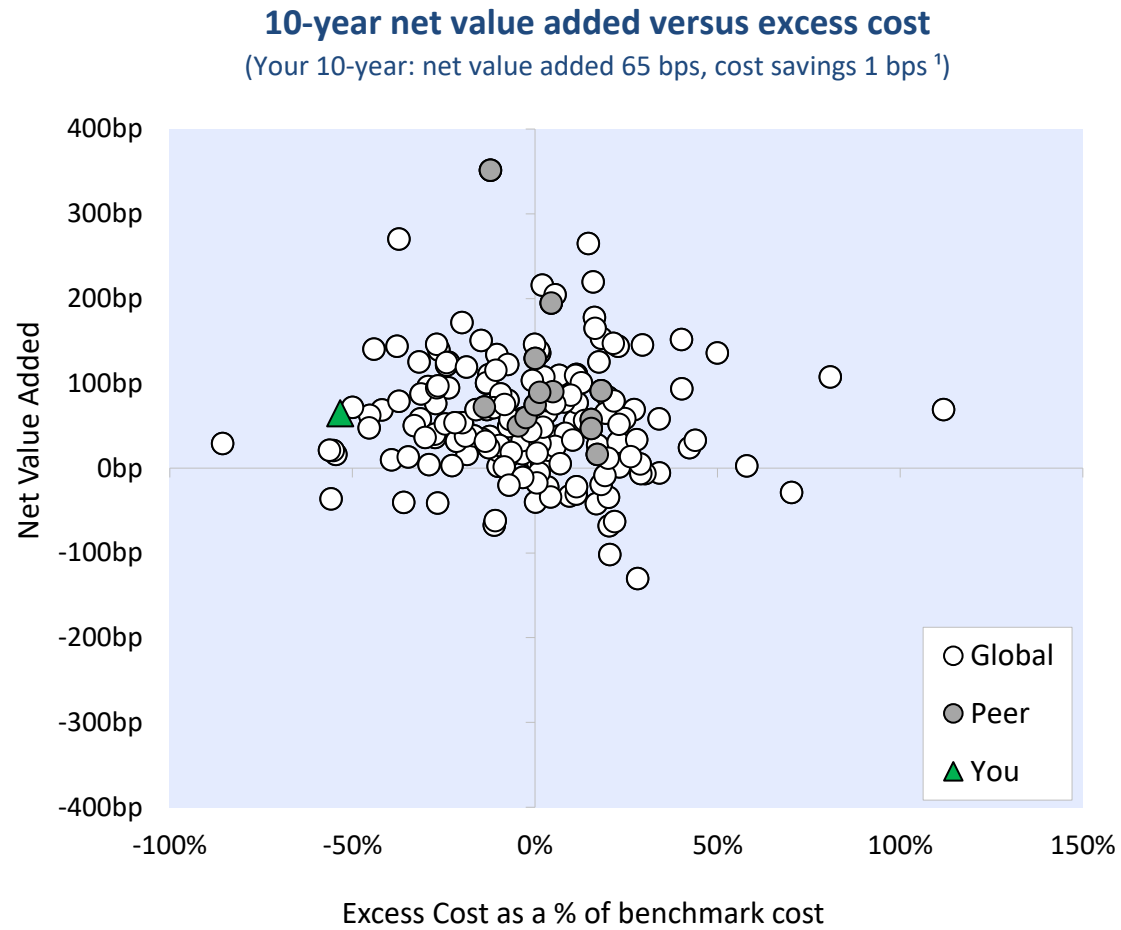
The benchmark result needs to be interpreted with caution since the value is very low and based on a limited number of observations.

This also does not take into consideration possible issues with owning a relatively large proportion of a given benchmark index or any constraints around ESG factors.

Your 10-year performance placed in the positive value added, low cost quadrant of the cost effectiveness chart.



# 10-year excess cost as a % of benchmark cost versus net value added





# 2

## Description of peer group and universe

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## Peer group

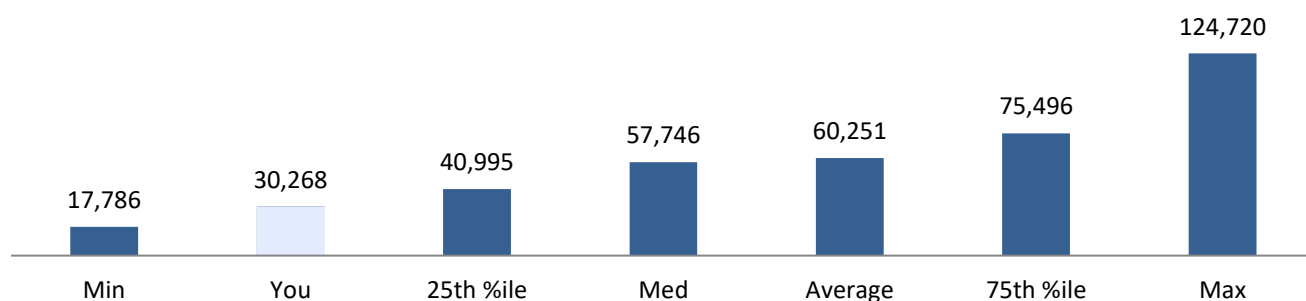
Your peer group is comprised of 16 Global funds, with assets ranging from €17.8 billion to €124.7 billion versus your €30.3 billion. The median size is €57.7 billion.

In order to preserve client confidentiality, we do not disclose your peers' names in this document due to the Freedom of Information Act. Your peer group consist of plans with the following characteristics:

### Peer Group Characteristics - 2022

	You	Peers	Global average
<u>Plan Assets (\$ billions)</u>			
Range	30.3	17.8 - 124.7	0.1 - 1,190.3
Median		57.7	5.8
<u># of Plans</u>			
Corporate		0	128
Public	1	12	117
Other		4	49
Total		16	294
<u>Implementation style</u>			
% External active	0.0	32.7	68.8
% External passive	0.0	4.0	16.0
% Internal active	100.0	57.6	11.7
% Internal passive	0.0	5.7	3.5
<u>Asset mix</u>			
% Stock	60.2	39.7	34.6
% Fixed Income	39.8	25.8	38.3
% Real Assets	0.0	15.9	12.5
% Private Equity	0.0	11.1	7.1
% Private Credit	0.0	4.3	3.2
% Hedge Funds & Other	0.0	3.1	4.3

### Total fund assets (€ millions) - you versus peers

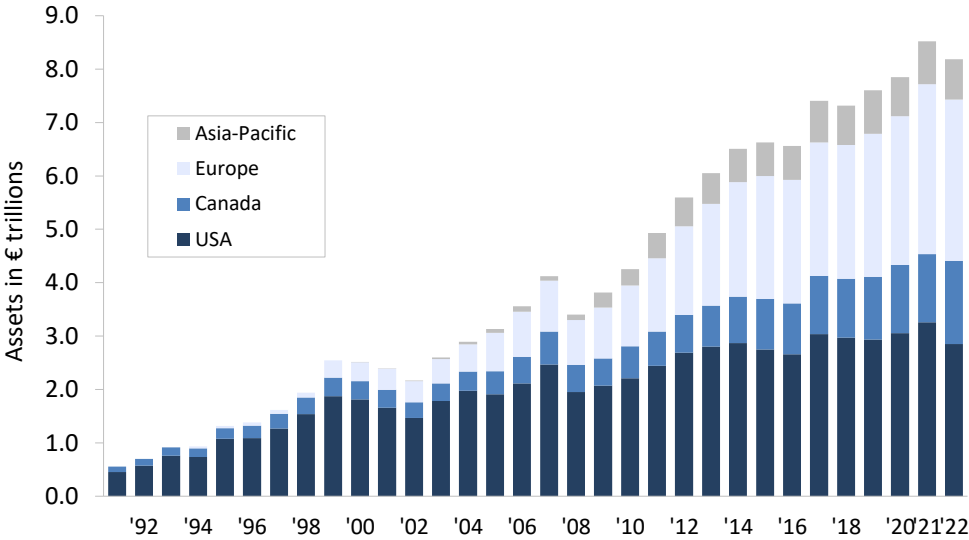


# CEM global universe

CEM has been providing investment benchmarking solutions since 1991. The 2022 survey universe is comprised of 294 funds representing €8.3 trillion in assets. The breakdown by region is as follows:

- 147 U.S. pension funds with aggregate assets of €2.9 trillion.
- 72 Canadian pension funds with aggregate assets of €1.6 trillion.
- 66 European pension funds with aggregate assets of €3.0 trillion. Included are funds from the Netherlands, Norway, Sweden, Finland, Denmark, UK, and Ireland.
- 7 Asia-Pacific pension funds with aggregate assets of €0.8 trillion.

CEM global universe



## Universe subsets

CEM's global survey universe is comprised of 294 funds with total assets of €8.3 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 16 Global funds ranging in size from €17.8 - €124.7 billion. The peer median of €57.7 billion compares to your €30.3 billion.
- Global - The global universe is comprised of 294 funds ranging in size from €0.1 - €1,190.3 billion. The median fund is €5.8 billion.

### Universe subsets by number of funds and assets

	Peer group <sup>1</sup>	Corp.	Public	Other	Total	U.S.	Canada	Europe	Asia-Pacific	Total
<b># of funds</b>										
2022	16	128	117	49	294	147	72	66	9	294
2021	15	128	123	43	294	145	69	68	12	294
2020	16	136	138	41	315	161	70	73	11	315
2019	16	135	139	44	318	155	72	75	16	318
2018	16	147	148	45	340	170	78	77	15	340
2017	16	151	155	48	354	168	80	89	17	354
2016	16	155	146	48	349	170	81	83	15	349
2015	16	162	149	54	365	176	81	92	16	365
2014	16	165	204	56	425	178	88	144	15	425
2013	16	186	199	63	448	193	90	152	13	448
<b># of funds with uninterrupted data for:</b>										
1 yr	16	128	117	49	294	147	72	66	9	294
2 yrs	15	117	104	40	261	131	63	58	9	261
3 yrs	15	114	101	38	253	128	61	56	8	253
4 yrs	15	105	98	36	239	119	59	53	8	239
5 yrs	15	101	97	35	233	116	58	51	8	233
6 yrs	15	95	92	33	220	111	53	49	7	220
7 yrs	15	91	89	33	213	107	50	49	7	213
8 yrs	15	85	86	32	203	102	47	47	7	203
9 yrs	15	82	85	32	199	100	45	47	7	199
10 yrs	15	78	83	30	191	95	44	46	6	191
<b>Total assets (€ billions)</b>										
2022	964	942	5,394	1,931	8,267	2,852	1,558	3,020	837	8,267
2021	923	1,287	5,639	1,736	8,662	3,257	1,280	3,181	945	8,662
2020	893	1,225	5,207	1,529	7,960	3,055	1,277	2,783	845	7,960
2019	846	1,170	4,979	1,577	7,727	2,937	1,174	2,677	939	7,727
2018	776	1,119	4,939	1,369	7,427	2,969	1,107	2,506	845	7,427
2017	772	1,139	5,020	1,510	7,668	3,036	1,093	2,499	1,041	7,668
2016	690	1,080	4,283	1,388	6,751	2,661	951	2,313	826	6,751
2015	681	1,102	4,460	1,350	6,912	2,746	948	2,302	916	6,912
2014	662	1,164	4,372	1,262	6,798	2,866	869	2,149	914	6,798
2013	604	1,106	4,067	1,130	6,304	2,802	765	1,909	827	6,304
<b>2022 asset distribution (€ billions)</b>										
Avg	60.3	7.4	46.1	39.4	28.1	19.4	21.6	45.8	93.0	28.1
Max	124.7	46.6	1,190.3	500.1	1,190.3	327.8	292.3	1,190.3	479.3	1,190.3
75th %ile	75.5	9.5	36.8	35.5	18.6	16.5	9.8	29.7	55.9	18.6
Median	57.7	3.6	9.5	9.5	5.8	5.8	3.5	9.3	49.1	5.8
25th %ile	41.0	1.4	3.2	2.1	2.1	1.9	1.4	3.4	26.6	2.1
Min	17.8	0.1	0.2	0.1	0.1	0.2	0.1	0.4	2.3	0.1

1. Peer group statistics are for your 2022 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 - 2022 (as a % of year-end assets)

	Your fund <sup>1</sup>	Peer group	Global by type				Global by Country				
			Corp.	Public	Other	Total	U.S.	Canada	Europe	Asia-Pacific	Total
<b>Implementation style</b>											
External Active	0.0	31.9	75.1	57.3	60.7	65.6	74.3	61.5	53.2	46.9	65.6
Fund of funds	0.0	0.8	3.2	3.7	2.4	3.3	3.1	2.6	4.5	2.0	3.3
External passive	0.0	4.0	16.3	15.2	17.1	16.0	16.1	11.3	20.8	14.5	16.0
Internal Active	100.0	57.6	4.1	18.5	15.6	11.7	3.8	19.7	18.2	29.7	11.7
Internal Passive	<u>0.0</u>	<u>5.7</u>	<u>1.4</u>	<u>5.4</u>	<u>4.2</u>	<u>3.5</u>	<u>2.6</u>	<u>4.8</u>	<u>3.3</u>	<u>6.8</u>	<u>3.5</u>
Total	100	100	100	100	100	100	100	100	100	100	100
<b>Actual asset mix</b>											
Stock	60.2	39.7	25.0	43.2	39.4	34.6	31.0	32.9	43.2	46.4	34.6
Fixed Income <sup>2</sup>	39.8	25.7	53.9	24.1	32.9	38.6	44.6	34.0	31.1	30.7	38.6
Global TAA	0.0	0.3	0.4	0.8	0.1	0.5	0.5	0.2	0.9	0.0	0.5
Real Assets	0.0	15.9	8.0	16.4	15.0	12.5	8.1	20.3	13.9	12.1	12.5
Hedge Funds	0.0	2.7	3.9	2.8	2.2	3.2	4.6	2.3	1.2	1.8	3.2
Balanced Funds	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Risk Parity	0.0	0.2	0.3	0.4	0.0	0.3	0.6	0.0	0.0	0.0	0.3
Private Debt	0.0	4.3	2.4	3.2	5.1	3.2	2.0	4.6	4.5	1.3	3.2
Private Equity	<u>0.0</u>	<u>11.1</u>	<u>6.0</u>	<u>9.0</u>	<u>5.4</u>	<u>7.1</u>	<u>8.6</u>	<u>5.8</u>	<u>5.1</u>	<u>7.6</u>	<u>7.1</u>
Total	100	100	100	100	100	100	100	100	100	100	100
<b>Policy asset mix</b>											
Stock	60.2	43.6	26.1	44.5	39.3	35.6	33.0	34.0	41.0	52.5	35.6
Fixed Income	39.8	26.1	55.5	24.6	34.4	39.7	46.2	34.9	31.4	29.5	39.7
Global TAA	0.0	0.2	0.4	0.6	0.1	0.4	0.5	0.1	0.6	0.0	0.4
Real Assets	0.0	14.0	7.0	16.5	14.7	12.1	7.5	19.2	14.8	11.3	12.1
Hedge funds	0.0	1.2	3.4	1.9	1.6	2.5	3.7	1.7	0.9	1.3	2.5
Balanced Funds	0.0	0.0	0.0	0.3	0.0	0.1	0.0	0.0	0.5	0.0	0.1
Risk Parity	0.0	0.3	0.4	0.4	0.0	0.3	0.6	0.0	0.0	0.0	0.3
Private Debt	0.0	4.4	2.2	3.7	5.1	3.3	1.5	5.4	5.2	0.9	3.3
Private Equity	<u>0.0</u>	<u>10.2</u>	<u>4.7</u>	<u>7.7</u>	<u>4.7</u>	<u>5.9</u>	<u>7.1</u>	<u>4.7</u>	<u>4.9</u>	<u>4.4</u>	<u>5.9</u>
Total	100	100	100	100	100	100	100	100	99	100	100

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

2. Includes derivatives and overlays.

## Implementation style, actual mix and policy mix trends

### Implementation style, actual mix and policy mix - 2018 to 2022 (as a % of year-end assets)

	Your fund <sup>1</sup>					Peer average <sup>2</sup>					Global average <sup>2</sup>				
	2022	2021	2020	2019	2018	2022	2021	2020	2019	2018	2022	2021	2020	2019	2018
<b>Implementation style</b>															
External active	0.0	0.0	0.0	0.0	0.0	33.6	30.4	30.1	30.0	29.9	63.5	61.5	61.3	61.4	61.4
Fund of funds	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	2.8	2.4	2.1	2.3	2.5
External passive	0.0	0.0	0.0	0.0	0.0	4.3	5.1	4.8	4.4	4.0	16.4	18.0	18.6	18.3	18.4
Internal active	100.0	100.0	100.0	100.0	100.0	55.2	56.0	56.2	55.0	55.6	13.1	13.4	13.5	13.2	13.3
Internal passive	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>6.1</u>	<u>7.8</u>	<u>8.1</u>	<u>9.7</u>	<u>9.7</u>	<u>4.3</u>	<u>4.7</u>	<u>4.6</u>	<u>4.8</u>	<u>4.5</u>
Total	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
<b>Actual asset mix</b>															
Stock	60.2	63.1	65.1	61.8	59.0	40.7	43.8	43.0	42.6	43.0	34.8	38.6	39.7	39.5	39.8
Fixed income <sup>3</sup>	39.8	36.9	34.9	38.2	41.0	26.8	28.7	30.9	31.4	31.7	36.4	37.1	37.6	37.2	36.8
Global TAA	0.0	0.0	0.0	0.0	0.0	0.3	0.4	0.4	0.6	0.5	0.5	0.6	0.8	0.8	0.8
Real assets	0.0	0.0	0.0	0.0	0.0	14.5	11.8	11.5	11.6	11.6	13.1	10.7	10.4	10.7	10.7
Hedge funds	0.0	0.0	0.0	0.0	0.0	2.8	3.0	3.3	3.9	3.9	3.3	3.0	3.0	3.3	3.5
Balanced Funds	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.5
Risk Parity	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.3	0.3	0.4	0.5	0.5	0.5	0.5
Private credit	0.0	0.0	0.0	0.0	0.0	3.9	3.1	3.0	2.3	2.1	3.2	2.5	2.3	2.2	2.0
Private equity	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>10.8</u>	<u>8.9</u>	<u>7.5</u>	<u>7.4</u>	<u>6.9</u>	<u>8.3</u>	<u>7.0</u>	<u>5.8</u>	<u>5.5</u>	<u>5.4</u>
Total	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
<b>Policy asset mix</b>															
Stock	60.2	63.1	65.1	62.0	59.0	44.7	46.8	46.2	46.7	47.1	36.4	38.4	39.8	40.3	41.2
Fixed income	39.8	36.9	34.9	38.0	41.0	28.9	30.1	31.3	32.5	32.6	38.0	37.9	37.0	37.3	36.8
Global TAA	0.0	0.0	0.0	0.0	0.0	0.2	0.4	0.3	0.3	0.4	0.4	0.5	0.6	0.6	0.7
Real assets	0.0	0.0	0.0	0.0	0.0	11.6	10.5	10.2	10.1	9.9	12.2	11.2	11.2	10.8	10.7
Hedge funds	0.0	0.0	0.0	0.0	0.0	1.2	1.3	1.9	2.1	2.0	2.5	2.5	2.7	3.0	3.1
Balanced Funds	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Risk Parity	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.3	0.3	0.5	0.4	0.5	0.4	0.5
Private credit	0.0	0.0	0.0	0.0	0.0	3.3	2.8	2.8	2.0	2.1	3.1	2.8	2.4	2.0	1.7
Private equity	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>9.7</u>	<u>7.7</u>	<u>6.9</u>	<u>6.0</u>	<u>5.6</u>	<u>6.8</u>	<u>6.2</u>	<u>5.7</u>	<u>5.5</u>	<u>5.2</u>
Total	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

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 191 Global and 15 peer funds with 10 or more consecutive years of data ending 2022.

3. Includes derivatives and overlays.

## 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 - 2022 (as a % of average assets)

	Your fund %				Peer average %				Global average %						
	External		Internal		External		Internal		External		Internal				
	Active	FOFs	Index	Active	Index	Active	FOFs	Index	Active	FOFs	Index	Active	Index		
Stock - U.S.					6.8	9.9	48.3	35.1	33.7	50.4	8.3	7.6			
Stock - EAFE	0.0		0.0	100.0	0.0	14.9	6.3	75.5	3.3	55.8	22.8	19.1	2.4		
Stock - Global					31.0	5.9	63.1	0.0	61.6	23.8	10.8	3.8			
Stock - other					0.0	8.3	87.1	4.6	69.7	6.1	18.3	5.9			
Stock - Emerging					30.0	17.5	45.2	7.2	67.8	21.7	6.6	3.9			
Stock - ACWI x U.S.					71.3	0.0	28.7	0.0	68.9	29.9	1.0	0.3			
Stock - Aggregate	0.0		0.0	100.0	0.0	18.3	8.2	62.0	11.5	55.1	29.2	11.1	4.5		
Fixed income - U.S.					7.7	4.0	86.9	1.4	68.8	15.3	13.3	2.5			
Fixed income - EAFE	0.0		0.0	100.0	0.0	6.2	0.3	79.0	14.4	39.0	32.9	17.1	11.0		
Fixed income - Global					7.8	1.5	90.7	0.0	53.4	12.2	29.1	5.4			
Fixed income - other					7.0	6.3	86.7	0.0	62.3	15.9	15.8	6.0			
Fixed income - Long bonds					1.3	0.0	98.7	0.0	82.2	6.7	7.1	4.1			
Fixed income - Emerging					59.0	3.6	35.5	1.9	80.4	9.6	8.8	1.2			
Fixed income - Inflation indexed					0.0	0.4	84.1	15.4	16.6	39.6	29.4	14.4			
Fixed income - High yield					73.7	0.0	26.3	0.0	86.5	2.6	9.1	1.8			
Fixed income - Bundled LDI					7.7	0.0	92.3	0.0	56.0	22.7	13.6	7.7			
Fixed income - Convertibles					100.0	0.0	0.0	0.0	66.9	0.0	33.1	0.0			
Public mortgages					37.0	0.0	63.0	0.0	65.7	0.0	34.3	0.0			
Cash					44.9		55.1		57.6		42.4				
Fixed income - Aggregate	0.0		0.0	100.0	0.0	15.8	1.9	77.6	4.7	67.1	13.9	14.1	4.9		
Commodities					13.3	0.0	42.6	44.1	24.5	15.4	30.6	29.4			
Infrastructure					30.3	0.4	69.3		80.4	4.6	15.0				
Natural resources					43.5	0.0	56.5		68.3	3.6	28.1				
REITs					0.0	20.7	15.4	63.9	64.2	21.3	11.8	2.7			
Real estate					41.5	0.2	58.3		76.2	7.5	16.3				
Other real assets					100.0	0.0	0.0		94.9	0.0	5.1				
Other listed real assets					0.0	100.0	0.0	0.0	81.2	11.5	5.9	1.3			
Real assets - Aggregate					37.2	0.2	0.7	59.8	2.1	76.3	6.0	1.2	16.0	0.5	
Hedge funds					92.7	7.3			74.0	26.0					
Global TAA					43.3		56.7		83.2		16.8				
Balanced funds					0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0			
Risk parity					100.0		0.0		94.9		5.1				
Private credit					66.6	0.0	33.4		85.1	5.7	9.2				
Private mortgages					67.4		32.6		89.2		10.8				
Private equity - Diversified					74.0	3.8	22.2		72.5	22.8	4.7				
Venture capital					79.9	19.8	0.2		46.7	50.9	2.3				
LBO					94.5	4.2	1.3		93.1	6.6	0.3				
Private equity - Other					82.1	0.0	17.9		71.5	2.1	26.4				
Private equity - Aggregate					79.9	5.1	15.0		73.5	21.7	4.8				
Total Fund - Avg. Holdings	0.0	0.0	0.0	100.0	0.0	31.9	0.8	4.0	57.6	5.7	65.6	3.3	16.0	11.7	3.5

## Actual mix

### Actual asset mix - 2018 to 2022 (as a % of total average assets)

	Your fund <sup>1</sup>					Peer average %					Global average %				
	2022	2021	2020	2019	2018	2022	2021	2020	2019	2018	2022	2021	2020	2019	2018
Stock - U.S.						10.7	12.4	10.3	11.1	11.4	8.7	9.7	10.4	10.6	11.1
Stock - EAFE	60.2	63.1	65.1	61.8	59.0	13.5	15.7	15.5	15.3	15.3	5.1	5.9	6.5	6.2	6.8
Stock - Global						8.6	8.1	8.0	7.7	7.5	13.9	14.3	14.2	13.4	12.7
Stock - other						2.1	2.1	1.9	1.7	2.0	2.5	3.1	3.2	3.3	3.4
Stock - Emerging						3.7	4.3	4.5	4.2	4.3	2.5	3.0	3.2	3.0	3.1
Stock - ACWI x U.S.						1.1	1.2	1.0	0.8	0.8	1.9	2.0	2.3	2.4	2.3
Stock - Aggregate	60.2	63.1	65.1	61.8	59.0	39.7	43.8	41.1	40.8	41.3	34.6	37.9	39.7	38.9	39.5
Fixed income - U.S.						5.6	6.4	6.3	6.6	6.5	6.9	6.4	6.4	6.7	6.8
Fixed income - EAFE	39.8	36.9	34.9	37.9	41.0	5.5	6.4	5.8	5.7	6.7	2.4	2.7	2.6	3.0	3.1
Fixed income - Global						3.0	2.5	3.2	4.3	4.1	2.0	2.3	2.3	2.5	2.4
Fixed income - other						2.1	2.4	2.3	2.3	2.5	5.5	5.0	4.8	4.9	5.1
Fixed income - Long bonds						1.1	1.6	1.6	2.1	1.5	12.1	12.3	12.8	12.6	12.8
Fixed income - Emerging						1.8	2.0	1.9	2.1	1.9	1.1	1.2	1.2	1.3	1.1
Fixed income - Inflation indexed						2.0	1.8	1.9	2.0	3.0	1.5	1.5	1.4	1.8	1.7
Fixed income - High yield						1.2	1.2	1.2	0.7	0.7	1.1	1.2	1.1	1.2	1.2
Fixed income - Bundled LDI						1.6	1.9	1.8	0.9		3.6	3.4	3.1	2.3	2.3
Fixed income - Convertibles						0.0	0.1	0.1	0.2	0.2	0.1	0.1	0.0	0.0	0.0
Public mortgages						0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0
Cash				0.2		1.8	2.0	2.2	2.0	1.9	1.3	1.4	1.5	1.4	1.6
Fixed income - Aggregate	39.8	36.9	34.9	38.2	41.0	25.8	28.3	28.3	29.0	29.1	38.3	37.9	37.9	38.1	38.4
Commodities						0.3	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.3
Infrastructure						4.5	2.8	3.7	3.5	3.1	3.6	2.6	2.4	2.3	2.1
Natural resources						0.8	0.6	0.6	0.7	0.6	0.4	0.4	0.3	0.3	0.4
REITs						0.3	0.3	0.2	0.2	0.2	0.5	0.6	0.5	0.5	0.6
Real estate						9.9	7.8	8.4	8.6	8.6	7.5	6.1	6.1	6.3	6.3
Other real assets						0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2
Other listed real assets						0.0	0.0				0.2	0.1	0.1	0.1	0.0
Real assets - Aggregate						15.9	11.8	13.1	13.2	12.8	12.5	10.1	9.8	10.0	9.9
Hedge funds						2.7	3.0	3.2	3.7	3.7	3.2	3.1	3.1	3.3	3.4
Global TAA						0.3	0.4	1.4	1.6	1.9	0.5	0.6	0.9	1.0	0.9
Balanced funds											0.0	0.0	0.0	0.2	0.4
Risk parity						0.2	0.3	0.3	0.3	0.3	0.3	0.4	0.5	0.6	0.5
Private mortgages						0.5	0.5	0.5	0.5	0.5	0.8	0.6	0.5	0.6	0.6
Private credit						3.7	2.6	2.7	2.0	1.7	2.4	2.2	1.6	1.6	1.4
Private equity - Diversified						7.2	5.4	5.1	5.3	4.8	5.8	5.1	4.2	4.2	3.9
Venture capital						0.9	0.8	0.5	0.5	0.5	0.3	0.3	0.3	0.2	0.3
LBO						2.9	2.4	2.0	1.8	1.7	0.8	0.7	0.6	0.6	0.5
Private equity - Other						0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2
Private equity - Aggregate						11.1	8.9	7.9	7.8	7.2	7.1	6.4	5.3	5.2	4.8
Derivatives/Overlays Mkt Value						-0.1	0.4	1.3	1.1	1.4	0.3	0.7	0.7	0.6	0.3
Total Fund	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Count		1		1		16	15	16	16	16	294	294	315	318	340
Median Assets (€ billions)	30.3	33.2	27.9	27.3	24.2	57.7	63.3	60.4	56.2	49.9	5.8	7.5	6.2	6.4	5.5

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



## Policy mix

### Policy asset mix - 2018 to 2022 (as a % of total assets)

	Your fund %					Peer average %					Global average %				
	2022	2021	2020	2019	2018	2022	2021	2020	2019	2018	2022	2021	2020	2019	2018
Stock - U.S.						8.4	11.2	9.7	9.9	10.0	8.2	8.2	9.5	9.8	10.5
Stock - EAFE	60.2	63.1	65.1	62.0	59.0	12.5	14.1	13.8	14.2	13.9	4.6	5.2	5.7	5.6	6.4
Stock - Global						14.7	13.7	12.8	13.0	13.0	15.9	16.6	16.2	15.3	14.8
Stock - other						2.9	2.9	2.6	2.6	2.8	2.6	3.1	3.1	3.4	3.3
Stock - Emerging						4.3	4.2	3.6	3.6	3.9	2.2	2.6	2.7	2.7	2.8
Stock - ACWI x U.S.						0.7	0.8	0.6	0.5	0.5	1.9	1.8	2.2	2.4	2.6
Stock - Aggregate	60.2	63.1	65.1	62.0	59.0	43.6	46.8	43.3	43.8	44.1	35.6	37.8	39.6	39.3	40.3
Fixed income - U.S.						5.6	6.4	6.3	6.4	6.2	7.3	6.9	6.7	6.8	7.0
Fixed income - EAFE	39.8	36.9	34.9	38.0	41.0	6.9	6.8	6.4	6.3	6.9	2.7	2.7	2.7	3.3	3.2
Fixed income - Global						4.9	5.0	4.6	5.8	5.8	2.2	2.6	2.6	2.8	2.7
Fixed income - other						2.9	3.1	2.8	2.8	2.7	5.8	5.2	4.8	5.2	5.1
Fixed income - Long bonds						1.1	1.3	1.6	1.5	1.5	13.6	13.5	13.2	13.0	13.2
Fixed income - Emerging						1.5	1.7	1.5	1.8	1.8	1.0	1.1	1.1	1.3	1.1
Fixed income - Inflation indexed						3.3	3.1	2.9	4.5	4.4	1.8	1.8	1.6	2.1	2.0
Fixed income - High yield						1.1	1.2	0.9	0.6	0.5	1.0	1.1	1.1	1.2	1.1
Fixed income - Bundled LDI							2.6	2.3			3.3	3.1	3.1	2.4	2.2
Fixed income - Convertibles						0.0	0.0	0.0	0.2	0.2	0.0	0.1	0.0	0.0	0.0
Public mortgages						0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0
Cash						-1.7	-0.9	0.2	0.5	0.5	-0.1	0.2	0.4	0.5	0.5
Fixed income - Aggregate	39.8	36.9	34.9	38.0	41.0	26.1	30.1	29.4	30.5	30.6	39.7	39.2	38.0	38.7	38.4
Commodities						0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.3	0.3
Infrastructure						3.8	1.8	3.1	2.9	2.7	3.7	3.1	2.8	2.5	2.1
Natural resources						0.4	0.4	0.5	0.4	0.3	0.3	0.3	0.3	0.3	0.3
REITs						0.3	0.3	0.2	0.2	0.2	0.4	0.5	0.5	0.5	0.6
Real estate						9.3	7.8	8.4	8.4	8.3	7.3	6.6	6.8	6.6	6.4
Other real assets						0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.3
Other listed real assets						0.0	0.1				0.1	0.1	0.1	0.0	0.0
Real assets - Aggregate						14.0	10.5	12.4	12.0	11.8	12.1	11.1	10.8	10.4	10.0
Hedge funds						1.2	1.3	1.8	1.9	1.9	2.5	2.4	2.7	2.9	3.1
Global TAA						0.2	0.4	2.8	3.1	3.2	0.4	0.5	0.9	0.9	0.9
Balanced funds											0.1	0.0	0.0	0.1	0.2
Risk parity						0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.5	0.5
Private mortgages						0.5	0.5	0.6	0.6	0.7	0.8	0.6	0.6	0.6	0.6
Private credit						3.9	2.3	2.1	1.2	1.3	2.4	2.4	1.7	1.5	1.3
Private equity - Diversified						7.7	5.7	5.7	4.7	4.5	5.2	4.8	4.5	4.5	4.1
Venture capital						0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2
LBO						2.1	1.8	1.6	1.6	1.5	0.4	0.5	0.5	0.4	0.4
Private equity - Other						0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Private equity - Aggregate						10.2	7.7	7.4	6.5	6.1	5.9	5.6	5.3	5.2	4.8
Total Fund	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Count	1	1	1	1	1	15	15	16	16	16	291	291	314	318	340

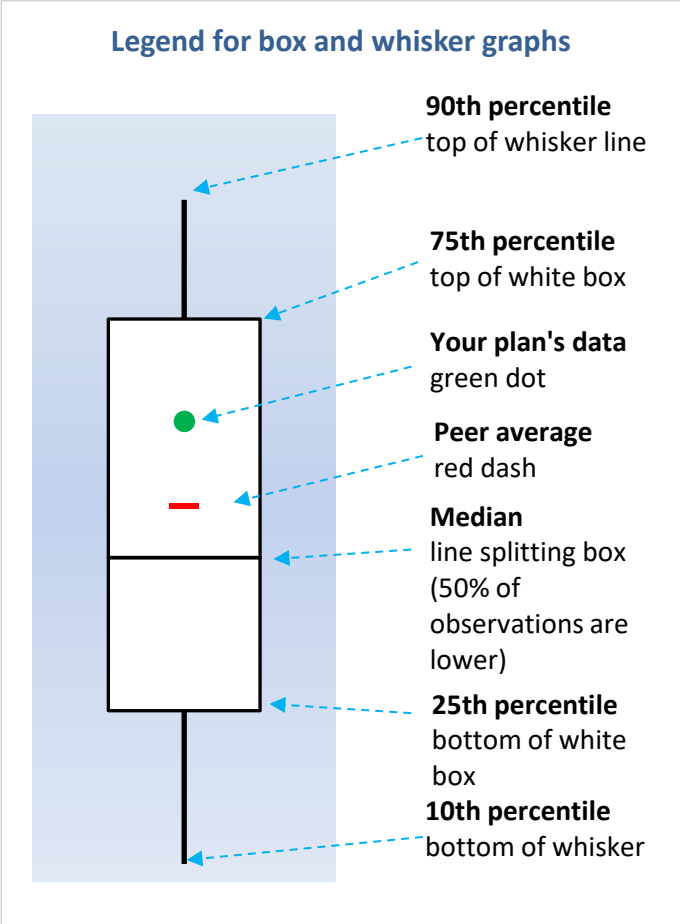
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## Returns, Benchmarks and Value Added

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Appendix - CEM's Private equity benchmark	12

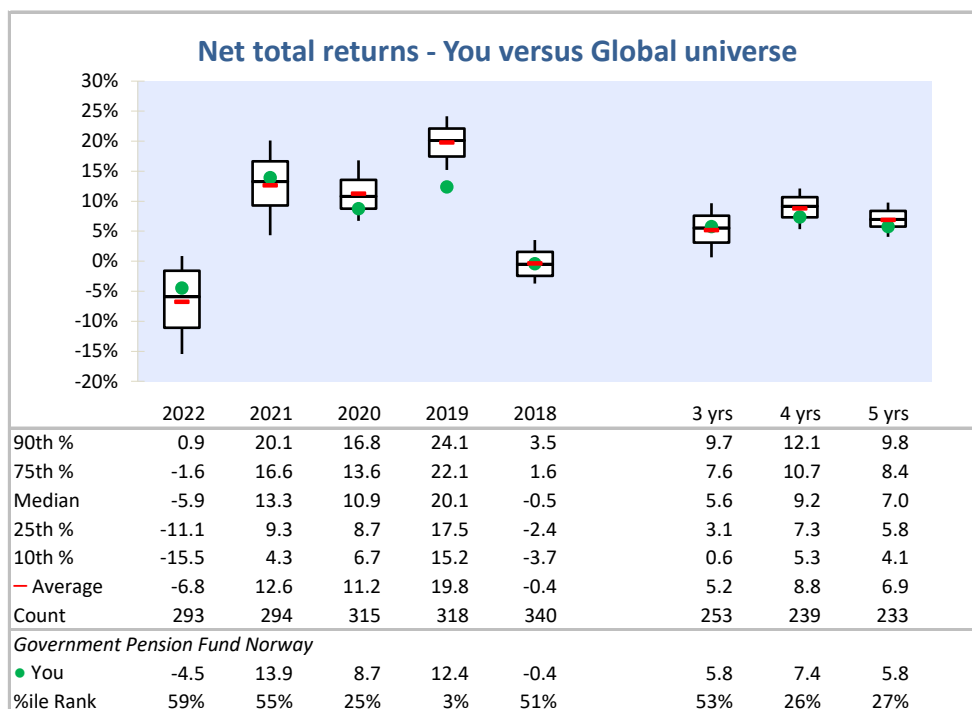
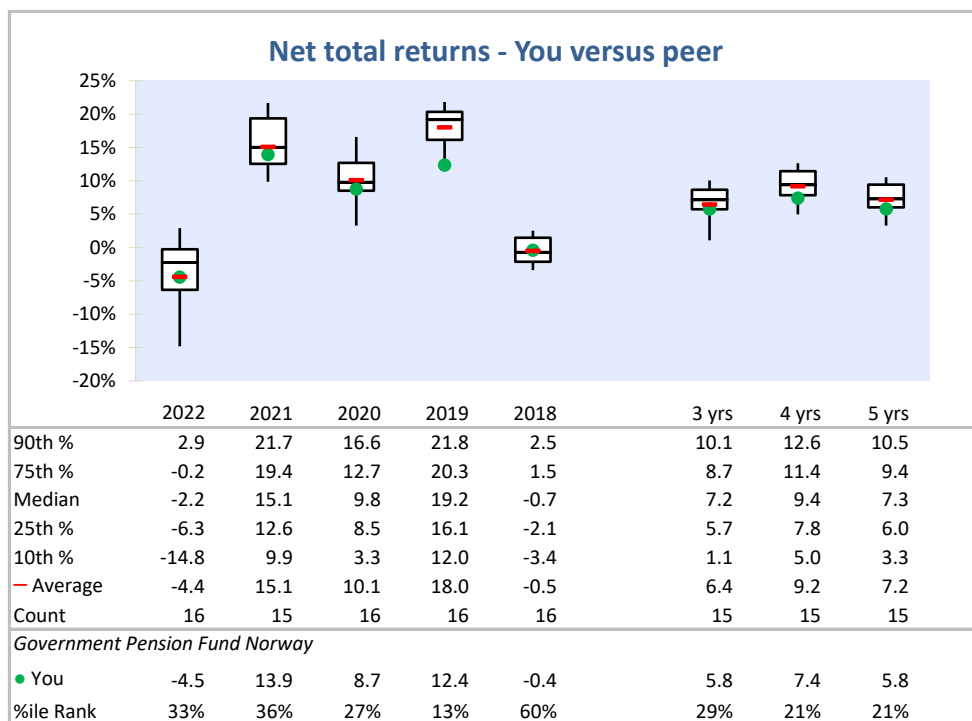
# Interpreting box and whisker graphs

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.



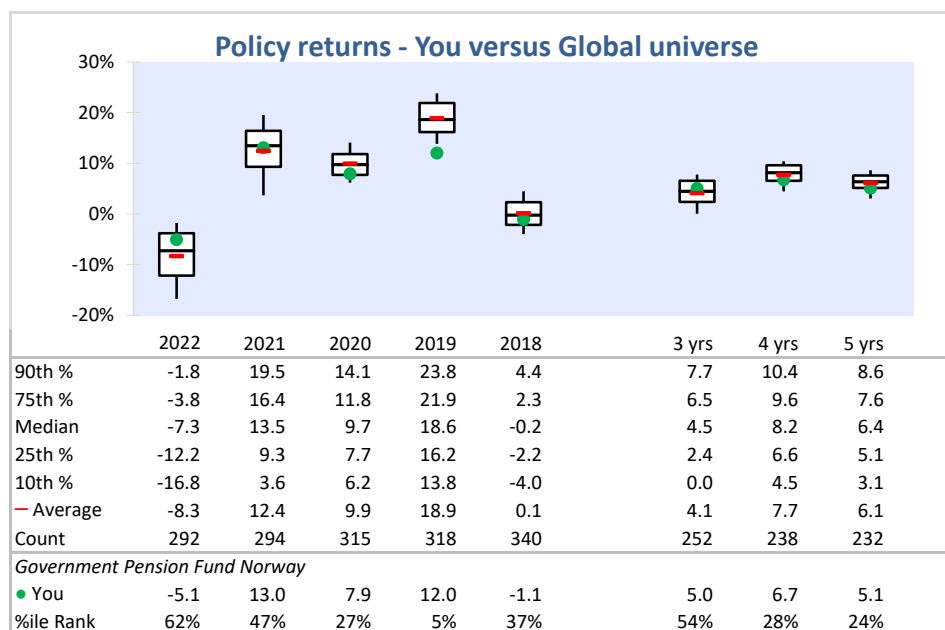
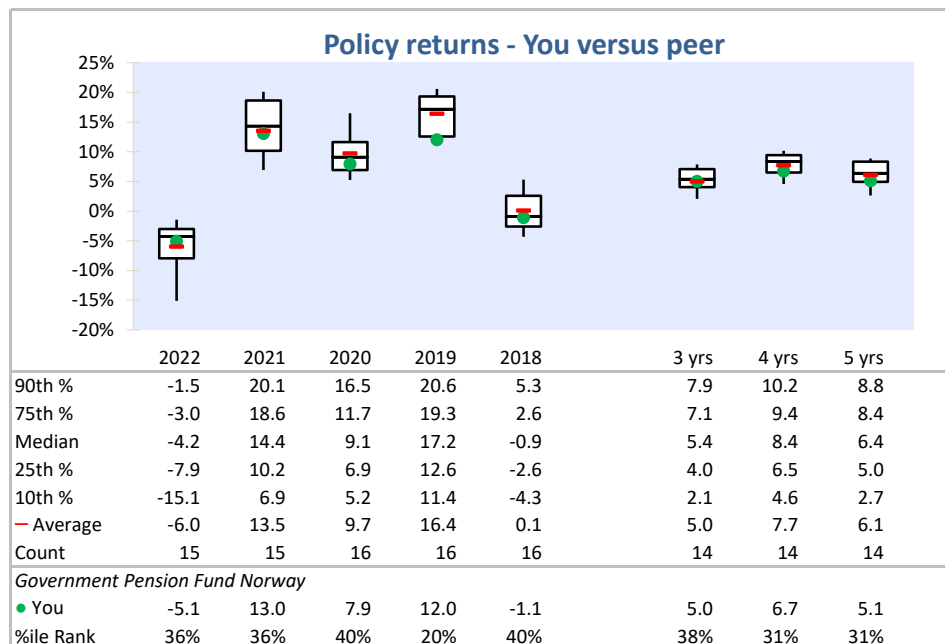
## Net total returns

Your 5-year net total return of 5.8% was below the peer median and below the median of the Global 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

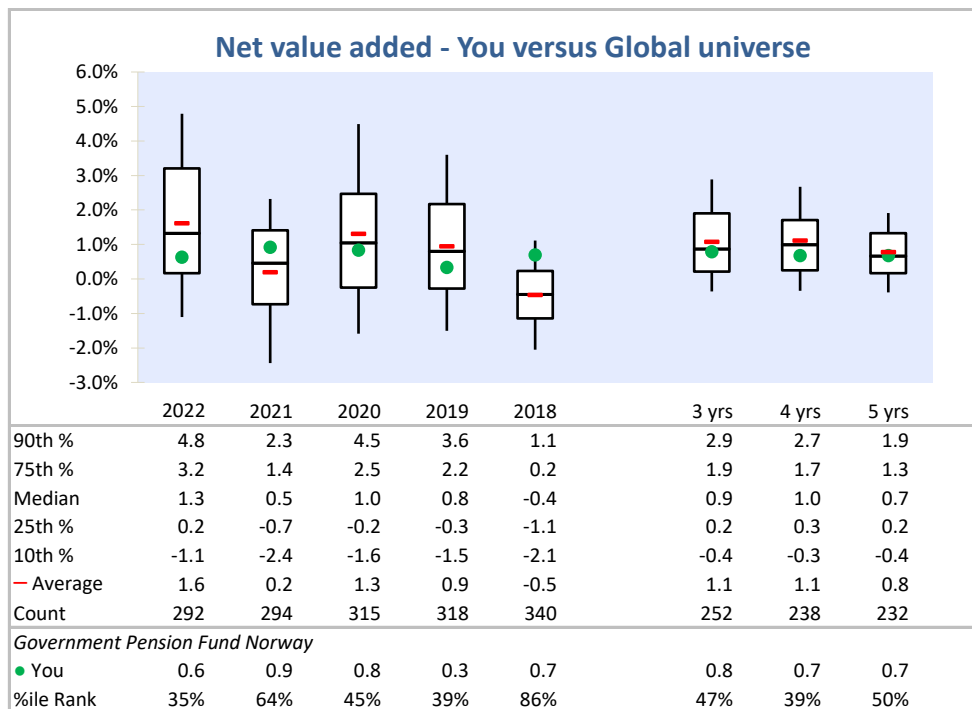
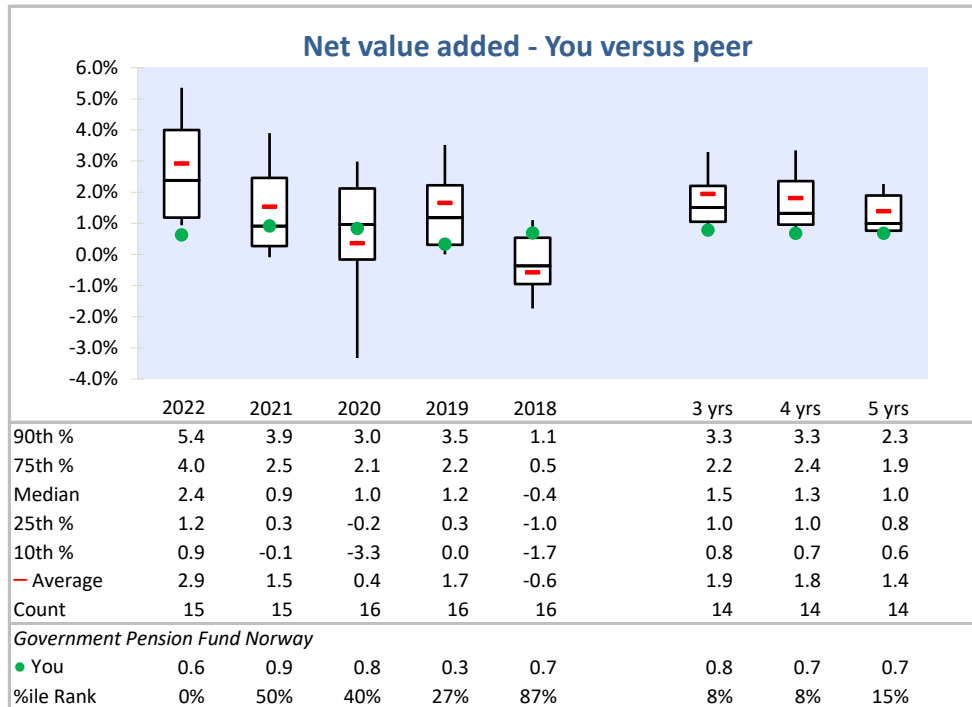
Your 5-year policy return of 5.1% was below the peer median and below the median of the Global universe. Policy return is the return you would have earned had you passively implemented your policy asset mix decision through your benchmark portfolios.



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. Refer to the appendix of this section for details.

## Net value added

Your 5-year net value added of 0.7% was below the peer median and close to the Global universe median. 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 %						Global average %					
	2022	2021	2020	2019	2018	5-yr <sup>1</sup>	2022	2021	2020	2019	2018	5-yr <sup>1</sup>	2022	2021	2020	2019	2018	5-yr <sup>1</sup>
Stock - U.S.							-12.3	29.8	18.3	33.2	-1.4	12.0	-9.2	28.4	16.7	32.1	-1.5	12.2
Stock - EAFE	-1.7	24.8	8.0	18.1	-1.9	9.0	-7.2	18.5	8.9	24.4	-9.4	6.2	-5.6	14.3	8.9	24.2	-9.9	5.6
Stock - Global							-9.3	19.5	6.8	28.7	-5.3	8.6	-8.5	20.8	14.0	27.8	-4.0	8.9
Stock - other							-1.8	-7.8	129.7	18.6	-3.0	15.5	-1.8	20.0	9.4	22.8	-8.8	8.8
Stock - Emerging							-11.5	3.6	15.2	20.3	-11.3	2.3	-11.8	1.7	16.5	22.4	-10.6	2.4
Stock - ACWI x U.S.							-2.8	13.5	9.4	25.7	-8.4	6.8	-8.9	12.2	11.5	25.0	-10.5	5.4
Stock - Aggregate	-1.7	24.8	8.0	18.1	-1.9	9.0	-8.7	20.9	11.1	27.4	-6.5	8.3	-7.7	20.2	13.1	27.8	-5.6	8.6
Fixed income - U.S.							-4.4	-0.4	8.1	11.0	2.8	3.3	-7.5	0.9	8.4	12.2	4.3	3.7
Fixed income - EAFE	-8.9	-1.5	7.3	4.1	1.6	0.4	-12.0	-3.1	11.1	5.8	0.0	-0.4	-16.9	-4.0	12.7	8.8	0.3	-0.5
Fixed income - Global							-5.2	-1.4	6.9	8.5	-0.7	1.7	-16.5	-0.2	9.3	7.8	0.6	2.4
Fixed income - other							-2.0	0.8	5.6	7.8	2.8	2.9	-3.7	3.2	6.9	11.4	1.5	3.6
Fixed income - Long bonds							-21.4	-3.4	18.0	22.9	-1.9	1.5	-18.8	-0.3	13.6	21.4	-0.8	2.2
Fixed income - Emerging							-4.2	-2.8	1.9	14.2	-1.4	1.3	-4.3	-2.4	3.9	14.7	-1.8	1.5
Fixed income - Inflation indexed							-4.9	5.9	8.8	10.9	-0.2	3.4	-11.9	6.4	9.6	12.7	0.3	3.4
Fixed income - High yield							-1.1	6.5	6.6	13.5	1.4	5.2	1.5	7.4	4.9	13.2	1.7	5.4
Fixed income - Bundled LDI							-56.5	7.1	17.1	10.4			-31.4	-2.0	22.1	21.4	-0.6	-1.3
Public mortgages							2.9	7.1	0.7	10.1	8.9	5.8	-1.7	4.0	1.1	10.1	8.9	5.8
Fixed income - Convertibles							-16.5	-4.6	37.5	12.2	0.2	-0.6	-5.1	3.0	21.9	15.8	1.4	4.8
Cash							8.5	0.1	4.2	3.9	1.7	3.7	8.5	1.5	0.0	4.3	3.6	3.0
Fixed income - Aggregate	-8.9	-1.5	7.3	4.1	1.6	0.4	-5.9	0.1	8.2	10.7	1.0	2.5	-11.6	0.5	11.1	15.0	0.9	2.7
Commodities							19.1	25.9	-16.7	12.5	-1.1	7.2	26.6	25.0	-3.4	9.9	-7.5	8.8
Infrastructure							15.0	11.9	8.1	8.1	9.3	10.7	17.0	13.4	6.9	12.8	9.8	11.6
Natural resources							30.2	15.1	-4.6	6.6	9.3	9.7	22.2	16.0	-4.6	5.3	8.0	8.4
REITs							-17.8	33.9	-11.7	26.0	0.4	5.9	-13.3	31.6	-7.7	25.3	-0.2	5.1
Real estate							15.1	15.8	2.2	9.9	10.6	10.3	15.6	19.5	0.8	9.1	12.3	10.6
Other real assets							196.2	24.3	-10.6	-44.4	-18.8	-33.8	23.7	21.8	-0.6	5.4	-1.2	3.6
Real assets - Aggregate							15.8	16.1	2.8	10.4	9.7	10.6	15.2	19.3	1.0	10.7	8.9	10.7
Hedge funds							6.4	11.6	2.7	10.9	2.6	6.3	13.4	10.4	3.0	8.0	1.6	6.7
Global TAA							1.4	16.8	7.2	19.8	-4.6	9.2	4.1	9.6	2.9	13.9	-0.9	5.8
Balanced funds													4.5	6.7	-10.8	32.5	-13.3	
Risk parity							-21.9	14.7	3.5	32.4	-5.2	3.1	-13.4	11.6	6.6	20.2	-2.7	4.6
Private mortgages							0.9	4.8	8.9	9.9	2.3	2.4	-1.1	3.3	7.2	8.9	2.4	3.3
Private credit							6.8	9.9	3.9	8.0	6.9	6.7	8.7	14.3	3.4	11.8	8.0	9.2
Private equity - Diversified							8.1	47.3	12.2	12.8	18.3	19.6	10.3	45.7	13.2	11.6	18.9	19.1
Venture capital							-1.6	71.7	30.0	10.6	17.8	22.2	1.4	57.9	22.9	10.9	22.8	20.3
LBO							8.1	37.6	14.3	15.4	14.5	17.9	12.0	46.2	13.5	13.7	18.6	19.6
Private equity - Other							21.2	5.5	14.5	18.3	2.6	28.2	12.1	28.5	12.4	10.5	14.4	17.5
Private equity - Aggregate							9.0	46.8	13.3	13.2	16.7	19.8	10.3	46.7	14.0	11.3	18.9	19.1
Total Fund Return	-4.5	13.9	8.7	12.4	-0.4	5.8	-4.4	15.1	10.1	18.0	-0.5	7.2	-6.8	12.6	11.2	19.8	-0.4	6.9

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 composite calculation only uses those components with a full year return.

1. The 5-year return number only includes funds with continuous data over the last 5 years.

## Benchmark returns by asset class

Asset class	Your fund %						Peer average %						Global average %					
	2022	2021	2020	2019	2018	5-yr <sup>1</sup>	2022	2021	2020	2019	2018	5-yr <sup>1</sup>	2022	2021	2020	2019	2018	5-yr <sup>1</sup>
Stock - U.S.							-11.1	27.4	17.4	32.3	-2.6	11.1	-9.7	28.0	17.4	32.3	-1.2	12.2
Stock - EAFE	-2.8	23.6	8.2	17.7	-2.6	8.3	-7.1	18.1	8.2	24.8	-8.6	6.5	-4.4	14.6	5.3	24.3	-9.2	5.4
Stock - Global							-8.5	22.9	14.3	27.8	-5.1	8.8	-8.5	21.9	13.1	28.3	-4.6	9.0
Stock - other							-6.7	3.0	12.1	28.7	-10.4	7.9	-3.2	21.4	6.4	26.2	-8.3	8.7
Stock - Emerging							-11.0	3.5	16.6	21.0	-11.1	3.0	-10.5	1.6	15.6	20.4	-9.6	2.6
Stock - ACWI x U.S.							-4.6	13.1	7.4	23.8	-8.9	5.5	-7.1	11.8	8.5	23.9	-9.8	4.8
Stock - Aggregate	-2.8	23.6	8.2	17.7	-2.6	8.3	-7.9	20.9	13.4	26.8	-6.1	8.5	-7.9	20.7	12.6	27.7	-5.5	8.6
Fixed income - U.S.							-3.8	-0.9	7.1	11.3	3.1	3.4	-7.2	0.5	7.5	11.2	4.3	3.4
Fixed income - EAFE	-8.9	-2.1	4.9	3.8	1.0	-0.4	-10.7	-5.1	11.1	5.9	-0.5	-1.2	-18.2	-4.5	12.3	8.5	0.4	-0.9
Fixed income - Global							-4.8	-2.9	8.0	8.6	1.3	1.2	-5.2	-0.5	7.9	9.7	1.4	2.3
Fixed income - other							-6.0	0.2	6.0	9.9	3.0	2.4	-5.0	2.3	6.3	11.6	1.3	2.6
Fixed income - Long bonds							-28.3	-3.0	13.6	22.1	-2.3	-1.3	-18.1	-0.3	12.3	21.4	-0.7	1.9
Fixed income - Emerging							-4.3	-2.3	4.1	14.3	-0.3	2.1	-4.9	-2.1	3.5	15.1	-0.7	2.0
Fixed income - Inflation indexed							-7.9	4.3	11.2	9.3	0.5	3.8	-12.5	5.9	10.1	11.9	0.3	3.0
Fixed income - High yield							-2.2	3.8	6.1	13.9	1.5	5.2	-0.6	6.4	4.5	14.5	1.6	5.2
Fixed income - Bundled LDI								5.5	14.3				-32.8	-3.1	21.9	21.7	-0.4	-1.7
Public mortgages							-3.4	7.3	-1.1	12.5	8.2	4.5	-1.0	2.7	0.7	7.6	8.2	4.5
Fixed income - Convertibles							1.5	-1.6	11.1	24.1	-1.9	5.5	-7.4	5.9	24.5	17.6	1.5	8.2
Cash							6.8	0.4	2.2	4.6	2.3	3.1	8.7	1.8	0.2	4.5	3.5	3.6
Fixed income - Aggregate	-8.9	-2.1	4.9	3.8	1.0	-0.4	-7.3	-0.8	8.8	10.1	1.1	1.8	-12.5	0.1	10.3	14.8	0.9	2.0
Commodities							29.1	39.1	-4.8	19.5	-7.3	7.7	26.5	26.7	-6.6	12.7	-7.2	9.4
Infrastructure							8.4	11.2	9.6	9.9	7.7	10.5	11.5	10.8	6.9	13.1	4.9	9.0
Natural resources							13.0	9.5	0.6	8.1	6.5	6.1	17.8	19.1	-1.2	10.4	5.2	9.0
REITs							-18.1	33.6	-17.9	26.1	0.5	6.0	-13.6	31.0	-8.9	23.9	-0.3	4.9
Real estate							16.7	14.0	4.1	8.6	9.4	9.6	15.1	17.4	1.7	9.9	9.3	10.3
Other real assets							5.9	-2.3	16.2	12.1	-3.0	4.4	9.2	19.1	4.6	13.0	2.5	7.7
Real assets - Aggregate							15.6	13.1	3.8	9.4	8.6	9.5	13.8	16.7	1.6	11.5	7.0	9.7
Hedge funds							3.4	6.4	5.5	13.5	3.4	5.9	7.9	7.7	3.9	10.7	2.5	6.5
Global TAA							1.8	13.7	6.6	18.3	5.3	10.6	2.0	10.5	3.5	16.2	1.1	6.7
Balanced funds													-5.9	6.3	-25.2	42.7	-12.1	
Risk parity							-23.1	14.4	2.9	32.0	-5.4	2.5	-6.1	12.7	6.0	18.0	1.5	5.6
Private mortgages							-8.6	-0.6	6.1	10.5	2.2	1.8	-6.1	-1.3	8.0	8.5	1.4	1.8
Private credit							5.3	6.1	2.5	11.2	2.8	6.2	3.8	8.7	2.1	15.2	3.7	6.4
Private equity - Diversified							-9.4	46.2	-0.9	-9.2	23.8	8.2	-7.8	51.8	-2.4	-10.6	26.7	9.2
Venture capital							-9.6	44.6	0.7	-9.2	24.0	8.1	-7.9	50.8	-2.4	-10.5	27.4	9.4
LBO							-9.6	44.6	0.7	-9.2	24.0	8.1	-8.1	51.2	-1.5	-11.0	27.8	9.4
Private equity - Other							-12.0	36.3	1.4	-7.0	18.4	5.0	-8.0	48.6	-2.1	-10.1	24.8	8.2
Private equity - Aggregate							-8.9	46.9	-1.0	-9.4	24.3	8.6	-7.8	51.8	-2.4	-10.6	26.7	9.2
Total Policy Return	-5.1	13.0	7.9	12.0	-1.1	5.1	-6.0	13.5	9.7	16.4	0.1	6.1	-8.3	12.4	9.9	18.9	0.1	6.1

1. The 5-year return number only includes funds with continuous data over the last 5 years.

2. 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. Refer to the appendix of this section for details.



## Net value added by asset class

Asset class	Your fund %						Peer average %						Global average %					
	2022	2021	2020	2019	2018	5-yr <sup>1</sup>	2022	2021	2020	2019	2018	5-yr <sup>1</sup>	2022	2021	2020	2019	2018	5-yr <sup>1</sup>
Stock - U.S.							-1.1	2.4	1.0	0.9	1.2	0.6	0.6	0.3	-0.7	-0.1	-0.3	0.0
Stock - EAFE	1.1	1.3	-0.2	0.4	0.7	0.7	-0.4	0.4	0.7	-0.4	-0.8	-0.1	-1.3	-0.4	3.6	0.0	-0.8	0.3
Stock - Global							-2.1	-4.0	-6.2	-0.2	-0.1	-0.2	0.0	-1.1	0.9	-0.5	0.6	-0.1
Stock - other							6.2	-9.8	143.7	-10.0	7.1	7.7	1.6	0.0	5.9	-3.8	-0.6	0.1
Stock - Emerging							-0.3	0.1	-1.4	-0.7	-0.2	-0.9	-1.2	0.0	1.0	2.0	-1.0	-0.2
Stock - ACWI x U.S.							1.8	0.4	2.1	1.9	0.5	1.3	-1.6	0.4	3.0	1.1	-0.7	0.8
Stock - Aggregate	1.1	1.3	-0.2	0.4	0.7	0.7	-0.9	0.0	-2.3	0.6	-0.4	-0.1	0.3	-0.5	0.6	0.0	-0.2	0.0
Fixed income - U.S.							0.4	0.5	0.9	-0.3	-0.2	0.2	-0.2	0.6	0.8	0.8	0.0	0.4
Fixed income - EAFE	0.0	0.5	2.4	0.3	0.6	0.8	-1.9	2.0	0.0	-0.1	0.4	-0.1	0.5	0.0	0.4	1.0	-0.1	0.0
Fixed income - Global							-1.1	1.8	-2.5	0.6	-2.0	0.2	-0.1	0.3	0.9	-1.8	-0.7	0.0
Fixed income - other							1.0	0.6	-0.3	-2.1	1.1	0.5	0.7	1.1	0.2	-0.2	0.3	0.7
Fixed income - Long bonds							6.9	-0.5	4.5	0.8	0.3	2.8	-0.8	0.0	1.2	0.0	0.0	0.3
Fixed income - Emerging							0.3	-0.5	-2.3	-0.1	-1.2	-0.2	0.6	-0.1	0.6	-0.5	-1.2	-0.3
Fixed income - Inflation indexed							3.8	2.3	-0.8	1.7	-0.7	1.1	0.7	0.6	-0.5	0.8	-0.1	0.4
Fixed income - High yield							0.1	2.7	0.5	-0.4	-0.1	0.2	1.5	1.0	0.3	-1.5	0.2	0.3
Fixed income - Bundled LDI								1.6	2.8				-1.0	0.3	0.5	0.3	-0.1	0.5
Public mortgages							-0.2	-1.0	5.4	0.5	0.0	1.0	-1.8	0.9	1.7	0.5	0.0	1.0
Fixed income - Convertibles							-18.0	-0.8	26.4	-12.0	2.0	-6.1	-1.3	-1.3	-2.7	-4.9	-0.4	-3.4
Cash							3.7	-0.3	2.0	-0.6	-0.3	0.9	-0.4	-0.5	-0.2	-0.3	0.0	-0.8
Fixed income - Aggregate	0.0	0.5	2.4	0.3	0.6	0.8	2.5	0.9	-0.7	0.5	-0.1	0.8	1.3	0.4	0.7	0.1	0.0	0.7
Commodities							-0.2	1.6	-11.9	-0.1	1.7	0.7	-0.7	-3.7	2.3	-3.4	-0.9	-0.7
Infrastructure							8.7	0.9	-1.4	-1.8	1.7	1.5	5.7	2.3	0.2	-0.3	4.9	2.7
Natural resources							18.2	5.6	-5.2	-0.7	1.1	2.9	2.7	-2.4	-3.8	-4.9	2.5	-1.5
REITs							0.3	0.2	-0.5	-0.1	-0.1	-0.1	-1.2	0.7	1.7	1.3	-0.2	-0.3
Real estate							0.9	1.9	-1.9	1.3	1.2	0.6	1.0	2.1	-0.9	-0.8	3.0	0.4
Other real assets							190.3	27.2	-26.8	-56.5	-15.8	-37.1	20.3	0.5	-5.1	-8.2	-3.1	-5.9
Real assets - Aggregate							2.2	3.0	-1.0	1.1	1.1	1.0	1.7	2.7	-0.6	-0.8	1.8	0.9
Hedge funds							4.5	5.0	-1.7	-3.1	-0.8	0.6	4.5	2.7	-1.4	-2.8	-0.9	0.4
Global TAA							-0.4	3.0	0.6	-1.2	-9.9	-1.4	2.2	-1.3	-1.3	-3.0	-2.3	-1.0
Balanced funds													1.0	16.7	-10.2	-0.7		
Risk parity							1.2	0.4	0.7	0.4	0.2	0.6	-5.4	-0.7	-1.0	2.0	-4.1	-0.8
Private mortgages							0.6	1.1	0.3	-0.6	1.9	0.7	4.2	4.5	-1.0	0.6	1.2	1.6
Private credit							5.0	3.1	1.3	-1.6	4.1	2.4	4.8	5.2	0.7	-2.9	4.2	3.3
Private equity - Diversified							17.5	-0.1	13.2	21.9	-5.9	11.0	18.1	-6.1	15.4	22.0	-7.8	9.8
Venture capital							8.0	25.3	29.3	19.7	-7.0	13.5	9.4	7.9	24.6	21.3	-4.5	10.6
LBO							17.7	-7.3	13.6	24.5	-10.2	9.5	20.2	-5.3	14.6	24.7	-9.3	10.1
Private equity - Other							32.4	-30.2	11.1	26.4	-15.7	22.7	20.1	-20.5	13.6	20.6	-11.7	8.9
Private equity - Aggregate							18.6	-1.2	14.4	22.5	-7.9	11.4	18.1	-5.0	16.2	21.8	-7.8	9.8
Total Fund Return	0.6	0.9	0.8	0.3	0.7	0.7	2.9	1.5	0.4	1.7	-0.6	1.4	1.6	0.2	1.3	0.9	-0.5	0.8

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 composite calculation only uses those components with a full year return.

1. The 5-year return number only includes funds with continuous data over the last 5 years.

2. 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. Refer to the appendix of this section for details.

## Your policy return and value added calculation - 2022

### 2022 Policy Return and Value Added

Asset class	Policy weight	Benchmark Description	Return	Net return	Value added
Stock - EAFE	60.2%	CMVINXBINN - Custom Index 15 % - OSEBX 85 %	-2.8%	-1.7%	1.1%
Fixed income - EAFE	39.8%	Bloomberg Global Treasuries Norway 30% 70% B	-8.9%	-8.9%	0.0%
<b>Total</b>	<b>100.0%</b>				
Net Actual Return (reported by you)					-4.5%
Calculated Policy Return = sum of (policy weights X benchmark returns)				-5.2%	
Adjustment to reflect rebalancing and overlay impacts				<u>0.1%</u>	
Policy Return (reported by you)					<u>-5.1%</u>
Net Value Added (Net Return - Policy Return)					0.6%

## Your policy return and value added calculations - 2018 to 2021

### 2021 Policy Return and Value Added

Asset class	Policy	Benchmark		Net return	Value added
	weight	Description	Return		
Stock - EAFE	63.1%	CMVINXBXINN -	23.6%	24.8%	1.3%
Fixed income - EAFE	36.9%	Barclays Capital	-2.1%	-1.5%	0.5%
<b>Total</b>	<b>100.0%</b>				
Net Return (reported by you)					13.9%
Calculated policy return (sum: Policy weights x benchmarks)				14.1%	
Adjustment to reflect rebalancing and overlay impacts				<u>-1.1%</u>	
Policy return (reported by you)					<u>13.0%</u>
Net Value Added (Net Return - Policy Return)					0.9%

### 2019 Policy Return and Value Added

Asset class	Policy	Benchmark		Net return	Value added
	weight	Description	Return		
Stock - EAFE	62.0%	CMVINXBXINN -	17.7%	18.1%	0.4%
Fixed income - EAFE	38.0%	Barclays Capital	3.8%	4.1%	0.3%
Cash					
<b>Total</b>	<b>100.0%</b>				
Net Return (reported by you)					12.4%
Calculated policy return (sum: Policy weights x benchmarks)				12.4%	
Adjustment to reflect rebalancing and overlay impacts				<u>-0.4%</u>	
Policy return (reported by you)					<u>12.0%</u>
Net Value Added (Net Return - Policy Return)					0.3%

### 2020 Policy Return and Value Added

Asset class	Policy	Benchmark		Net return	Value added
	weight	Description	Return		
Stock - EAFE	65.1%	CMVINXBXINN -	8.2%	8.0%	-0.2%
Fixed income - EAFE	34.9%	Barclays Capital	4.9%	7.3%	2.4%
<b>Total</b>	<b>100.0%</b>				
Net Return (reported by you)					8.7%
Calculated policy return (sum: Policy weights x benchmarks)				7.1%	
Adjustment to reflect rebalancing and overlay impacts				<u>0.8%</u>	
Policy return (reported by you)					<u>7.9%</u>
Net Value Added (Net Return - Policy Return)					0.8%

### 2018 Policy Return and Value Added

Asset class	Policy	Benchmark		Net return	Value added
	weight	Description	Return		
Stock - EAFE	59.0%	CMVINXBXINN -	-2.6%	-1.9%	0.7%
Fixed income - EAFE	41.0%	Barclays Capital	1.0%	1.6%	0.6%
Cash					
<b>Total</b>	<b>100.0%</b>				
Net Return (reported by you)					-0.4%
Calculated policy return (sum: Policy weights x benchmarks)				-1.1%	
Adjustment to reflect rebalancing and overlay impacts				<u>0.0%</u>	
Policy return (reported by you)					<u>-1.1%</u>
Net Value Added (Net Return - Policy Return)					0.7%

## Profit/Loss on overlay programs

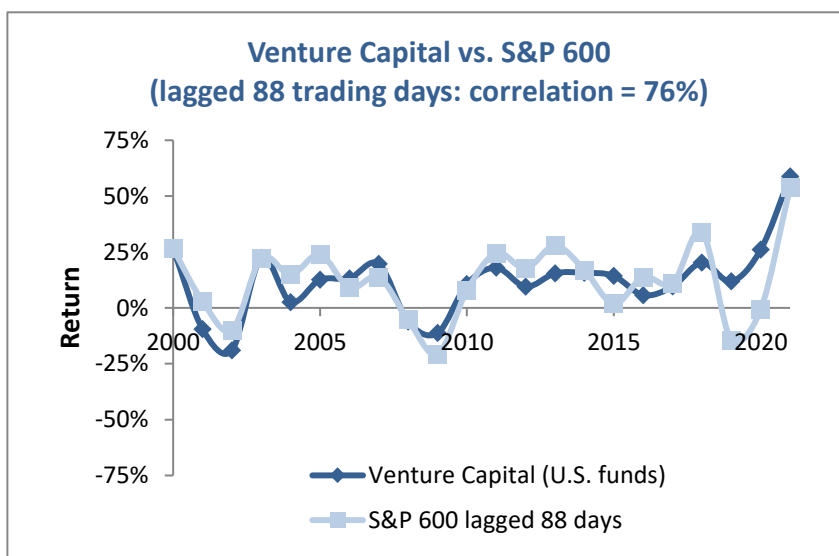
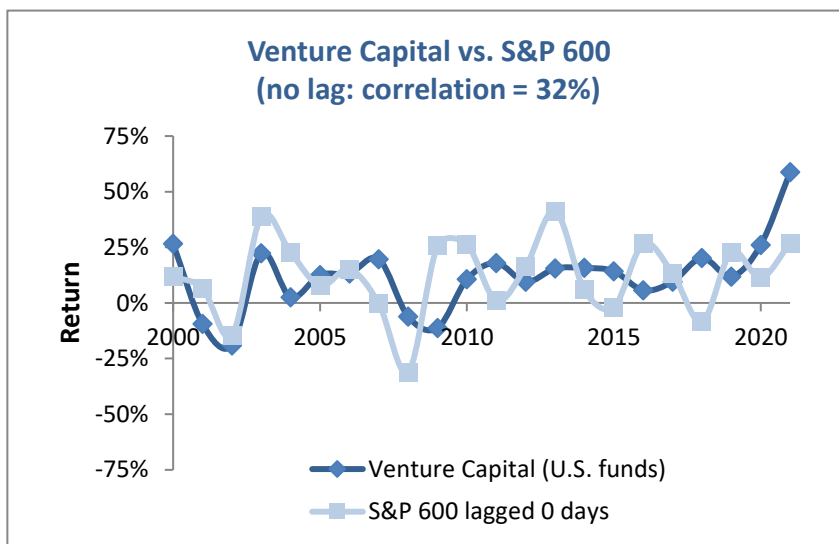
Overlay type	Your fund		Peer median				Global median			
	2022	2021	2022		2021		2022		2021	
	bps	bps	bps	#	bps	#	bps	#	bps	#
Int. Discretionary Currency			-45.1	3	-26.4	3	-10.9	7	2.6	9
Ext. Discretionary Currency							0.0	9	0.3	10
Internal Global TAA			18.1	2	-1.8	2	4.2	5	13.0	4
External Global TAA							10.5	2	3.0	2
Internal PolicyTilt TAA			-4.4	2	-2.0	2	5.2	7	3.4	7
External PolicyTilt TAA									11.3	1
Internal Commodities							0.0	1	0.0	1
External Commodities							15.5	4	38.0	2
Internal Long/Short			12.4	3	7.0	3	3.0	5	6.5	6
External Long/Short							0.4	1	-2.2	1
Internal Other			6.9	1	15.0	1	7.5	6	15.0	7
External Other					-3.9	1	-20.6	6	0.0	7

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.

## Appendix - 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 S&P 600 index return was -31.1% versus -5.4% if lagged 88 trading days. Thus if a fund earned the average reported venture capital return for 2008 of -6.1%, they would have mistakenly believed that their value added from venture capital was 25.0% using the un-lagged benchmarks versus -0.7% using the same benchmark lagged to match the average 88 day reporting lag of venture capital funds.



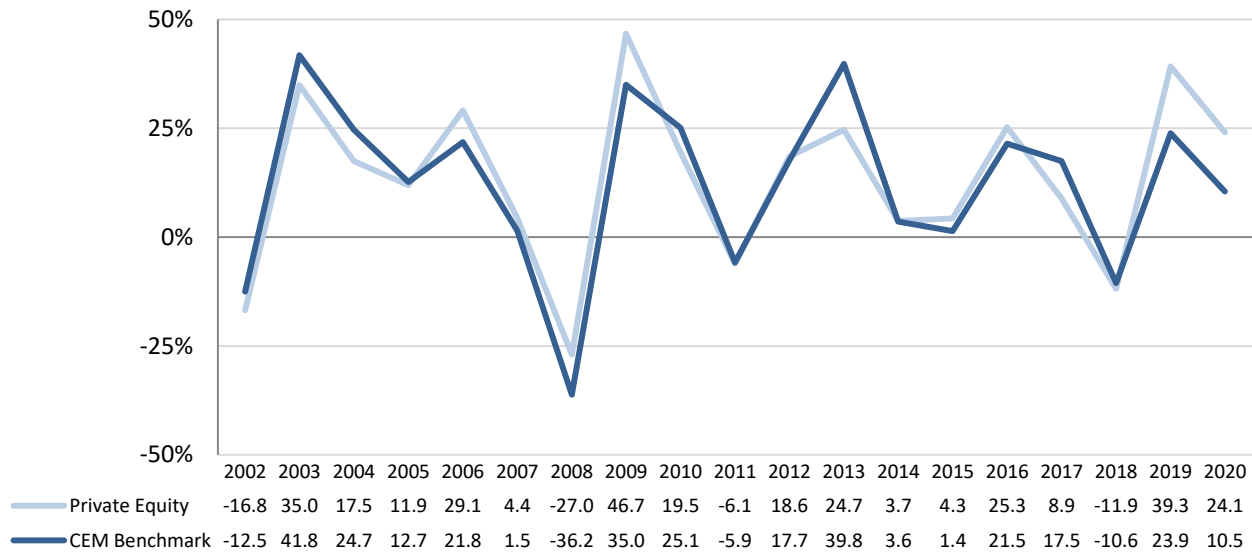
- Un-investable peer-based benchmarks. Peer based benchmarks reflect the reporting lags in peer portfolios so they have much better correlations than un-lagged investable benchmarks. But their relationship statistics are not as good as for lagged investable benchmarks.
- Aspirational premiums (i.e., 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 a blend of small cap indices that are investable.
- Lagged. 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 85 days (i.e., approximately 119 calendar days or 3.9 calendar months), the correlation between the two series is maximized for most plans.
- 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 44% for self-reported benchmarks. Other statistics such as volatility were also much better.

### Private equity returns versus default benchmark returns - Global median



1. To enable better comparison between lagged returns and lagged benchmarks, lags have been removed from both. See "Asset allocation and fund performance of defined benefit pension funds in the United States, 1998-2014" by Alexander D. Beath and Chris Flynn for details.

# 4

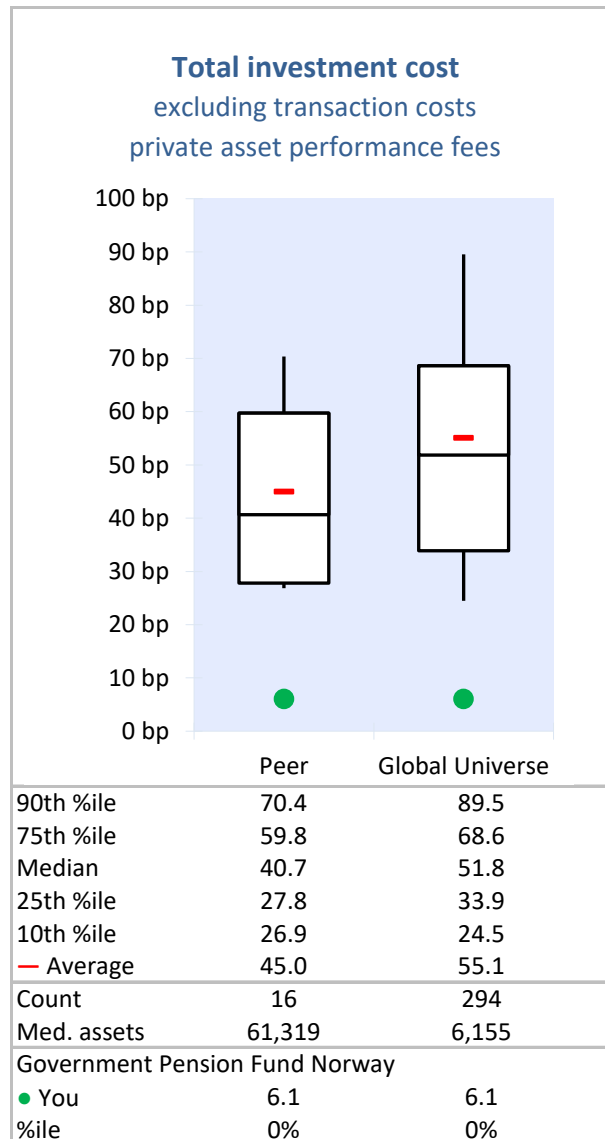
## Cost: total, benchmark, trend

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## Comparisons of total investment cost

Your total investment cost, excluding transaction costs and private asset performance fees, of 6.1 bps was below the peer median of 40.7 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.

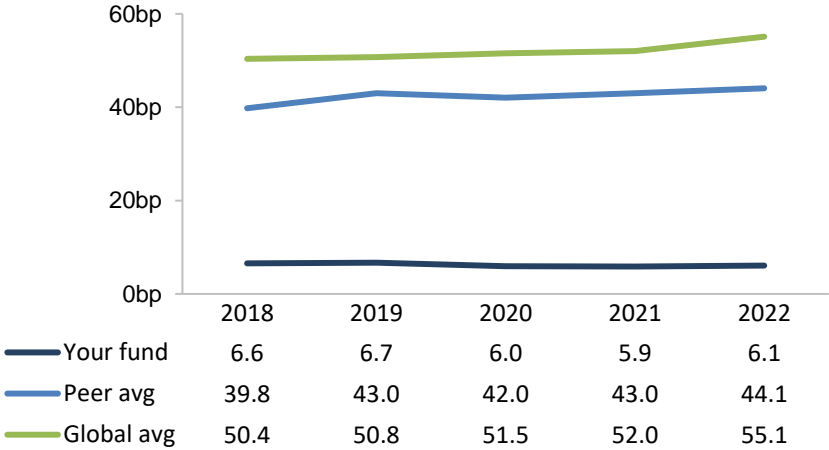




# Trend in total investment cost, you versus peers and universe

Your total investment cost, excluding transaction costs and private asset performance fees, decreased from 6.6 bps in 2013 to 6.1 bps in 2022.

**Trend in total investment cost**  
(excluding transaction costs and private asset performance fees)



Trend analysis is based on 191 Global funds and 15 peer funds with 10 or more consecutive years of data.

## 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 &amp; Global TAA</u>						
Hedge Funds	n/a	n/a	✓	✓	✓	✗
Global TAA	✓	✗	✓	✓	✓	✗
<u>Private real assets</u> (Infrastructure, natural resources, real estate ex-REITs, other real assets)	✓	✗	✓	✓	✗	✗
<u>Private equity</u> (Diversified private equity, venture capital, LBO, other private equity)	✓	✗	✓*	✓	✗	✗

\*External manager base fees represent gross contractual management fees.

- ✓ indicates cost is included.
- ✗ indicates cost is excluded.
- CEM currently excludes performance fees for certain external assets 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 2022 total investment cost, excluding transaction costs and private asset performance fees, was 6.1 bp or €18.4 million.

	Internal		External passive		External active			Total <sup>1</sup>		
	Passive	Active	Fees	Monitoring & Other	Base Fees	Perform. Fees	Monitor. & Other	€000s	bps	% of Total
<b>Asset management</b>										
Stock - EAFE		7,649						7,649		42%
Fixed income - EAFE		8,150						8,150		44%
Total asset management costs excluding private asset performance fees								15,799	5.2bp	86%
<b>Oversight, custodial &amp; other asset related costs</b>										
Oversight of the fund								1,253		7%
Trustee & custodial								625		3%
Consulting and performance measurement								123		1%
Audit								285		2%
Other								287		2%
Total oversight, custodial & other costs								2,573	0.9bp	14%
Total investment costs excluding transaction costs and private asset performance fees								18,372	6.1bp	100%

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

## 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 (2022 - 2018)

	Investment costs (€000s)					Change (€000s)				Change (%)			
	2022	2021	2020	2019	2018	2022	2021	2020	2019	2022	2021	2020	2019
<b>Asset management</b>													
Stock - EAFE	7,649	7,015	6,792	7,017	7,472	634	223	-225	-456	9%	3%	-3%	-6%
Fixed income - EAFE	8,150	8,162	7,483	7,921	6,426	-12	679	-438	1,495	0%	9%	-6%	23%
Total excl. private asset perf. fees	15,799	15,177	14,275	14,937	13,899	622	902	-662	1,039	4%	6%	-4%	7%
<b>Oversight, custodial &amp; other asset related costs</b>													
Oversight of the fund	1,253	1,388	1,202	1,270	937	-135	186	-68	333	-10%	15%	-5%	36%
Trustee & custodial	625	612	575	582	624	13	37	-7	-42	2%	6%	-1%	-7%
Consulting and performance measurement	123	155	61	56	66	-32	94	5	-10	-21%	154%	9%	-15%
Audit	285	239	222	252	227	46	17	-30	25	19%	8%	-12%	11%
Other	287	361	142	131	155	-74	219	11	-24	-20%	154%	8%	-15%
Total oversight, custodial & other	2,573	2,755	2,202	2,291	2,009	-182	553	-89	282	-7%	25%	-4%	14%
Total investment costs <sup>1</sup>	18,372	17,932	16,477	17,228	15,908	440	1,455	-751	1,321	2%	9%	-4%	8%
Total in basis points	6.1bp	5.9bp	6.0bp	6.7bp	6.6bp								

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

## Total cost versus benchmark cost

Your fund's total investment cost, excluding transaction costs and private asset performance fees, was 7.9 bps below your benchmark cost of 14.0 bps. This implies that your fund was low cost by 7.9 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 costs excluding transaction costs and private asset performance fees	18,372	6.1 bp
- Your fund's benchmark	42,293	14.0 bp
= Your fund's cost savings	-23,921	-7.9 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 below your benchmark are summarized in the table below. Details of each of the impacts below are provided on pages 9 to 11.

### Reasons why your fund was low cost

	Cost/-Savings impact	
	€000s	bps
<u>Differences in implementation style:</u>		
Less passive	5,006	1.7 bp
More int. active % of total active	-18,277	-6.0 bp
Less overlays and unfunded strategies	-2,289	-0.8 bp
Total style impact	-15,560	-5.1 bp
<u>Paying more/-less for similar services:</u>		
External investment management	0	0.0 bp
Internal investment management	-6,305	-2.1 bp
Oversight, custodial and other	-2,056	-0.7 bp
Total impact of paying more /-less	-8,361	-2.8 bp
Total savings	-23,921	-7.9 bp

## Benchmark cost calculation

Your 2022 benchmark cost was 14.0 basis points or 42.3 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).

Asset class	Your average assets (A)	Weighted peer median cost <sup>1</sup> (B)	Benchmark €000s (A X B)
<b>Asset management costs</b>			
Stock - EAFE <sup>4</sup>	18,216	13.0 bp	23,741
Fixed income - EAFE <sup>4</sup>	12,052	9.7 bp	11,634
Overlay Programs <sup>2</sup>	30,268	0.8 bp	2,289
Benchmark for asset management	30,268	12.4 bp	37,664
<b>Oversight, custody and other costs<sup>3</sup></b>			
Oversight	30,268	1.1 bp	
Trustee & custodial	30,268	0.3 bp	
Consulting	30,268	0.0 bp	
Audit	30,268	0.0 bp	
Other	30,268	0.1 bp	
Benchmark for oversight, custody, other	30,268	1.5 bp	4,629
<b>Total benchmark cost</b>		<b>14.0 bp</b>	<b>42,293</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. The style weights by asset class for your fund and the peers are shown on page 15 of this section.
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.
4. A different asset was used as a proxy to determine the benchmarks and style percentages: 'Stock - Aggregate' for 'Stock - EAFE', 'Fixed income - Aggregate' for 'Fixed income - EAFE'.

## Cost impact of differences in implementation style

Differences in implementation style (passive vs. active, internal vs. external, etc.) relative to your peers saved you 5.1 bps.

Implementation choices	Assets by style	Peer benchmark cost			Style 1 %			Cost/ -Savings €000s	bps
		Style 1	Style 2	Style 1 -Savings	Your	Peer average	More/ -Less		
	a	b	c	d = b - c			e	a x d x e	
<u>Passive vs active</u>	Total assets	Passive	Active		Passive % of total assets				
Stock - EAFE	18,216	3 bp	16 bp	-13 bp	0%	20%	-20%	4,504	
Fixed income - EAFE	12,052	4 bp	10 bp	-6 bp	0%	7%	-7%	503	
Less passive								5,006	1.7 bp
<u>Internal active vs external active</u>	Active assets	Internal active	External active		Internal active % of active				
Stock - EAFE	18,216	8 bp	40 bp	-32 bp	100%	77%	23%	-13,376	
Fixed income - EAFE	12,052	6 bp	30 bp	-24 bp	100%	83%	17%	-4,900	
More int. active % of total active								-18,277	-6.0 bp
Less overlays and unfunded strategies								-2,289	-0.8 bp
<b>Total impact of differences in implementation style</b>								<b>-15,560</b>	<b>-5.1 bp</b>

## Cost impact of overlays

As summarized on the previous page, the style impact of overlays saved you 0.8 bps. If you use more overlays than your peers, or more expensive types of overlays, then it increases your relative cost.

	Your average total holdings (mils) (A)	Cost as % of total holdings		Cost/-Savings Impact (000s) A X (B - C)
		You (B)	Peer avg. (C)	
<b>Internal Overlays</b>				
Currency - Hedge	30,268	NA	0.11 bp	-326
Currency - Discretionary	30,268	NA	0.04 bp	-127
Rebalancing / Passive beta - Hedge	30,268	NA	0.02 bp	-66
Duration management - Hedge	30,268	NA	0.00 bp	-6
Global TAA - Discretionary	30,268	NA	0.07 bp	-225
Policy tilt TAA - Discretionary	30,268	NA	0.04 bp	-110
Long/Short - Discretionary	30,268	NA	0.12 bp	-376
Other overlay - Discretionary	30,268	NA	0.02 bp	-55
<b>External Overlays</b>				
Currency - Hedge	30,268	NA	0.00 bp	-4
Currency - Discretionary	30,268	NA	0.02 bp	-56
Rebalancing / Passive beta - Hedge	30,268	NA	0.04 bp	-123
Global TAA - Discretionary	30,268	NA	0.05 bp	-160
Long/Short - Discretionary	30,268	NA	0.22 bp	-655
Total impact in 000s				-2,289
Total impact in basis points				-0.8 bp



## 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 saved you 2.8 bps.

Style	Your avg holdings (mils)	Cost in bps			Cost/-Savings		
		Your	Peer median	More/-less	€000s	bps	
<b>Internal asset management</b>		(A)		(B)	(A X B)		
Stock - EAFE	active	18,216	4.2	8.2	-4.0	-7,219	
Fixed income - EAFE	active	12,052	6.8	6.0	0.8	914	
Total for internal management						-6,305	-2.1 bp
<b>Oversight, custody and other costs<sup>1</sup></b>							
Oversight			0.4	1.1	-0.7		
Trustee & custodial			0.2	0.3	-0.1		
Consulting			0.0	0.0	0.0		
Audit			0.1	0.0	0.1		
Other			0.1	0.1	0.0		
Benchmark for oversight, custody, other		30,268	0.9	1.5	-0.7	-2,056	-0.7 bp
Total						-8,361	-2.8 bp

1. Benchmarks for oversight total and individual lines are based on peer medians. Sum of the lines may be different from the total.

## 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).

	Your cost	Benchmark = peer weighted median cost <sup>1</sup>	More/-less	Your average assets (or fee basis)	More/-less in €000s		
					Total More/-less	Due to Impl. style	Due to paying more/less
<b>Asset management costs</b>	(A)	(B)	(C = A - B)	(D)	(C X D)		
Stock - EAFE <sup>4</sup>	4.2 bp	13.0 bp	-8.8 bp	18,216	-16,092	-8,873	-7,219
Fixed income - EAFE <sup>4</sup>	6.8 bp	9.7 bp	-2.9 bp	12,052	-3,484	-4,398	914
Overlay Programs <sup>2</sup>	0.0 bp	0.8 bp	-0.8 bp	30,268	-2,289	-2,289	0
Total asset management	5.2 bp	12.4 bp	-7.2 bp	30,268	-21,865	-15,560	-6,305
<b>Oversight, custody and other costs<sup>3</sup></b>							
Oversight of the fund	0.4 bp	1.1 bp	-0.7 bp				
Trustee & custodial	0.2 bp	0.3 bp	-0.1 bp				
Consulting	0.0 bp	0.0 bp	0.0 bp				
Audit	0.1 bp	0.0 bp	0.1 bp				
Other	0.1 bp	0.1 bp	0.0 bp				
Total oversight, custody & other	0.9 bp	1.5 bp	-0.7 bp	30,268	-2,056	n/a	-2,056
<b>Total</b>	<b>6.1 bp</b>	<b>14.0 bp</b>	<b>-7.9 bp</b>	<b>30,268</b>	<b>-23,921</b>	<b>-15,560</b>	<b>-8,361</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. The style weights by asset class for your fund and the peers are shown on page 15 of this section.

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

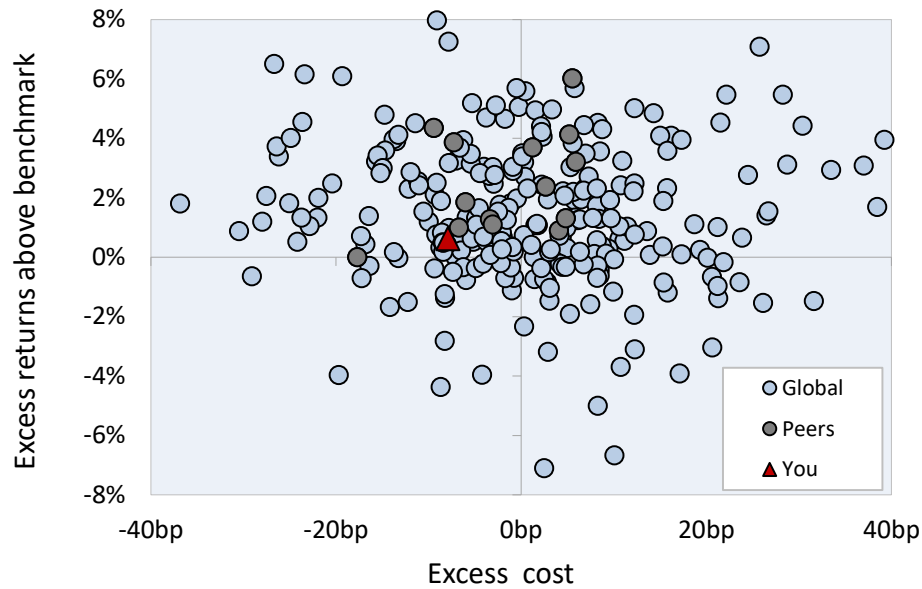
3. Benchmarks for oversight total and individual lines are based on peer medians. Sum of the lines may be different from the total.

4. A different asset was used as a proxy to determine the benchmarks and style percentages: 'Stock - Aggregate' for 'Stock - EAFE', 'Fixed income - Aggregate' for 'Fixed income - EAFE'.

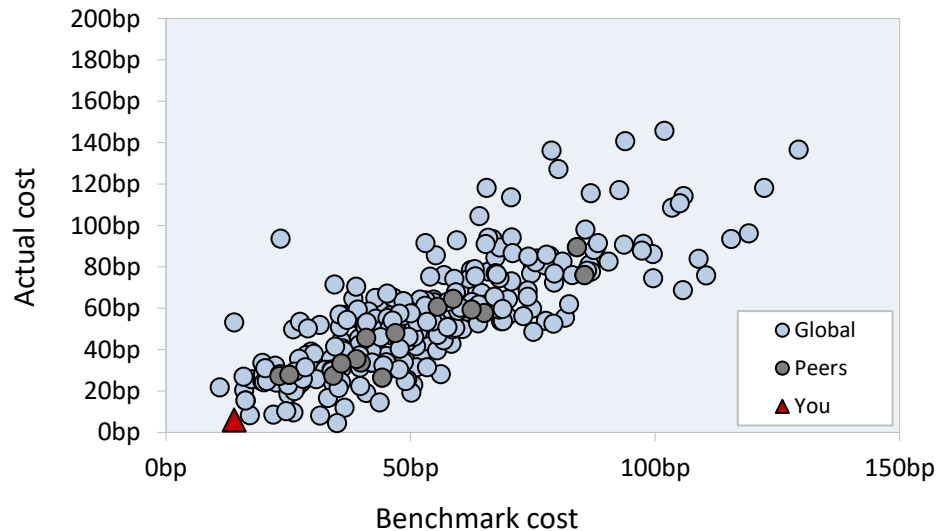
## Your cost impact ranking

Being high or low cost is neither good nor bad. More important is whether you are receiving sufficient value for your excess cost. At the total fund level, we provide insight into this question by combining your excess return above benchmark and excess cost to create a snapshot of your cost impact performance relative to that of the global. In 2022, your fund ranked in the positive excess return above benchmarked, low cost quadrant.

**Your 2022 Excess returns 0.6%, Excess cost -8 bps**



**Your 2022 Actual cost 6.1 bps, Benchmark cost 14.0 bps**



For all funds except your fund, benchmark cost equals the sum of group median costs x fund's average holdings by asset class plus group median cost of derivatives/overlays plus group median cost of oversight/support. Group peer if the fund is in the peer group, universe - if the fund is part of the universe, and global/database otherwise. Your fund's benchmark cost is calculated using peer-based methodology per page 14 of this section.

## Benchmarking methodology formulas and data

### a) Formulas

Example calculations for 'Stock - EAFE'

Asset class peer cost = weighted average by peer average style of peer median costs

$$= (12\% \times 1.9 \text{ bp}) + (62\% \times 8.2 \text{ bp}) + (8\% \times 4.4 \text{ bp}) + (18\% \times 40.4 \text{ bp}) = 13.0 \text{ bp}$$

Your cost versus benchmark (-savings/+excess) = asset class your cost - asset class peer cost

$$= 4.2 \text{ bp} - 13.0 \text{ bp} = -8.8 \text{ bp}$$

Attribution of 'your cost versus benchmark' to impact of style mix and impact of cost/paying more

Cost impact of differences in implementation style (-savings/+excess)

= cost impacts of passive vs active (A), internal passive vs external passive (B), internal active vs external active (C)

$$= 2.5 \text{ bp} + 0.0 \text{ bp} + -7.3 \text{ bp} = -4.9 \text{ bp}$$

A) Impact of Passive vs Active management (-savings/+excess)

$$= (\text{peer average passive cost} - \text{peer average active cost}) \times (\text{passive \% of asset, you} - \text{passive \% of asset, peer average}) \\ = (3.0 \text{ bp} - 15.5 \text{ bp}) \times (0\% - 20\%) = 2.5 \text{ bp}$$

Peer average passive cost = weighted average by peer average style of peer median costs for internal passive and external passive management

$$= [(12\% \times 1.9 \text{ bp}) + (8\% \times 4.4 \text{ bp})] / (12\% + 8\%) = 3.0 \text{ bp}$$

Peer average active cost = weighted average by peer average style of peer median costs for internal active and external active management

$$= [(62\% \times 8.2 \text{ bp}) + (18\% \times 40.4 \text{ bp})] / (62\% + 18\%) = 15.5 \text{ bp}$$

B) Impact of Internal Passive vs External Passive management (-savings/+excess)

$$= (\text{peer average internal passive cost} - \text{peer average external passive cost}) \times (\text{internal passive \% of passive, you} - \text{internal passive \% of passive, peer average}) \times \text{passive \% of asset, you} \\ = (1.9 \text{ bp} - 4.4 \text{ bp}) \times (0\% - 0\%) \times 0\% = 0.0 \text{ bp}$$

C) Impact of Internal Active vs External Active management (-savings/+excess)

$$= (\text{peer average internal active cost} - \text{peer average external active cost}) \times (\text{internal active \% of active, you} - \text{internal active \% of active, peer avg}) \times \text{active \% of asset, you} \\ = (8.2 \text{ bp} - 40.4 \text{ bp}) \times (100\% - 77\%) \times 100\% = -7.3 \text{ bp}$$

Cost impact of paying more/-less

$$= (\text{cost internal passive, you} - \text{cost internal passive, peer}) \times \text{internal passive \% of asset, you} + (\text{cost internal active, you} - \text{cost internal active, peer}) \times \text{internal active \% of asset, you} + (\text{cost external passive, you} - \text{cost external passive, peer}) \times \text{external passive \% of asset, you} + (\text{cost external active, you} - \text{cost external active, peer}) \times \text{external active \% of asset, you} \\ = (0.0 \text{ bp} - 1.9 \text{ bp}) \times 0\% + (4.2 \text{ bp} - 8.2 \text{ bp}) \times 100\% + (0.0 \text{ bp} - 4.4 \text{ bp}) \times 0\% + (0.0 \text{ bp} - 40.4 \text{ bp}) \times 0\% = -4.0 \text{ bp}$$

Your cost versus benchmark (-savings/+excess)

$$= \text{cost impact of differences in implementation style} + \text{cost impact of paying more/-less} \\ = -4.9 \text{ bp} + -4.0 \text{ bp} = -8.8 \text{ bp}$$

## Benchmarking methodology formulas and data

### b) 2022 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	Co-invest	Limited Partner.	Fund of Funds	Internal Passive	Internal Active	External Passive	External Active	Co-invest	Limited Partner.	Fund of Funds	Weighted Median
Stock - EAFE		4.2						1.9	8.2	4.4	40.4				13.0
Fixed income - EAFE		6.8						2.3	6.0	7.2	30.1				9.7

## Benchmarking methodology formulas and data

### c) 2022 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	Co-invest	Limited Partner.	Fund of Funds	Internal Passive	Internal Active	External Passive	External Active	Co-invest	Limited Partner.	Fund of Funds
Stock - EAFE	0.0%	100.0%	0.0%	0.0%				11.6%	62.0%	8.1%	18.3%			
Fixed income - EAFE	0.0%	100.0%	0.0%	0.0%				4.6%	77.7%	1.9%	15.8%			

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

## Methodology of the cost trend model

CEM cost trend model relies on four factors or reasons to explain the cost differences over time: asset value, asset mix, implementation style, and paying more/less for similar services.

### Factors affecting the cost differences

Asset value. If we keep the last three factors constant, costs will normally follow changes in the asset holdings. For external implementations, among the reasons is the common practice of charging management fees based on the value of assets under management. For internal, more assets requires additional internal staff (front and back office) and other operating expenditures. In the current model, for simplicity, we assume that costs change proportionately to the plan average assets.

Change in asset value only affects the cost amounts and does not affect costs in basis points. These are determined by the changes in the last three factors.

Asset mix. These are the cost differences associated with increasing / decreasing allocations to one or more of the asset classes, while keeping other factors constant. Higher allocations to more expensive assets will increase the cost both in amounts and in basis points.

Implementation style. These are changes in costs associated with increasing / decreasing allocations to one or more of the management styles within the same asset class.

Paying more/less for similar services. These cost differences reflect changes in the fees / internal costs in basis points for the same implementation style within the same asset class or same oversight service.

### Attribution of the cost differences and other assumptions

Change in the cost amount for one asset =

Sum of impacts of asset value, asset mix, implementation style, and paying more/less for similar services.

Change in the basis point costs for one asset =

Sum of basis point impacts of asset mix, implementation style, and paying more/less for similar services.

For overlays, we do not differentiate between implementation styles and use entire asset category.

Oversight costs are only affected by changes in asset value and paying more/less for similar services.

The base model attributes cost differences between any two years. Trends and cumulative results are built upon combinations of multiple two-year attributions. When an entire asset class is missing in one of the two years, the cost difference for that asset is attributed to the asset value and mix impacts only. Impacts of other factors is 0. When an implementation style within the same asset class is missing in one of the two years, the cost difference for that style is attributed to the effects of the implementation style, while impact of paying more/less for similar services is 0. Impacts of changes in the asset value and asset mix are still accounted for.

### General simplified formula for attributing basis point cost differences for one asset class

Cost difference in bps = impact of asset mix + impacts of style & paying =

$$[ \text{CostBpsL} \times (\text{HavgHpct} - \text{HavgLpct}) ] + [ \text{HavgHpct} \times (\text{CostBpsH} - \text{CostBpsL}) ]$$

where L/H are lower and higher years; HavgPct is % of asset's average holdings in total nav holdings;

CostBps is the asset total cost in basis points for a particular year.

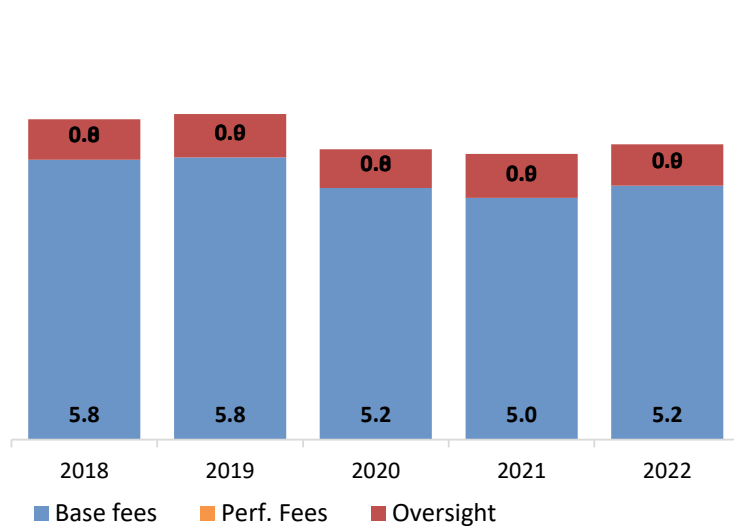
Further, cost difference for style & paying impacts (CostBpsH - CostBpsL) for one style =

$$\text{style impact} [ \text{CostStyleBpsL} \times (\text{WgH} - \text{WgL}) ] + \text{paying impact} [ \text{WgH} \times (\text{CostStyleBpsH} - \text{CostStyleBpsL}) ]$$

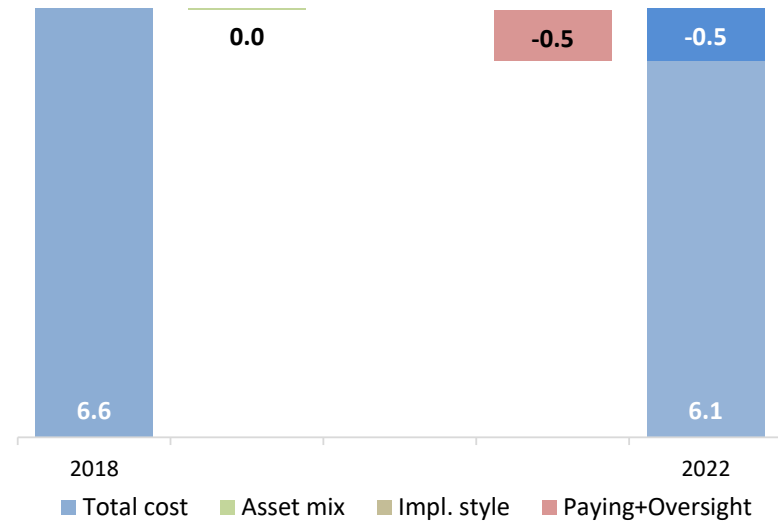
where CostStyleBps is the style cost in basis points; Wg is the weight for that style within the asset class.

## Total plan cost and cost changes

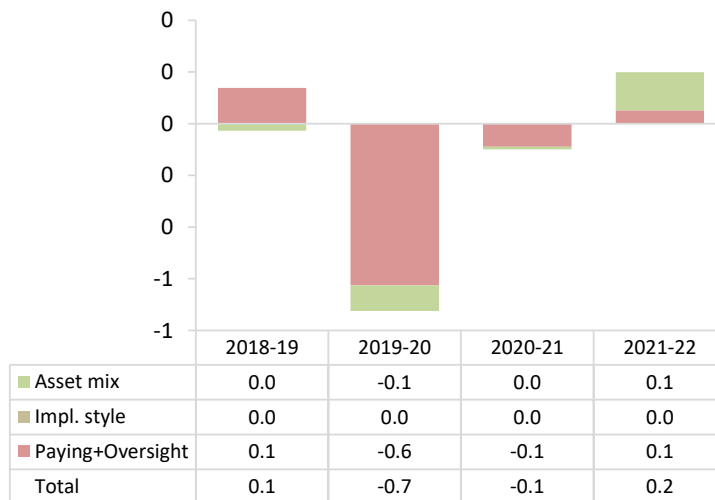
### Total plan cost over time, bps



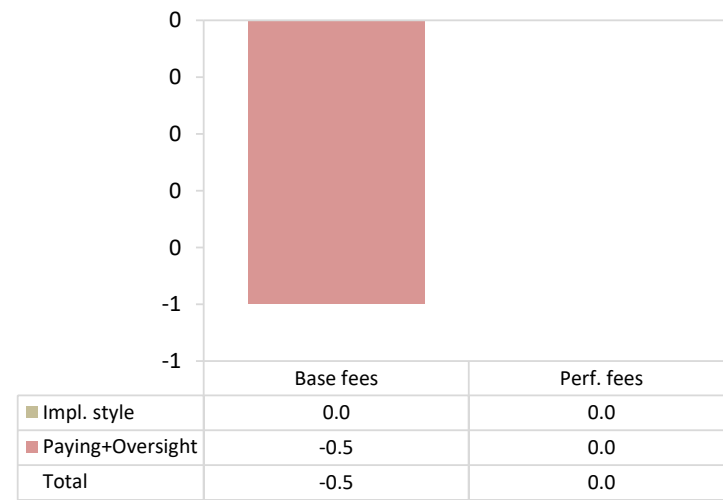
### Cost differences, 2022 versus 2018, bps



### Reasons for cost differences over time, bps



### Impact of base and performance fees, 2022 vs. 2018, bps





## Summary of cost differences, 2022 versus 2018

Your total cost decreased by 0.5 bps between 2018 and 2022 because of changes in: asset mix (0.0 bps), implementation style (0.0 bps), and paying more/less for similar services (-0.5 bps).

	bps	€000s
Starting total cost, 2018	6.6	15,908
Growth in asset value		4,018
Asset mix	<u>0.0</u>	<u>-45</u>
Stock	0.1	189
Fixed income	-0.1	-233
Implementation style (less expensive vs. more )	<u>0.0</u>	<u>0</u>
Paying more/-less for	<u>-0.5</u>	<u>-1,565</u>
Stock	-0.6	-1,899
Fixed income	0.1	334
Oversight, custodial, other (pay more/-less)	<u>0.0</u>	<u>57</u>
Total difference	-0.5	2,465
Ending total cost, 2022	6.1	18,372

## Summary of cost differences, year over year

	bps	€000s	bps	€000s	bps	€000s	bps	€000s	bps	€000s
	2018		2019		2020		2021		2018	
Starting total cost	6.6	15,908	6.7	17,228	6.0	16,477	5.9	17,932	6.6	15,908
Growth in asset value		1,035		1,247		1,759		-164		4,018
Asset mix	0.0	-69	-0.1	-273	0.0	-31	0.1	448	0.0	-45
Stock	0.1	204	0.1	373	0.0	63	-0.1	-418	0.1	189
Fixed income	-0.1	-273	-0.2	-646	0.0	-94	0.3	866	-0.1	-233
Implementation style (less expensive vs. more )	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Paying more/-less for	0.1	204	-0.5	-1,471	-0.2	-590	0.1	312	-0.5	-1,565
Stock	-0.4	-1,146	-0.4	-1,106	-0.2	-565	0.4	1,116	-0.6	-1,899
Fixed income	0.5	1,349	-0.1	-365	0.0	-26	-0.3	-804	0.1	334
Oversight, custodial, other (pay more/-less)	0.1	151	-0.1	-255	0.1	318	-0.1	-157	0.0	57
Total difference	0.1	1,321	-0.7	-751	-0.1	1,455	0.2	440	-0.5	2,465
Ending total cost	6.7	17,228	6.0	16,477	5.9	17,932	6.1	18,372	6.1	18,372
	2019		2020		2021		2022		2022	

Sum of all changes (except for the total) between adjacent years will differ from the changes between starting and ending years in the last two columns.

## Reasons by asset class and cost type, €000

Your total cost has increased by €2.5 million in 2022 compared to 2018. An increase of €4.0 million was due to the €6.1 billion rise in plan total average nav holdings. The remaining decrease of €1.6 million is explained by the changes in the asset mix (-€45 thousand), implementation style (€0.0 thousand), and paying more/less for similar services (-€1.5 million).

Asset class <sup>1</sup>	2018 cost €000s	Asset mix €000s	Implement. style €000s	Paying more/-less €000s	Total ex asset gr. €000s	Total difference €000s	Growth in asset value €000s	2022 cost €000s
	A	B	C	D	E=B+C+D	F=G-A	F-E	G
Stock - EAFE	7,472	189	0	-1,899	-1,711	177	1,887	7,649
Fixed income - EAFE	6,426	-233	0	334	101	1,724	1,623	8,150
Total for asset management	13,899	-45	0	-1,565	-1,610	1,901	3,510	15,799
Oversight	937			79	79	316	237	1,253
Trustee & custodial	66			40	40	57	17	123
Consulting	624			-157	-157	1	158	625
Audit	227			1	1	58	57	285
Other	155			93	93	132	39	287
Total for fund oversight <sup>2</sup>	2,009			57	57	564	507	2,573
Total	15,908	-45	0	-1,509	-1,553	2,465	4,018	18,372

1. Cost differences for asset classes are attributed to the effects of:

- Asset growth, asset mix, implementation style, and paying for similar services, when the asset class exists in both years.
- Asset growth and asset mix, when the asset class exists only in one of the years.

2. Cost differences for oversight are attributed to the effects of asset growth and paying more/less for similar services.

## Reasons by asset class and cost type, basis points

Your total cost has decreased by 0.5 bps in 2022 vs. 2018. It was driven by the changes in the asset mix (0.0 bps), implementation style (0.0 bps), and paying more/less for similar services (-0.5 bps).

Asset class	Asset mix bps	Implement. style bps	Paying more/-less bps	Total difference bps	Total <sup>1</sup> ex asset gr. €000s
	B	C	D	B+C+D	
Stock - EAFE	0.1	0.0	-0.6	-0.6	-1,711
Fixed income - EAFE	-0.1	0.0	0.1	0.0	101
Total for asset management	0.0	0.0	-0.5	-0.5	-1,610
Oversight			0.0	0.0	79
Trustee & custodial			0.0	0.0	40
Consulting			-0.1	-0.1	-157
Audit			0.0	0.0	1
Other			0.0	0.0	93
Total for fund oversight			0.0	0.0	57
Total	0.0	0.0	-0.5	-0.5	-1,553
Total basis point costs in years 2022 and 2018		6.1	6.6	-0.5	

1. Calculated by multiplying total difference in bps by plan total nav average holdings for year 2022, €30 billion. Similarly, basis point costs on this page are converted from the amounts on the previous page using the same total nav holdings as the fee basis.

## Impact of changes in asset mix

Changes in the asset mix decreased your total cost by €45 thousand or 0.0 bps.

Asset class	2018 Cost bps	2022 Cost bps	2018 asset <sup>1</sup> weight %	2022 asset <sup>1</sup> weight %	Change in asset weight	Asset mix changes <sup>2</sup> bps	Asset mix changes <sup>3</sup> €000s
	A	B	C	D	E=D-C	A (or B) x E	
Stock - EAFE	5.2	4.2	59%	60%	1%	0.1	189
Fixed income - EAFE	6.5	6.8	41%	40%	-1%	-0.1	-233
Total for asset management						0.0	-45

1. Weight % = asset's average (NAV for performance lines) holdings / plan total nav average holdings.
2. If asset is not available in one of the years, the entire weighted cost difference in bps is attributed to the asset mix.
3. Calculated by multiplying asset mix changes in bps by plan total nav average holdings for year 2022, €30 billion.

## Impact of changes in implementation style

Changes in implementation style (passive vs. active, internal vs. external, etc.) in 2022 vs. 2018 saved you €0.0 thousand.

Implementation choices	2022 avg. assets €mils	Cost, 2018			Style 1 %			Cost/ €000s
	A	Style 1 B	Style 2 C	Style 1 -Savings D = B - C	2022	2018	More/ -Less E	
Total								0

Cost differences are attributed exclusively to the effects of implementation style when the style existed in one of the years only.

## Impact of paying more/-less for similar services

In 2022, you paid €1.5 million less for similar asset management and oversight / support services vs. 2018.

Asset class styles where you had assets in both 2022 and 2018 <sup>1</sup>	Style	2022 avg. assets €mils	Cost in bps		More/ -less	Cost/ -Savings €000s
			2022	2018		
<u>Internal asset management</u>		A			B	A x B
Stock - EAFE	active	18,216	4.2	5.2	-1.0	-1,899
Fixed income - EAFE	active	12,052	6.8	6.5	0.3	334
Total for internal management						-1,565
Oversight		30,268	0.4	0.4	0.0	79.3
Trustee & custodial		30,268	0.0	0.0	0.0	40
Consulting		30,268	0.2	0.3	-0.1	-157
Audit		30,268	0.1	0.1	0.0	1
Other		30,268	0.1	0.1	0.0	93
Total for fund oversight						57
Total						-1,509

1. Cost differences are attributed to paying more/less for similar services only if the asset-class style existed in both years.

# 5

## Cost comparisons

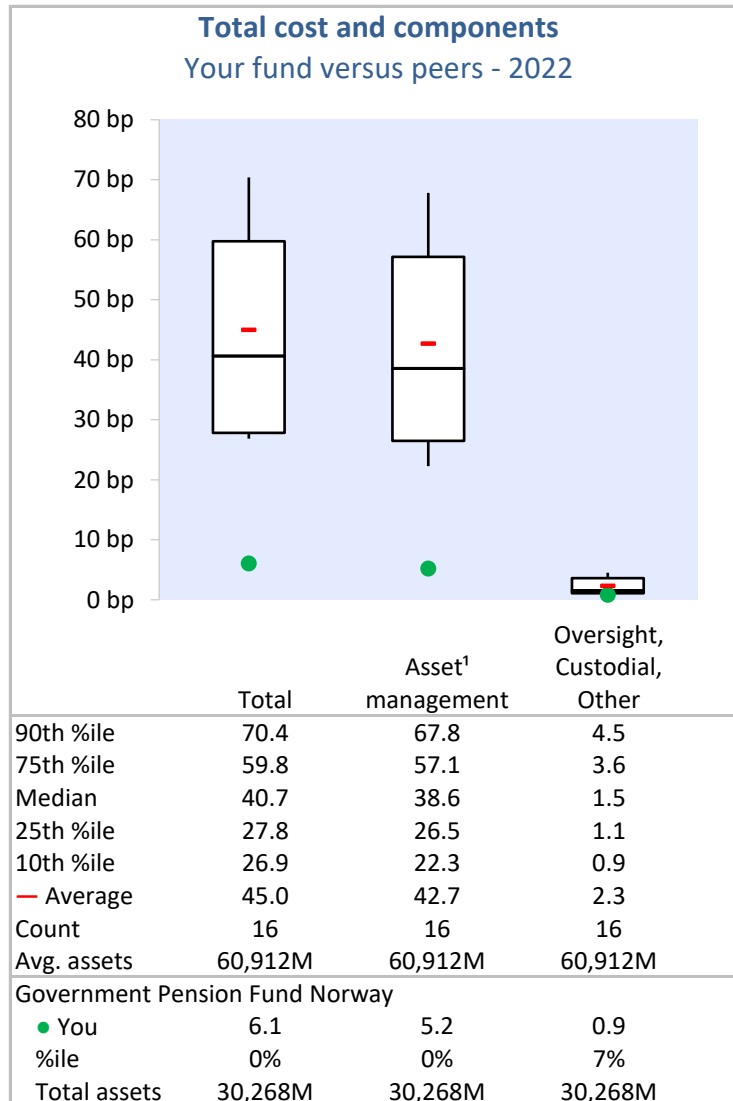
Total fund cost	2
Governance, operations & support	3
Public asset classes	
- Stock	4
- Fixed Income	10
- Commodities	21
- REITs	22
Real asset classes	
- Real estate ex-REITs	24
- Infrastructure	26
- Natural resources	27
- Other real assets	28
Private equity	
- Diversified private equity	29
- LBO	30
- Venture capital	31
- Private credit	32
- Mortgages	33
- Other private equity	34
Global TAA	35
RiskParity	36
Hedge Funds	37
Overlays	38



## Total fund cost

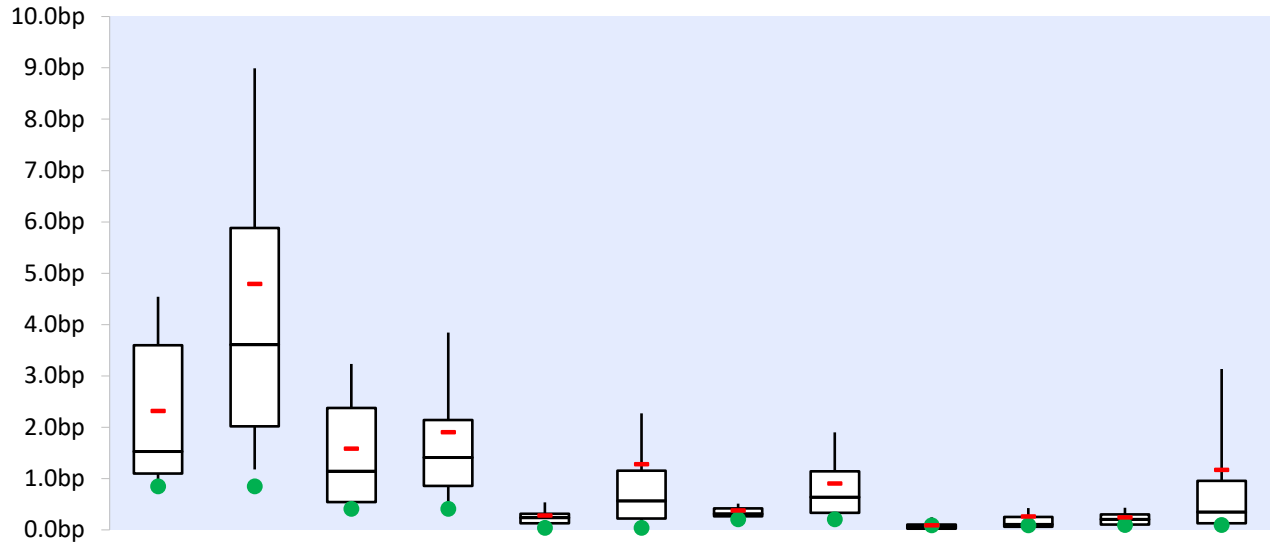
Total costs are benchmarked in the previous section. In this section, your fund's costs are compared on a line-item basis to your peers. This enables you to understand better why you may be a high or low cost fund and it also identifies and quantifies major cost differences that may warrant further investigation.

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.



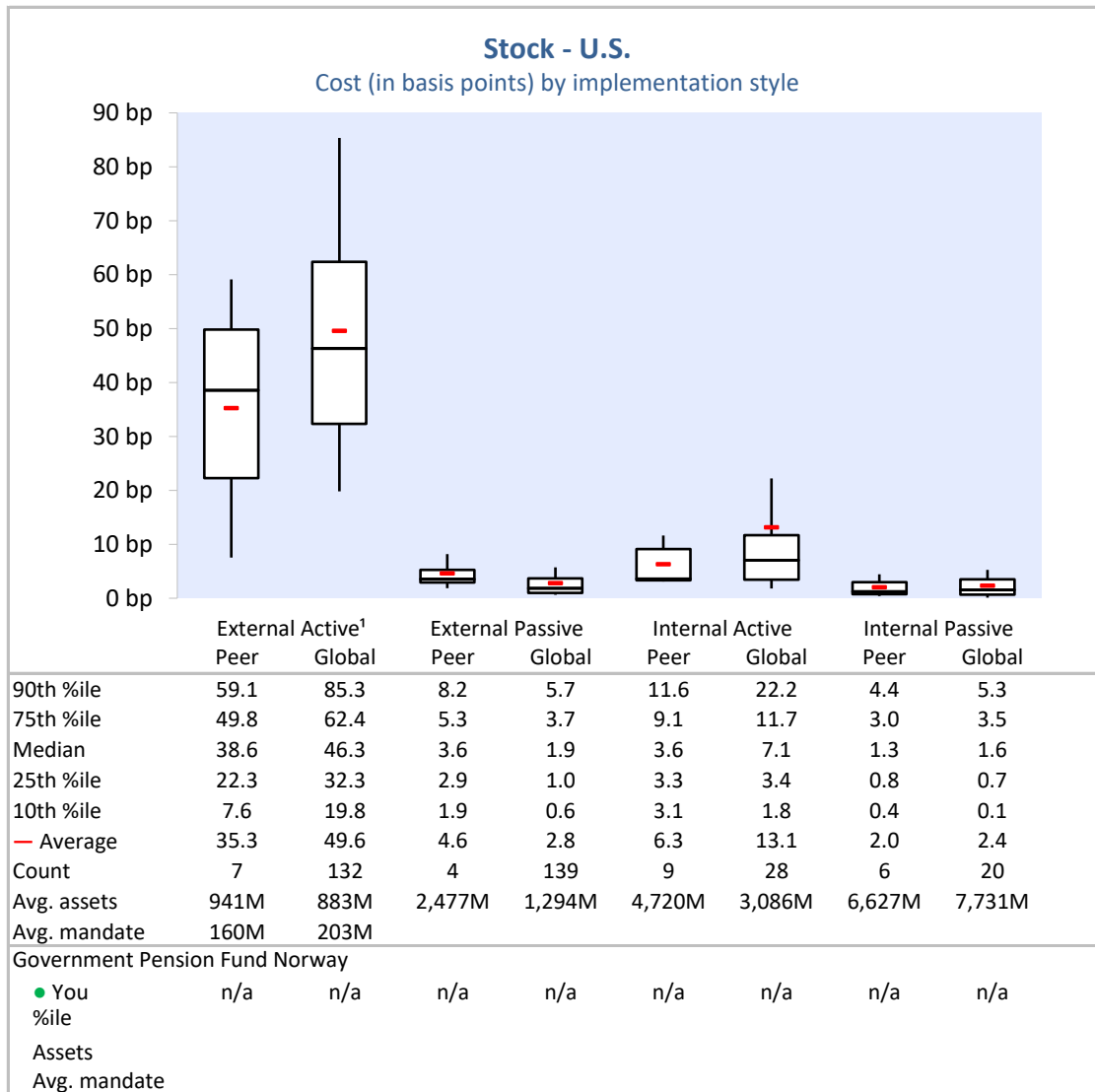
## Governance, operations & support

Cost as a % of total plan assets



	Total		Oversight <sup>1</sup>		Consulting & Perf. Meas.		Custody		Audit		Other	
	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global
90th %ile	4.5	9.0	3.2	3.8	0.5	2.3	0.5	1.9	0.2	0.4	0.4	3.1
75th %ile	3.6	5.9	2.4	2.1	0.3	1.2	0.4	1.1	0.1	0.3	0.3	1.0
Median	1.5	3.6	1.1	1.4	0.2	0.6	0.3	0.6	0.1	0.1	0.2	0.4
25th %ile	1.1	2.0	0.5	0.9	0.1	0.2	0.3	0.3	0.0	0.1	0.1	0.1
10th %ile	0.9	1.2	0.4	0.4	0.1	0.1	0.2	0.2	0.0	0.0	0.1	0.0
— Average	2.3	4.8	1.6	1.9	0.3	1.3	0.4	0.9	0.1	0.3	0.2	1.2
Count	16	294	16	294	6	234	15	278	13	246	13	197
Avg. assets	60,912M	28,642M	60,912M	28,642M	60,912M	28,642M	60,912M	28,642M	60,912M	28,642M	60,912M	28,642M
Government Pension Fund Norway												
● You	0.9	0.9	0.4	0.4	0.0	0.0	0.2	0.2	0.1	0.1	0.1	0.1
%ile	7%	6%	20%	11%	0%	3%	7%	14%	67%	41%	17%	20%
Plan assets	30,268M	30,268M	30,268M	30,268M	30,268M	30,268M	30,268M	30,268M	30,268M	30,268M	30,268M	30,268M

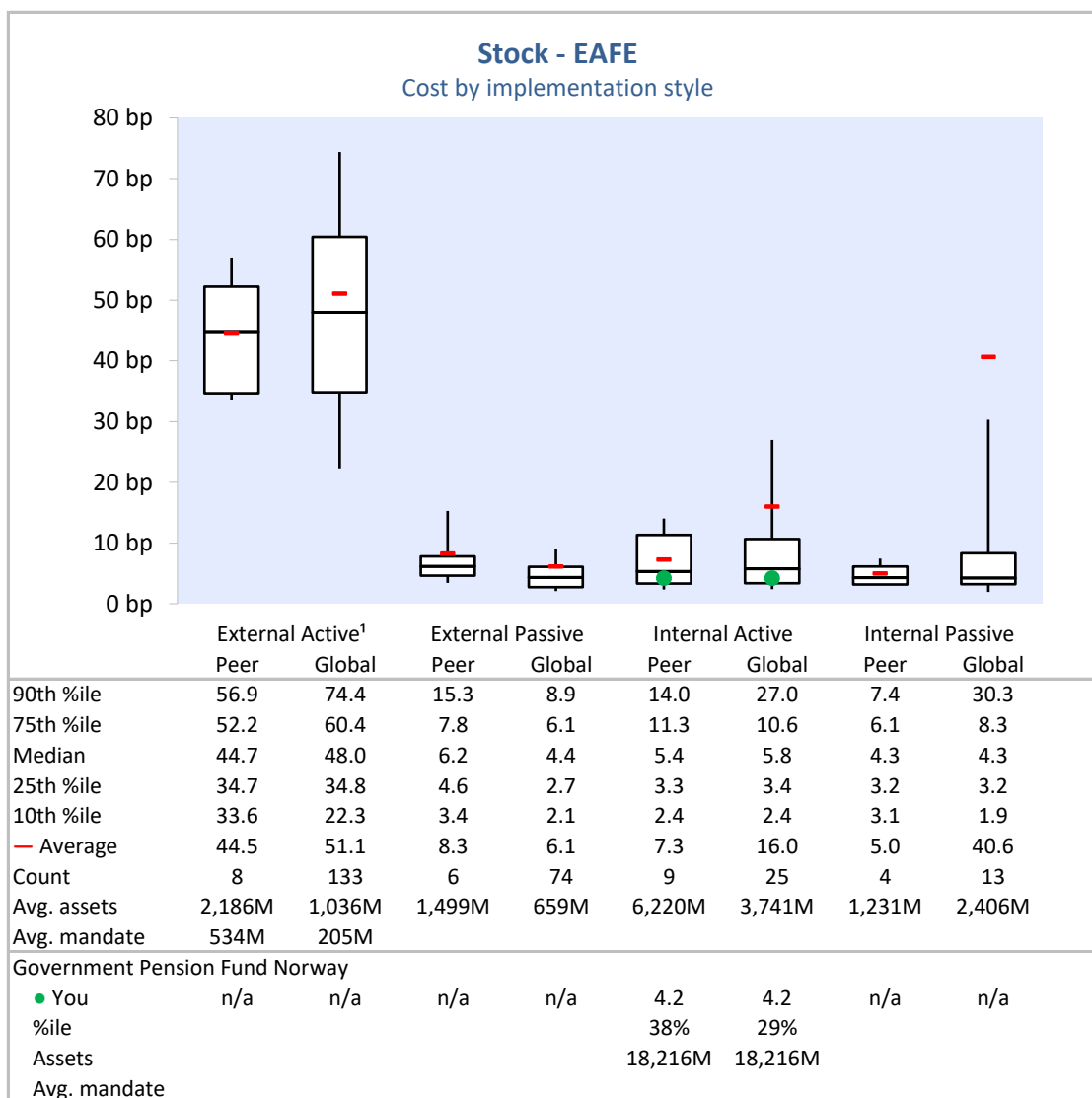
1. Oversight costs include the salaries and benefits of executives and their staff responsible for overseeing the entire fund or multiple asset classes and the fees/salaries of the Board or Investment Committee. All costs associated with the above including fees/salaries, travel, director's insurance 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	Global Average
Base fees	n/a	33.1	44.0
Performance fees*	n/a	0.8	4.6
Internal and other	<u>n/a</u>	<u>1.4</u>	<u>0.9</u>
Total	n/a	35.3	49.6

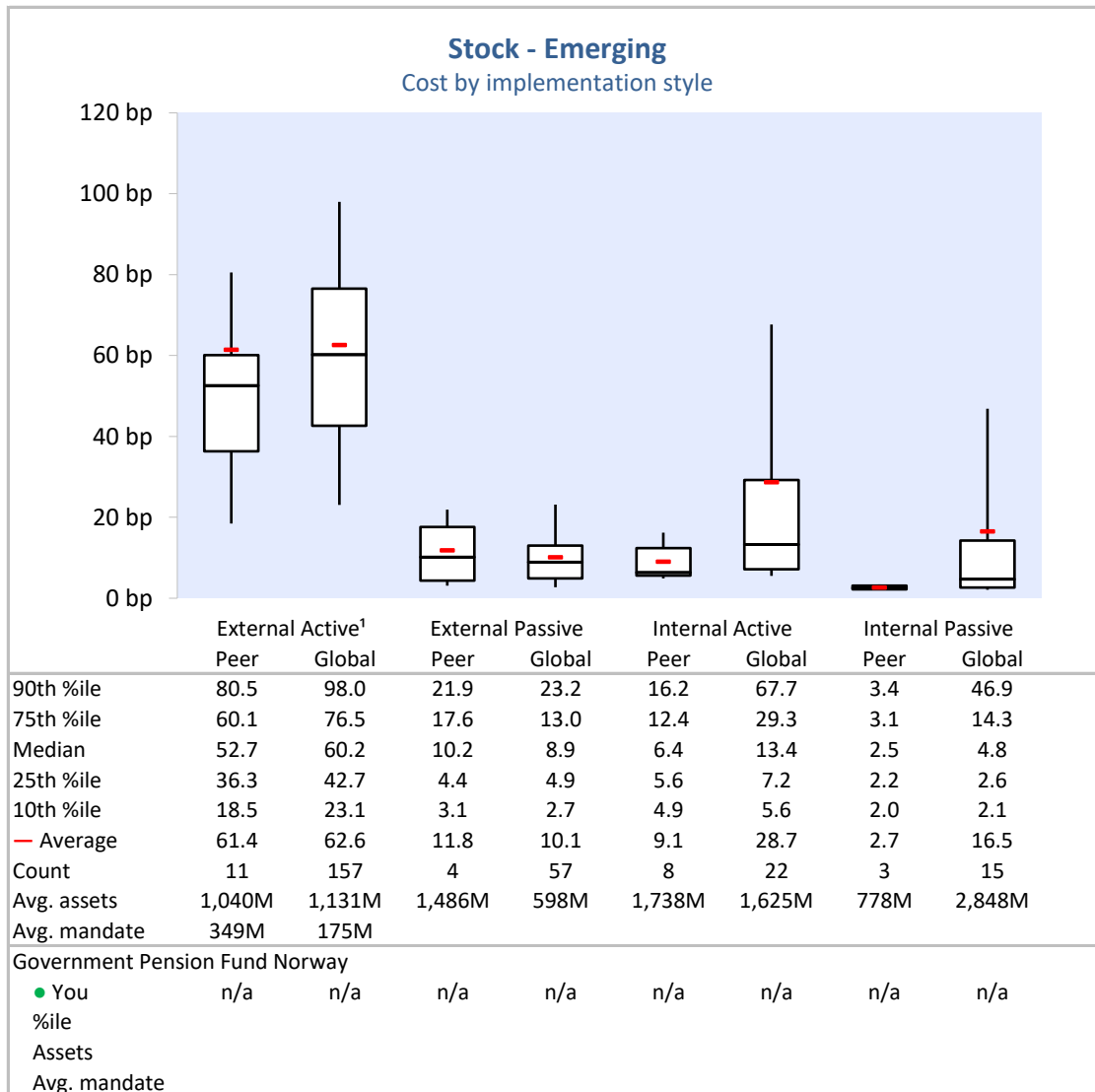
\* For funds that did not report a performance fee, a value of 'zero' was used. The average performance fee for those funds that reported a performance fee is 1.9 bps for peers (3 funds) and 12.7 bps for Global participants (48 funds).



1. Breakdown of external active fees

	You	Peer Average	Global Average
Base fees	n/a	34.8	44.0
Performance fees*	n/a	8.5	6.1
Internal and other	<u>n/a</u>	<u>1.2</u>	<u>0.9</u>
Total	n/a	44.5	51.1

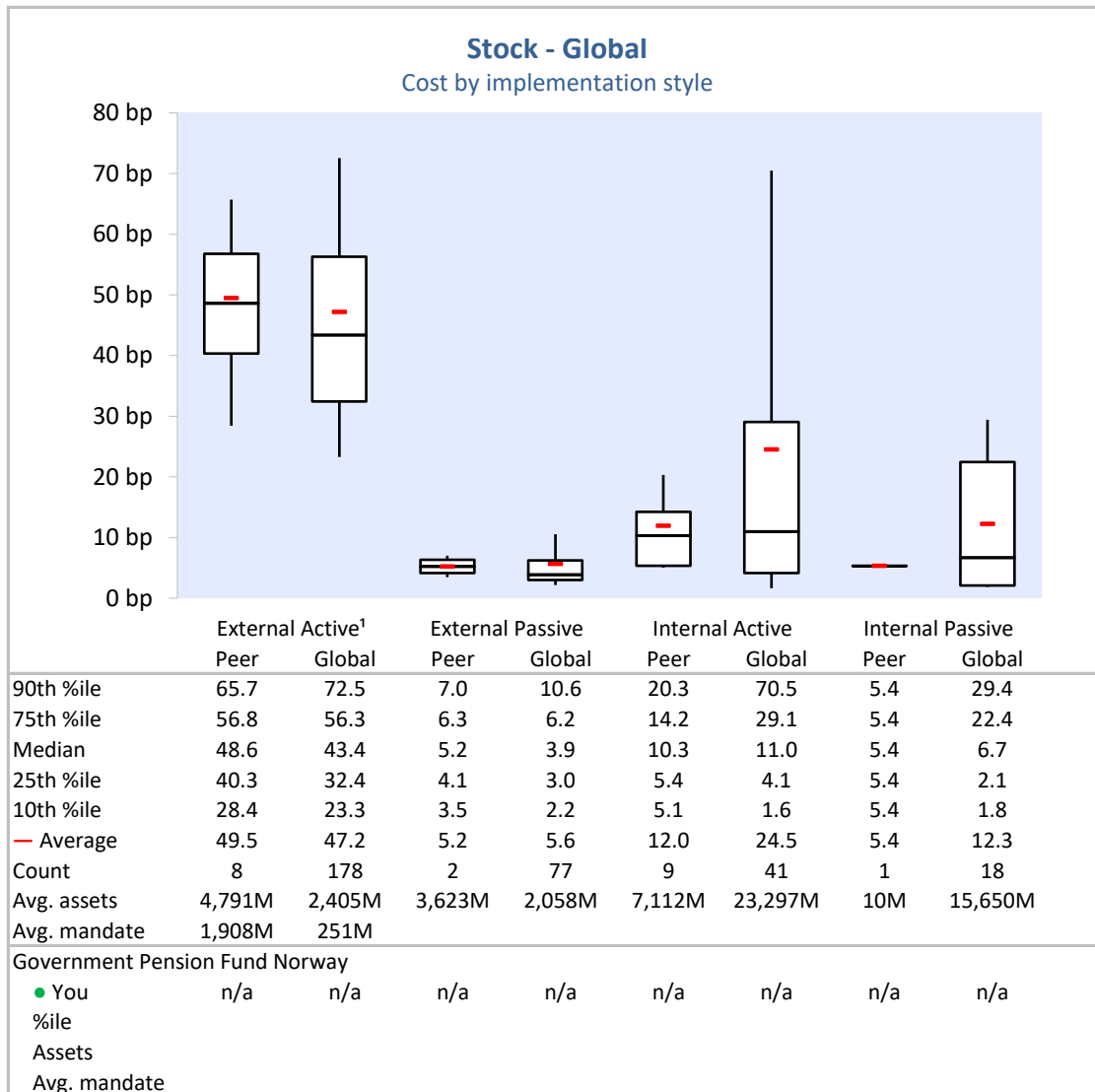
\* For funds that did not report a performance fee, a value of 'zero' was used. The average performance fee for those funds that reported a performance fee is 22.7 bps for peers (3 funds) and 17.8 bps for Global participants (46 funds).



1. Breakdown of external active fees

	You	Peer Average	Global Average
Base fees	n/a	45.4	56.2
Performance fees*	n/a	14.5	4.8
Internal and other	<u>n/a</u>	<u>1.5</u>	<u>1.6</u>
Total	n/a	61.4	62.6

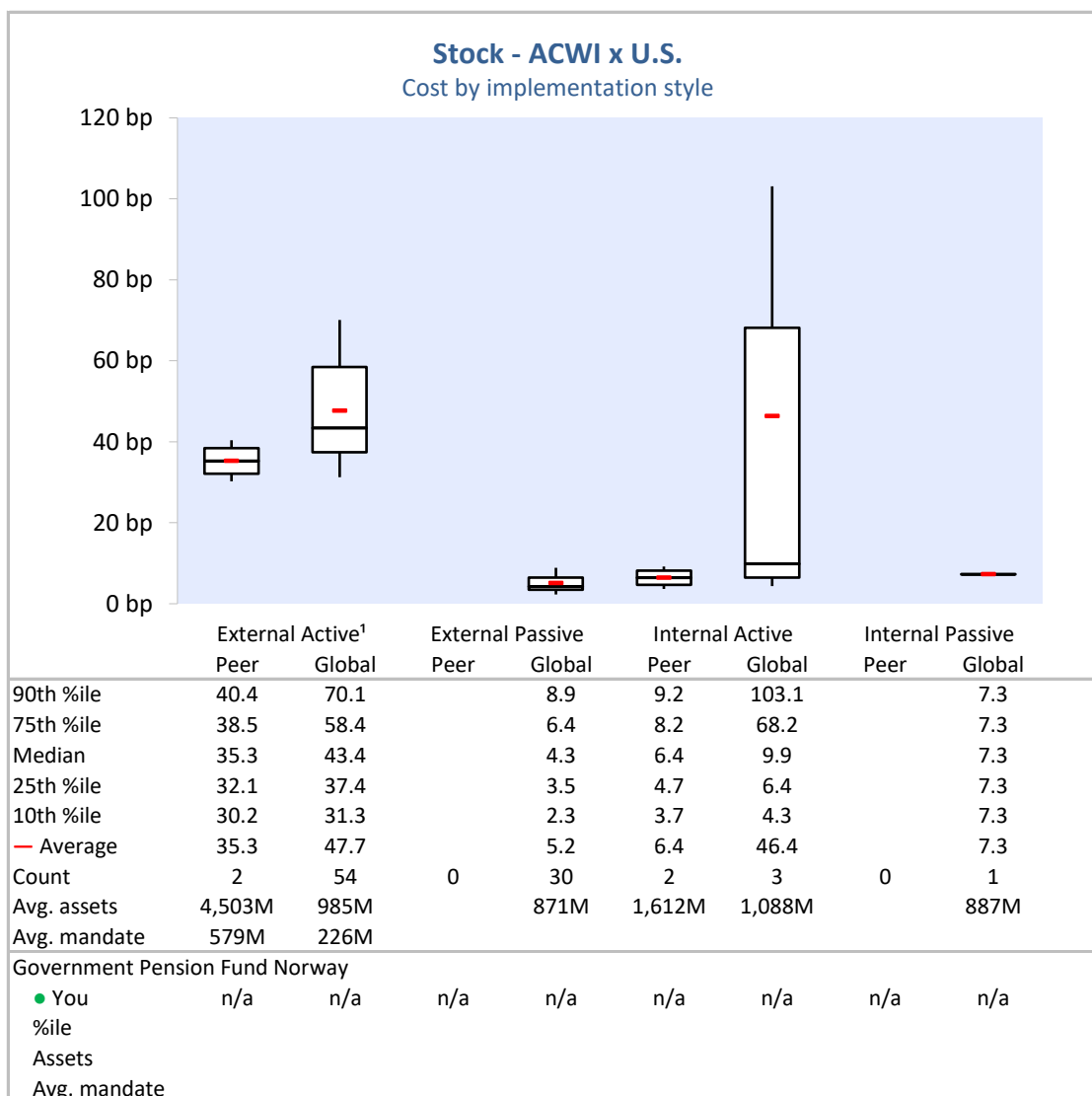
\* For funds that did not report a performance fee, a value of 'zero' was used. The average performance fee for those funds that reported a performance fee is 26.6 bps for peers (6 funds) and 12.6 bps for Global participants (60 funds).



#### 1. Breakdown of external active fees

	You	Peer Average	Global Average
Base fees	n/a	36.6	39.0
Performance fees*	n/a	5.8	6.7
Internal and other	<u>n/a</u>	<u>7.1</u>	<u>1.5</u>
Total	n/a	49.5	47.2

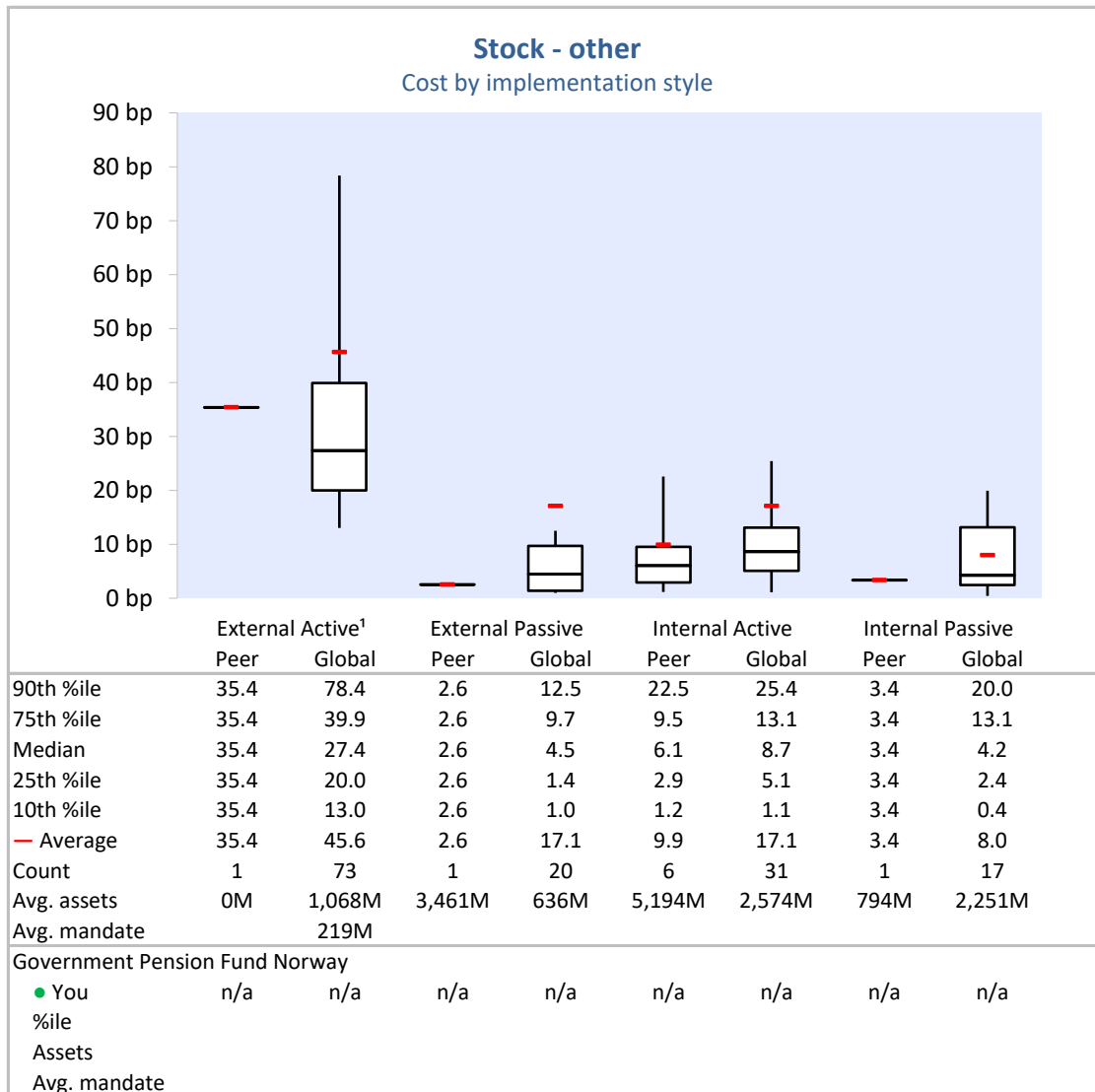
\* For funds that did not report a performance fee, a value of 'zero' was used. The average performance fee for those funds that reported a performance fee is 7.7 bps for peers (6 funds) and 17.0 bps for Global participants (70 funds).



#### 1. Breakdown of external active fees

	You	Peer Average	Global Average
Base fees	n/a	34.9	45.5
Performance fees*	n/a	n/a	1.7
Internal and other	<u>n/a</u>	<u>0.4</u>	<u>0.5</u>
Total	n/a	35.3	47.7

\* For funds that did not report a performance fee, a value of 'zero' was used. The average performance fee for those funds that reported a performance fee is 6.2 bps for Global participants (15 funds).

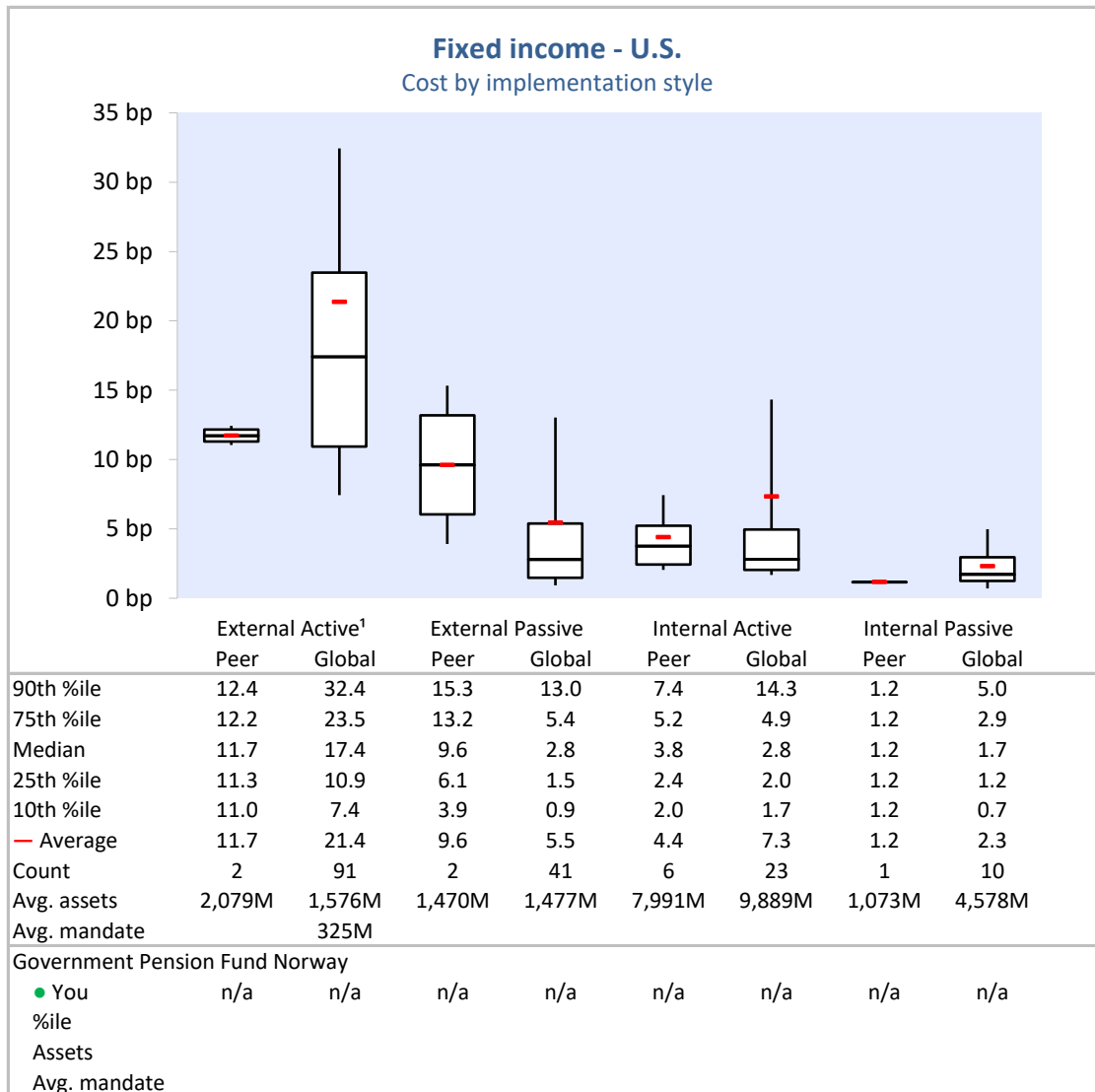


#### 1. Breakdown of external active fees

	You	Peer Average	Global Average
Base fees	n/a	0.0	43.3
Performance fees*	n/a	0.0	0.5
Internal and other	<u>n/a</u>	<u>35.4</u>	<u>1.8</u>
Total	n/a	35.4	45.6

\* For funds that did not report a performance fee, a value of 'zero' was used. The average performance fee for those funds that reported a performance fee is 0.0 bps for peers (1 fund) and 1.6 bps for Global participants (22 funds).

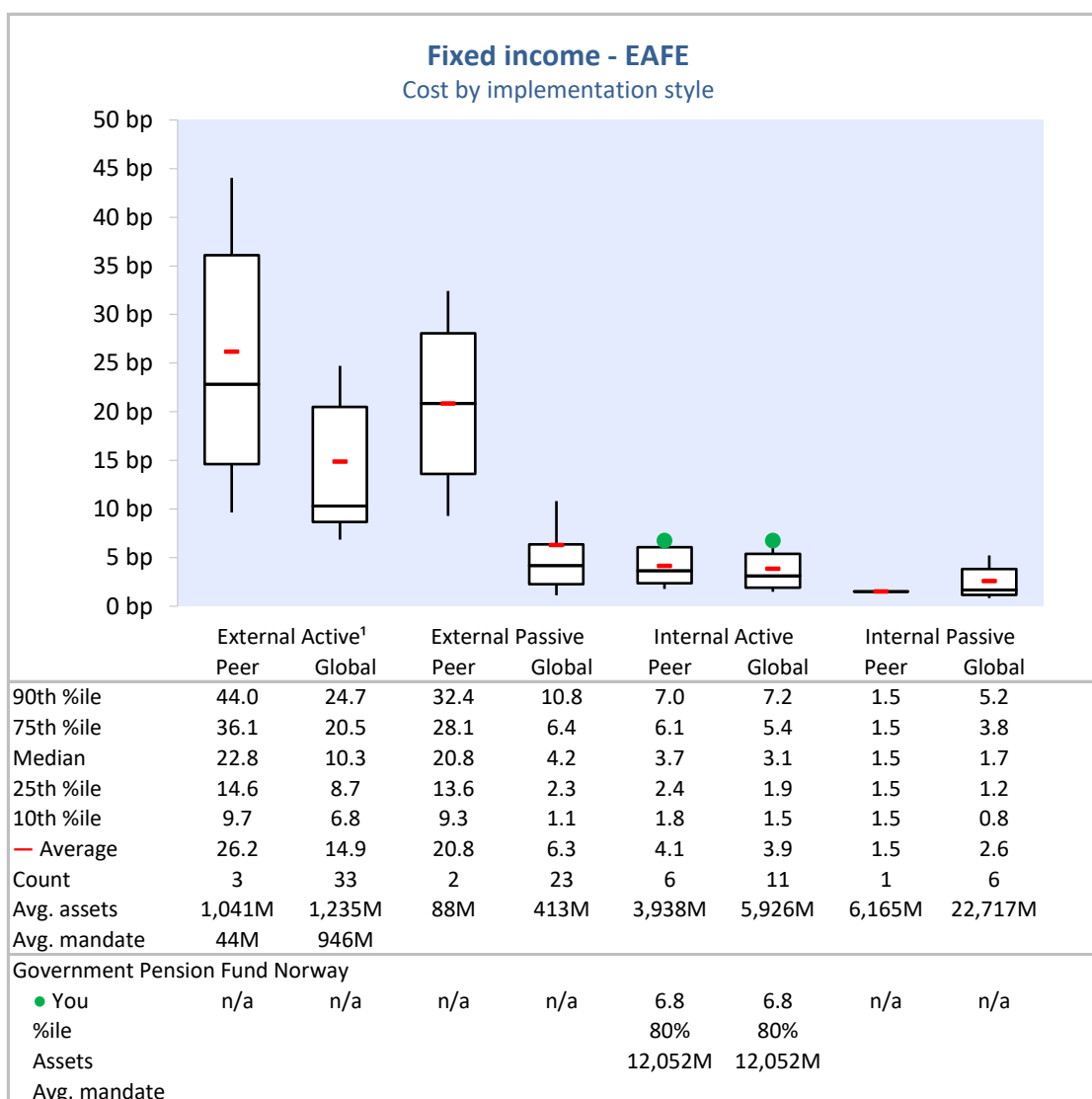




#### 1. Breakdown of external active fees

	You	Peer Average	Global Average
Base fees	n/a	10.0	19.8
Performance fees*	n/a	0.0	0.9
Internal and other	<u>n/a</u>	<u>1.8</u>	<u>0.6</u>
Total	n/a	11.7	21.4

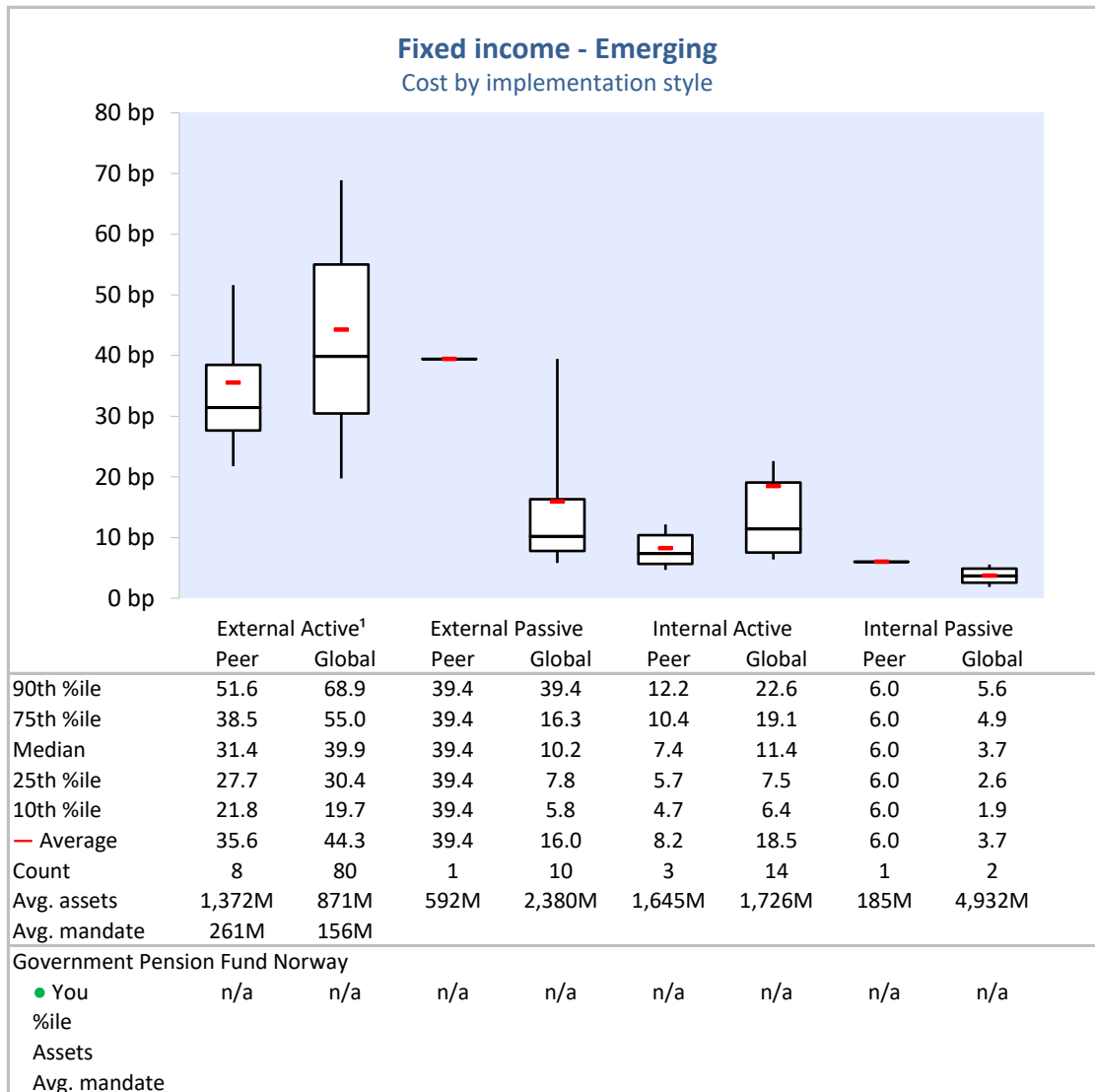
\* For funds that did not report a performance fee, a value of 'zero' was used. The average performance fee for those funds that reported a performance fee is 0.0 bps for peers (1 fund) and 3.5 bps for Global participants (25 funds).



#### 1. Breakdown of external active fees

	You	Peer Average	Global Average
Base fees	n/a	20.3	13.3
Performance fees*	n/a	4.9	0.8
Internal and other	<u>n/a</u>	<u>1.1</u>	<u>0.8</u>
Total	n/a	26.2	14.9

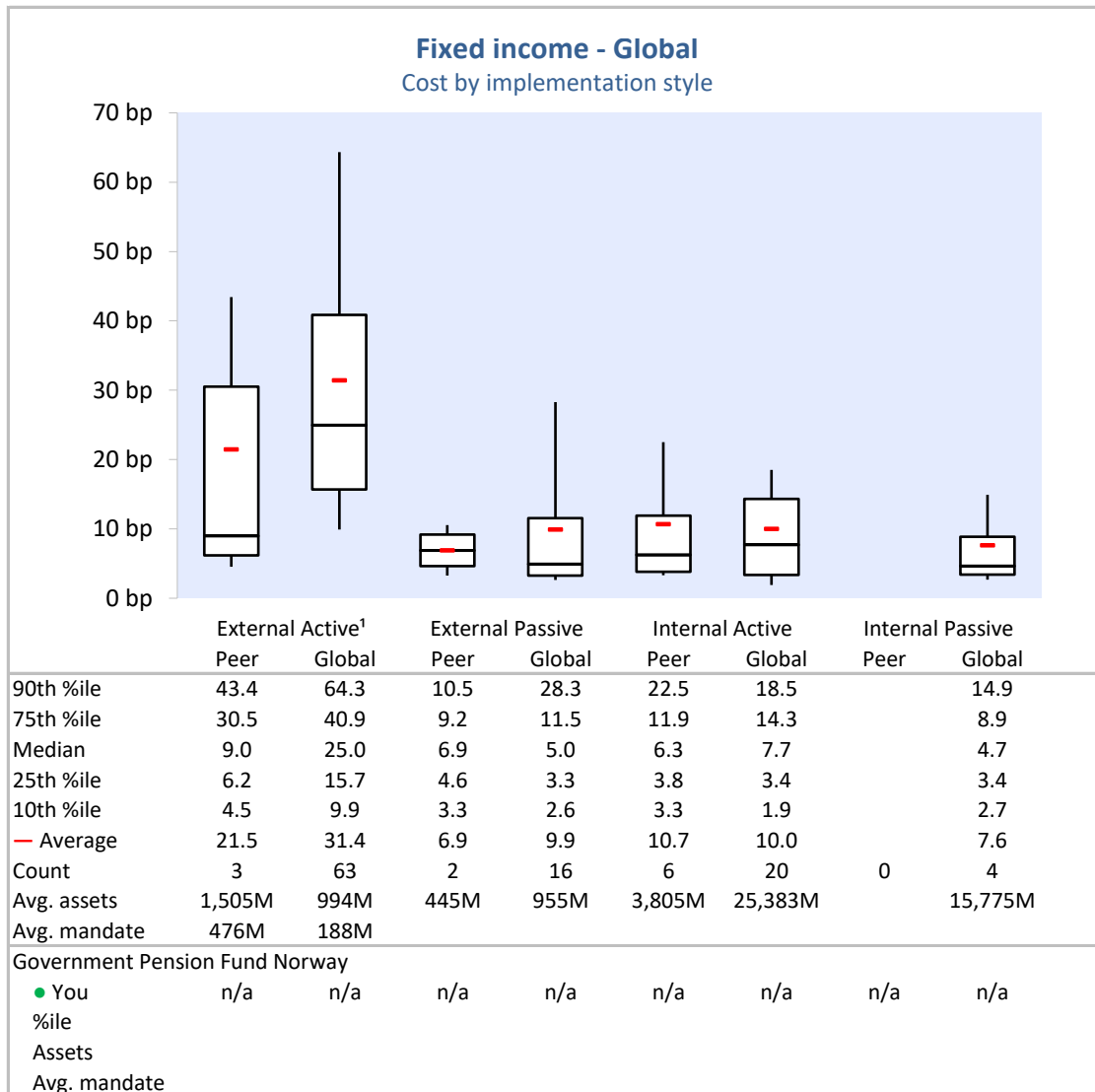
\* For funds that did not report a performance fee, a value of 'zero' was used. The average performance fee for those funds that reported a performance fee is 4.9 bps for peers (3 funds) and 1.2 bps for Global participants (21 funds).



#### 1. Breakdown of external active fees

	You	Peer Average	Global Average
Base fees	n/a	30.4	40.5
Performance fees*	n/a	2.6	0.5
Internal and other	<u>n/a</u>	<u>2.6</u>	<u>3.3</u>
Total	n/a	35.6	44.3

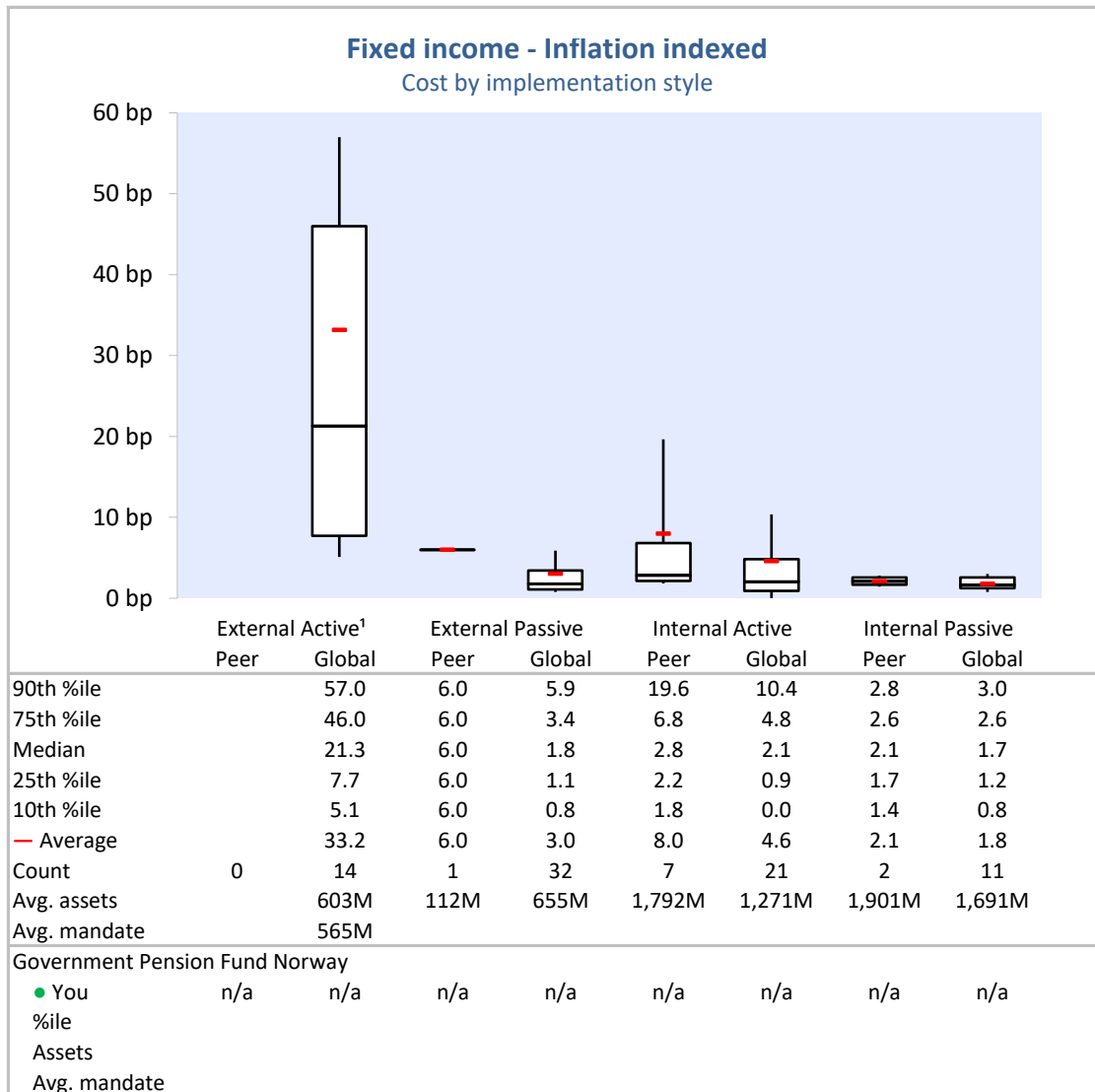
\* For funds that did not report a performance fee, a value of 'zero' was used. The average performance fee for those funds that reported a performance fee is 4.1 bps for peers (5 funds) and 1.1 bps for Global participants (33 funds).



#### 1. Breakdown of external active fees

	You	Peer Average	Global Average
Base fees	n/a	11.5	27.8
Performance fees*	n/a	5.4	0.2
Internal and other	<u>n/a</u>	<u>4.6</u>	<u>3.4</u>
Total	n/a	21.5	31.4

\* For funds that did not report a performance fee, a value of 'zero' was used. The average performance fee for those funds that reported a performance fee is 16.2 bps for peers (1 fund) and 0.7 bps for Global participants (19 funds).

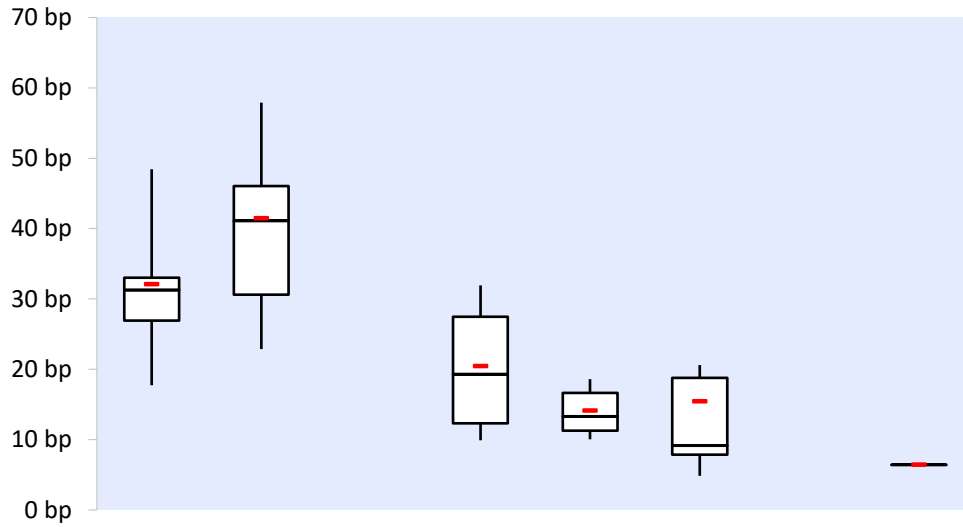


#### 1. Breakdown of external active fees

	You	Peer Average	Global Average
Base fees	n/a	n/a	24.8
Performance fees*	n/a	n/a	8.0
Internal and other	<u>n/a</u>	<u>n/a</u>	<u>0.4</u>
Total	n/a	n/a	33.2

\* For funds that did not report a performance fee, a value of 'zero' was used. The average performance fee for those funds that reported a performance fee is 22.3 bps for Global participants (5 funds).

### Fixed income - High yield Cost by implementation style



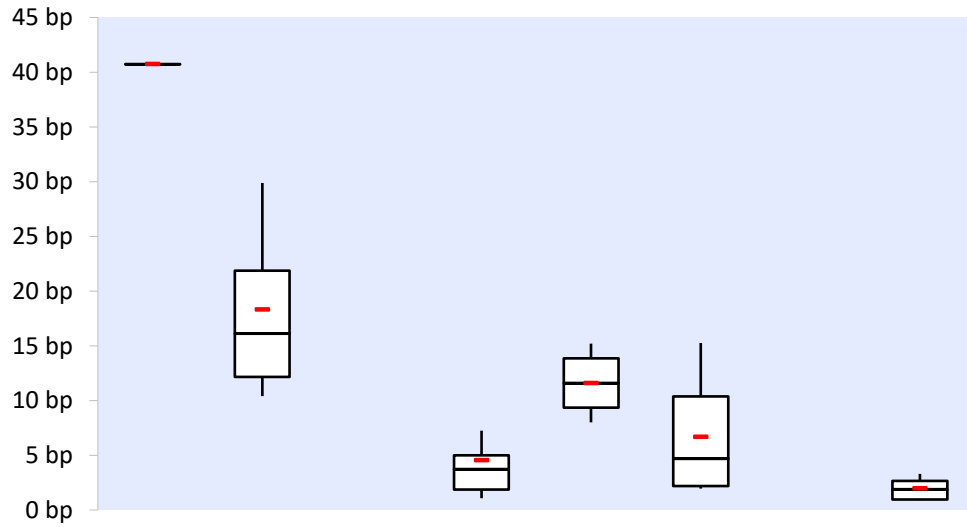
	External Active <sup>1</sup>		External Passive		Internal Active		Internal Passive	
	Peer	Global	Peer	Global	Peer	Global	Peer	Global
90th %ile	48.4	57.9		31.9	18.6	20.6		6.4
75th %ile	33.0	46.0		27.5	16.6	18.8		6.4
Median	31.3	41.1		19.3	13.3	9.2		6.4
25th %ile	26.9	30.6		12.3	11.3	7.9		6.4
10th %ile	17.7	22.9		9.9	10.0	4.9		6.4
— Average	32.1	41.5		20.5	14.2	15.5		6.4
Count	7	85	0	4	3	13	0	1
Avg. assets	1,165M	732M		595M	1,374M	1,928M		766M
Avg. mandate	268M	193M						
Government Pension Fund Norway								
● 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	Global Average
Base fees	n/a	28.9	37.2
Performance fees*	n/a	1.5	2.1
Internal and other	<u>n/a</u>	<u>1.7</u>	<u>2.1</u>
Total	n/a	32.1	41.5

\* For funds that did not report a performance fee, a value of 'zero' was used. The average performance fee for those funds that reported a performance fee is 3.6 bps for peers (3 funds) and 5.7 bps for Global participants (31 funds).

### Fixed income - Long bonds Cost by implementation style



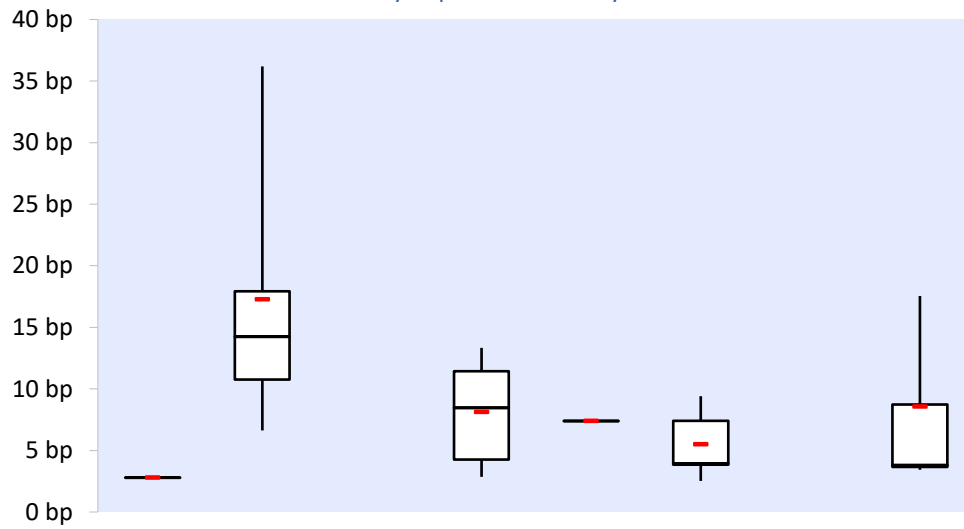
	External Active <sup>1</sup>		External Passive		Internal Active		Internal Passive	
	Peer	Global	Peer	Global	Peer	Global	Peer	Global
90th %ile	40.7	29.9		7.2	15.2	15.3		3.3
75th %ile	40.7	21.9		5.0	13.9	10.4		2.7
Median	40.7	16.1		3.7	11.6	4.7		1.9
25th %ile	40.7	12.2		1.9	9.4	2.2		1.0
10th %ile	40.7	10.4		1.1	8.0	1.9		0.9
— Average	40.7	18.3		4.5	11.6	6.7		2.0
Count	1	92	0	34	2	15	0	9
Avg. assets	179M	2,756M		238M	6,253M	2,482M		4,924M
Avg. mandate		401M						
Government Pension Fund Norway								
● 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	Global Average
Base fees	n/a	26.9	16.1
Performance fees*	n/a	n/a	1.6
Internal and other	<u>n/a</u>	<u>13.8</u>	<u>0.7</u>
Total	n/a	40.7	18.3

\* For funds that did not report a performance fee, a value of 'zero' was used. The average performance fee for those funds that reported a performance fee is 6.9 bps for Global participants (21 funds).

### Fixed income - Bundled LDI Cost by implementation style



	External Active <sup>1</sup>		External Passive		Internal Active		Internal Passive	
	Peer	Global	Peer	Global	Peer	Global	Peer	Global
90th %ile	2.8	36.2		13.3	7.4	9.4		17.6
75th %ile	2.8	17.9		11.4	7.4	7.4		8.7
Median	2.8	14.2		8.5	7.4	4.0		3.8
25th %ile	2.8	10.8		4.3	7.4	3.9		3.7
10th %ile	2.8	6.6		2.8	7.4	2.5		3.4
— Average	2.8	17.3		8.1	7.4	5.5		8.6
Count	1	20	0	8	1	5	0	4
Avg. assets	1,597M	3,136M		3,664M	19,268M	16,244M		6,975M
Avg. mandate		454M						
Government Pension Fund Norway								
● You	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
%ile								
Assets								
Avg. mandate								

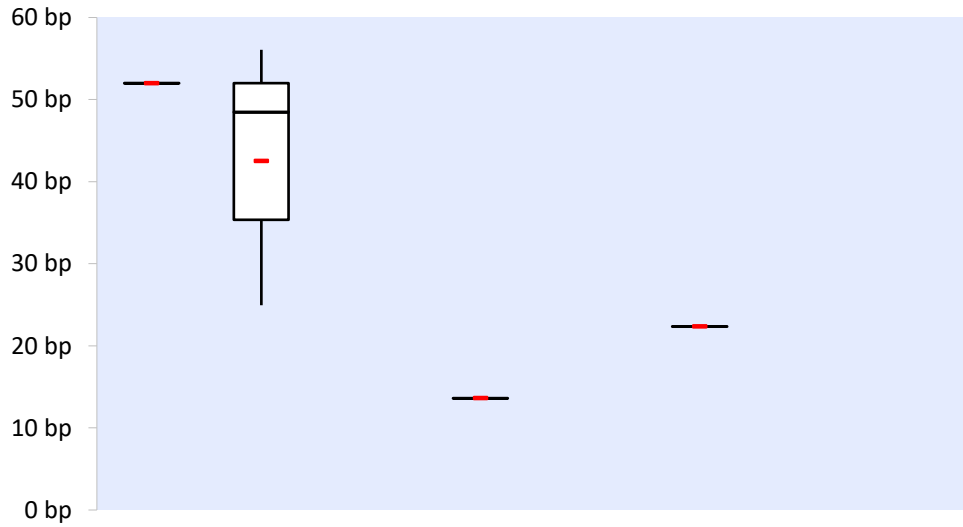
#### 1. Breakdown of external active fees

	You	Peer Average	Global Average
Base fees	n/a	1.3	15.7
Performance fees*	n/a	0.0	0.0
Internal and other	<u>n/a</u>	<u>1.5</u>	<u>1.6</u>
Total	n/a	2.8	17.3

\* For funds that did not report a performance fee, a value of 'zero' was used. The average performance fee for those funds that reported a performance fee is 0.0 bps for peers (1 fund) and 0.0 bps for Global participants (4 funds).



### Fixed income - Convertibles Cost by implementation style

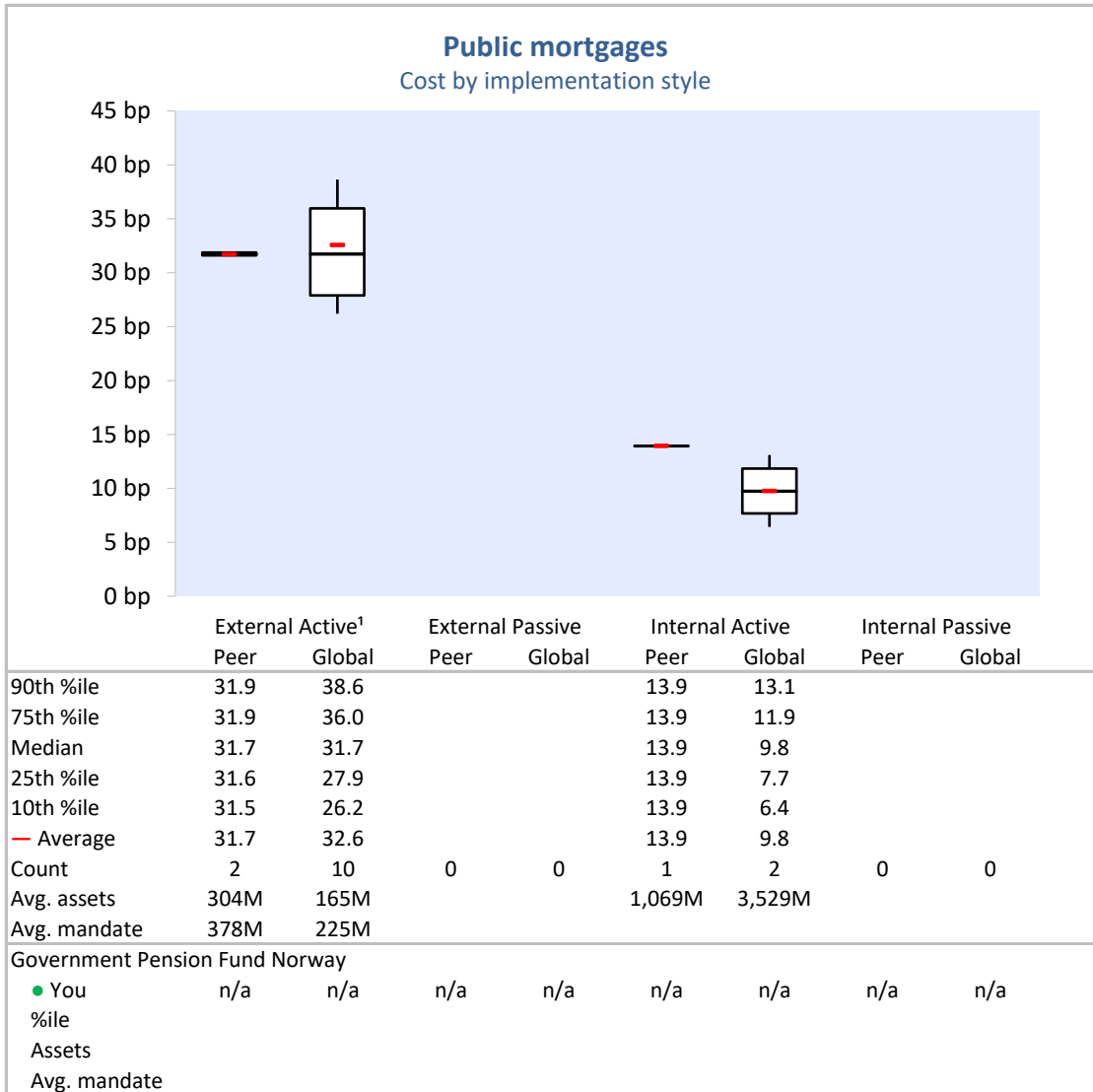


	External Active <sup>1</sup>		External Passive		Internal Active		Internal Passive	
	Peer	Global	Peer	Global	Peer	Global	Peer	Global
90th %ile	52.0	56.1		13.6		22.4		
75th %ile	52.0	52.0		13.6		22.4		
Median	52.0	48.5		13.6		22.4		
25th %ile	52.0	35.4		13.6		22.4		
10th %ile	52.0	24.9		13.6		22.4		
— Average	52.0	42.5		13.6		22.4		
Count	1	5	0	1	0	1	0	0
Avg. assets	60M	447M		0M		656M		
Avg. mandate		66M						
Government Pension Fund Norway								
● 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	Global Average
Base fees	n/a	51.2	42.3
Performance fees*	n/a	n/a	n/a
Internal and other	<u>n/a</u>	<u>0.8</u>	<u>0.2</u>
Total	n/a	52.0	42.5

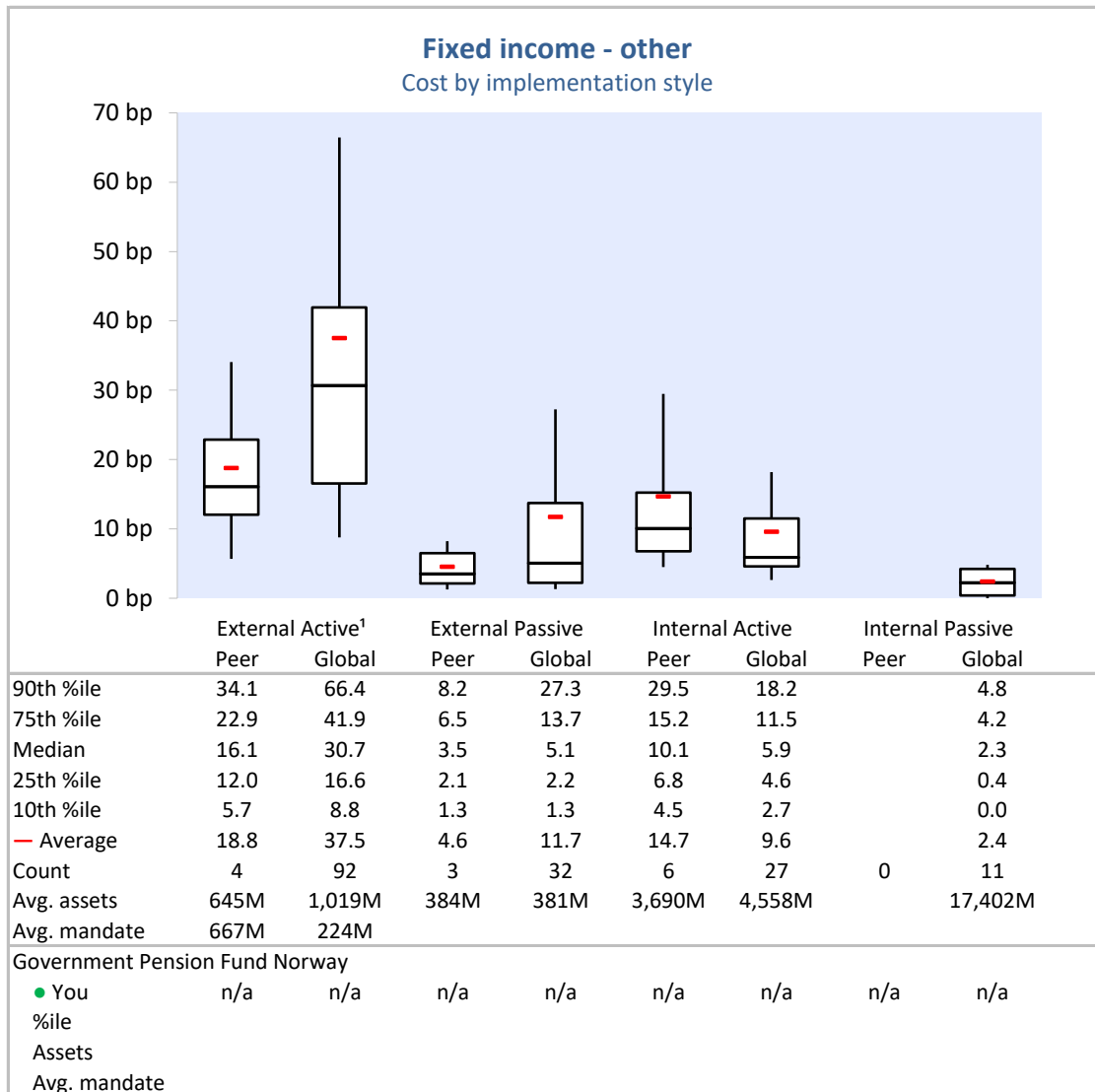
No funds reported a performance fee.



#### 1. Breakdown of external active fees

	You	Peer Average	Global Average
Base fees	n/a	31.0	32.4
Performance fees*	n/a	n/a	n/a
Internal and other	<u>n/a</u>	<u>0.7</u>	<u>0.2</u>
Total	n/a	31.7	32.6

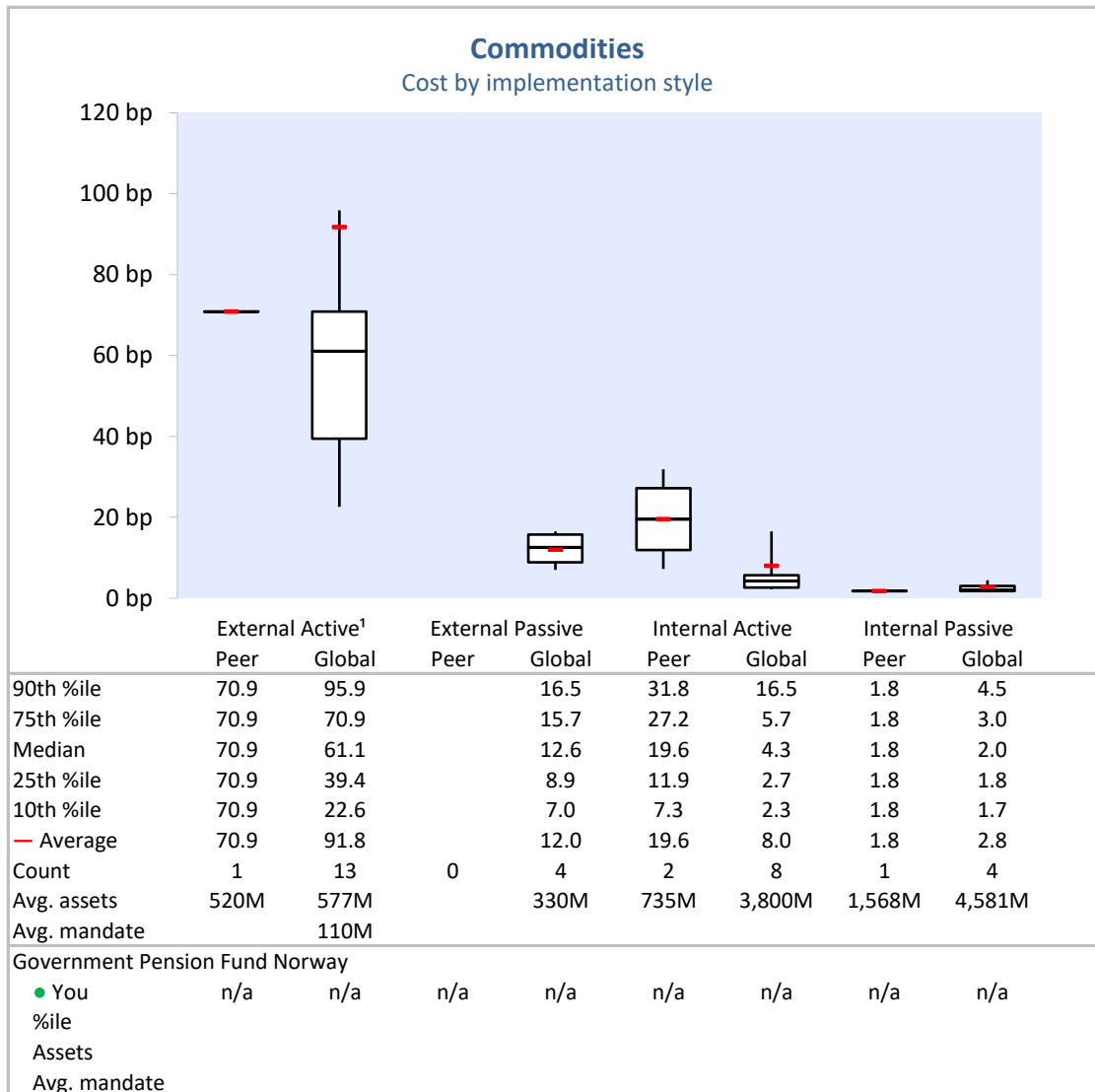
No funds reported a performance fee.



1. Breakdown of external active fees

	You	Peer Average	Global Average
Base fees	n/a	14.0	32.7
Performance fees*	n/a	0.0	3.9
Internal and other	<u>n/a</u>	<u>4.8</u>	<u>0.9</u>
Total	n/a	18.8	37.5

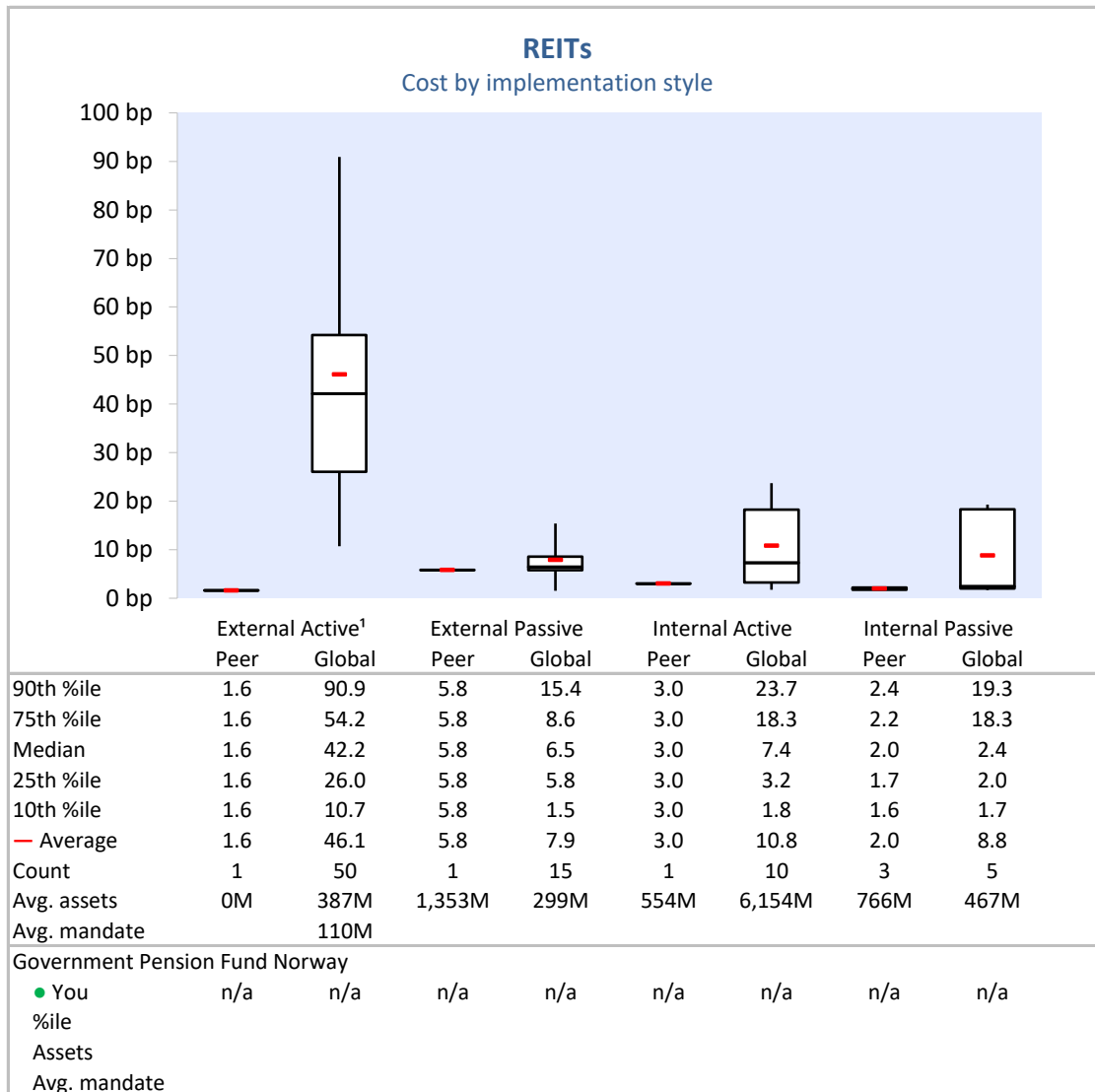
\* For funds that did not report a performance fee, a value of 'zero' was used. The average performance fee for those funds that reported a performance fee is 0.0 bps for peers (1 fund) and 16.2 bps for Global participants (22 funds).



#### 1. Breakdown of external active fees

	You	Peer Average	Global Average
Base fees	n/a	69.2	60.3
Performance fees*	n/a	0.0	29.9
Internal and other	<u>n/a</u>	<u>1.7</u>	<u>1.6</u>
Total	n/a	70.9	91.8

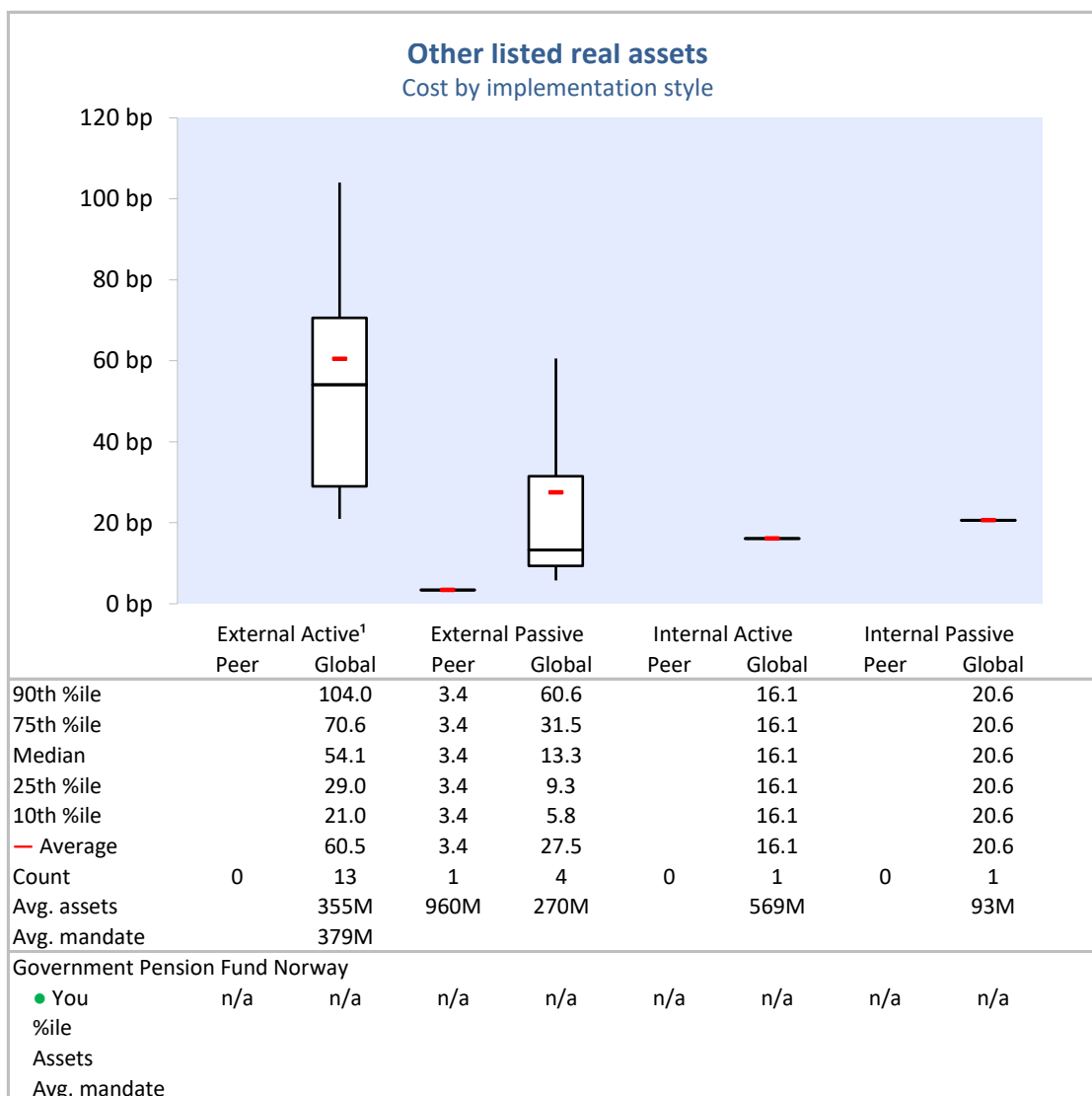
\* For funds that did not report a performance fee, a value of 'zero' was used. The average performance fee for those funds that reported a performance fee is 0.0 bps for peers (1 fund) and 48.6 bps for Global participants (8 funds).



#### 1. Breakdown of external active fees

	You	Peer Average	Global Average
Base fees	n/a	0.0	39.4
Performance fees*	n/a	n/a	5.3
Internal and other	<u>n/a</u>	<u>1.6</u>	<u>1.4</u>
Total	n/a	1.6	46.1

\* For funds that did not report a performance fee, a value of 'zero' was used. The average performance fee for those funds that reported a performance fee is 13.9 bps for Global participants (19 funds).



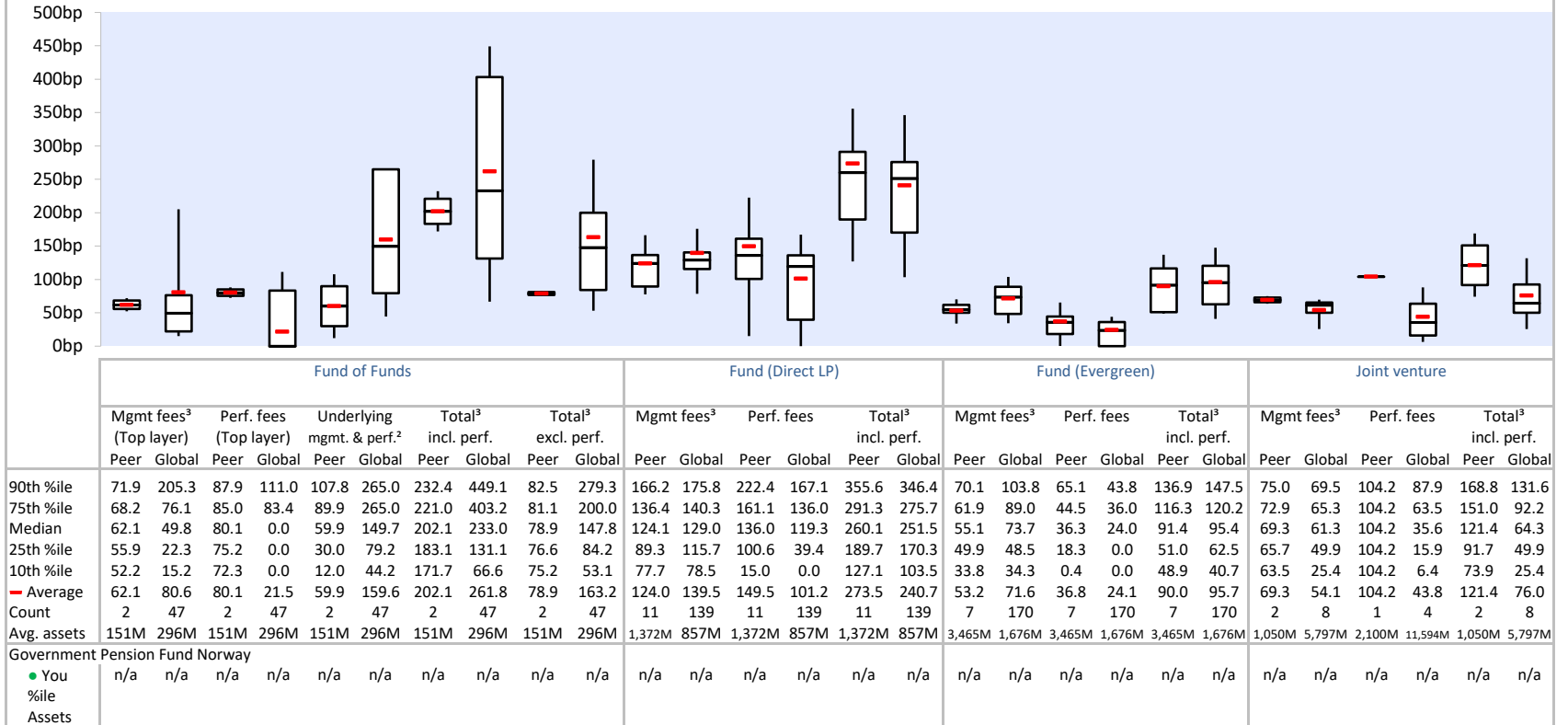
#### 1. Breakdown of external active fees

	You	Peer Average	Global Average
Base fees	n/a	n/a	60.5
Performance fees*	n/a	n/a	0.0
Internal and other	<u>n/a</u>	<u>n/a</u>	<u>0.0</u>
Total	n/a	n/a	60.5

\* For funds that did not report a performance fee, a value of 'zero' was used. The average performance fee for those funds that reported a performance fee is 0.0 bps for Global participants (3 funds).

## Real estate

Cost as a % of the amount fees are based on<sup>1</sup>



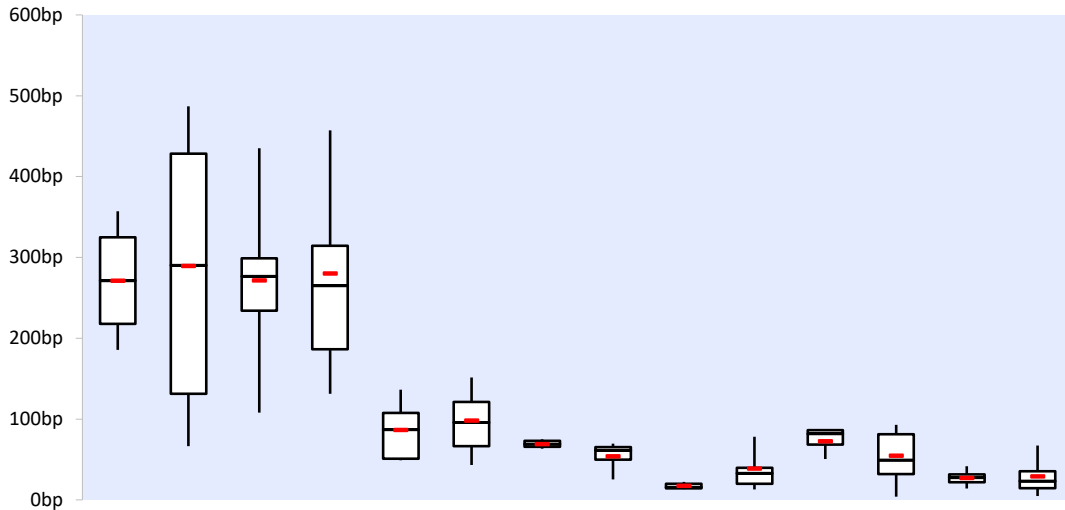
1. The base for fees is usually the committed amount during the commitment period, and unreturned invested capital afterwards.

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 17 bps (on amount fees are based on) for underlying management fees and 43 bps (on NAV) for underlying performance fees were used.

3. The management fees and total cost also include the internal cost of monitoring and selecting real estate investments. The peer average cost of monitoring and selecting was 4.0 bps for fund of funds,

## Real estate - contd.

### Cost as a % of NAV



	Fund of Funds		Fund (Direct LP)		Fund (Evergreen)		Joint venture		Oper. Sub.		Co-Inv.		Internal	
	Total <sup>1</sup> incl. perf.		Total <sup>1</sup> incl. perf.		Total <sup>1</sup> incl. perf.		Total <sup>1</sup> incl. perf.		Total <sup>1</sup> incl. perf.		Total <sup>1</sup> incl. perf.		Total	
	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global
90th %ile	357.2	486.9	435.1	457.2	136.4	151.5	75.0	69.5	22.3	78.1	86.8	92.8	41.5	67.2
75th %ile	325.0	428.3	298.7	314.4	107.4	121.3	72.9	65.3	19.8	39.7	86.1	81.2	31.4	35.4
Median	271.4	290.4	276.8	265.0	87.1	96.1	69.3	61.3	15.7	33.0	81.9	49.2	27.6	23.2
25th %ile	217.8	131.1	234.2	186.3	51.0	66.3	65.7	49.9	14.2	19.8	68.2	31.9	21.8	14.4
10th %ile	185.6	66.6	107.8	131.2	48.9	43.1	63.5	25.4	13.3	12.7	50.6	3.9	13.9	4.7
— Average	271.4	289.5	271.7	280.3	86.7	98.1	69.3	54.1	17.5	39.0	72.5	54.6	27.3	29.2
Count	2	47	11	139	7	170	2	8	3	11	4	32	7	40
Avg. assets	97M	288M	1,169M	721M	3,655M	1,531M	1,050M	5,797M	7,230M	7,699M	422M	642M	4,363M	2,908M
Government Pension Fund Norway														
● 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
%ile														
Assets														

1. The total cost also includes the internal cost of monitoring and selecting real estate investments.

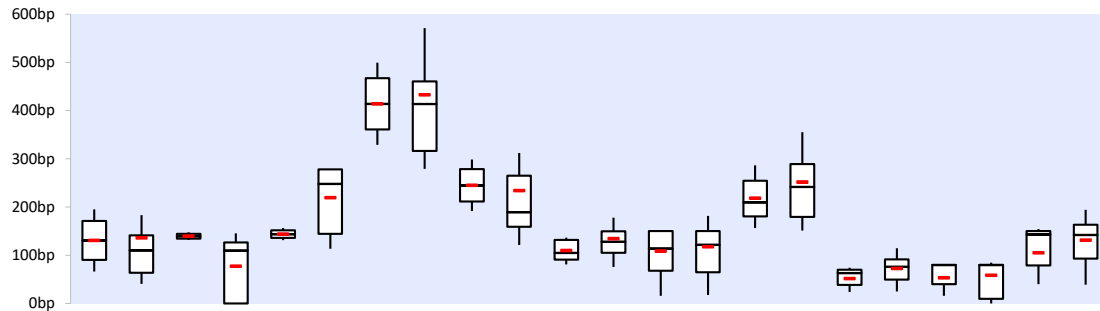
2. Co-investment is included with direct LPs because it can only be done alongside direct LPs. Co-investment is done by 4 of your peers and 26 of the Global funds.

3. The total cost also includes the internal cost of monitoring and selecting real estate investments. Internal and other - FoFs The peer

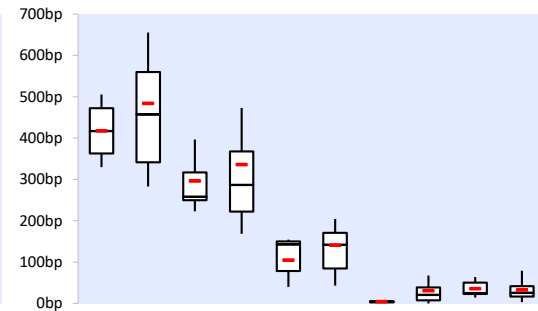


## Infrastructure

Cost as a % of the amount fees are based on<sup>1</sup>



Cost as a % of NAV

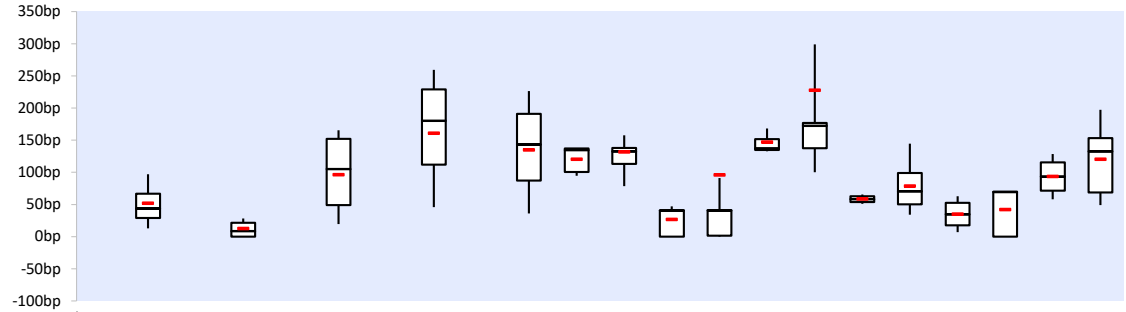


	Fund of Funds										Fund (Direct LP)						Fund (Evergreen)						Co-Inv.		Internal							
	Mgmt fees <sup>3</sup> (Top layer)		Perf. fees (Top layer)		Underlying mgmt. & perf. <sup>2</sup>		Total <sup>3</sup> incl. perf.		Total <sup>3</sup> excl. perf.		Mgmt fees <sup>3</sup>		Perf. fees		Total <sup>3</sup> incl. perf.		Mgmt fees <sup>3</sup>		Perf. fees		Total <sup>3</sup> incl. perf.		Total		Total							
	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global						
90th %ile	195.3	183.0	147.5	145.5	156.2	278.0	499.1	571.0	298.8	312.4	136.6	178.1	150.0	181.5	286.6	355.1	74.4	114.4	80.0	84.6	154.4	194.1	505.3	655.5	396.4	473.3	154.4	204.5	6.5	67.6	63.7	79.1
75th %ile	171.2	141.2	144.5	126.6	151.5	278.0	467.2	460.4	278.7	264.9	132.0	149.5	150.0	150.0	254.6	289.2	70.2	91.2	80.0	80.0	150.2	163.4	472.4	559.9	317.0	367.7	150.2	171.1	5.5	38.8	50.2	41.8
Median	130.8	110.5	139.6	110.0	143.7	248.1	414.1	413.9	245.2	189.6	105.3	128.0	114.0	122.1	209.9	241.8	63.2	76.0	80.0	79.7	143.2	142.4	417.5	457.8	258.6	286.9	143.2	142.4	3.8	21.3	25.3	25.7
25th %ile	90.5	63.7	134.6	0.0	135.8	144.3	360.9	316.2	211.7	158.9	91.0	105.0	67.9	64.8	180.3	179.6	38.7	49.6	40.0	9.6	78.7	93.2	362.7	341.7	249.6	222.2	78.7	84.4	2.9	7.4	22.8	16.6
10th %ile	66.3	40.6	131.6	0.0	131.1	113.3	329.1	279.0	191.6	121.2	81.2	75.9	16.0	17.4	156.4	151.3	24.0	24.8	16.0	0.0	40.0	38.8	329.8	282.6	222.9	168.7	40.0	43.1	2.4	0.0	14.3	3.4
Average	130.8	136.2	139.6	77.2	143.7	219.2	414.1	432.6	245.2	234.1	109.8	134.3	108.7	117.6	218.5	251.9	51.5	72.7	53.3	58.4	104.9	131.1	417.5	484.0	296.1	335.9	104.9	141.0	4.4	31.0	35.5	32.9
Count	2	26	2	26	2	26	2	26	2	26	11	126	11	126	11	126	3	77	3	77	3	77	2	26	11	126	3	77	3	38	7	35
Avg. assets	106M	133M	106M	133M	106M	133M	106M	133M	106M	133M	802M	635M	802M	635M	802M	635M	2,759M	622M	2,759M	622M	2,759M	622M	106M	121M	571M	508M	2,759M	569M	374M	388M	5,098M	4,869M
Government Pension Fund Norway	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	n/a	n/a	n/a	n/a	n/a
You %ile Assets	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	n/a	n/a	n/a	n/a	n/a
OM	OM	OM	OM	OM	OM	OM	OM	OM	OM	OM	OM	OM	OM	OM	OM	OM	OM	OM	OM	OM	OM	OM	OM	OM	OM	OM	OM	OM	OM	OM	OM	OM

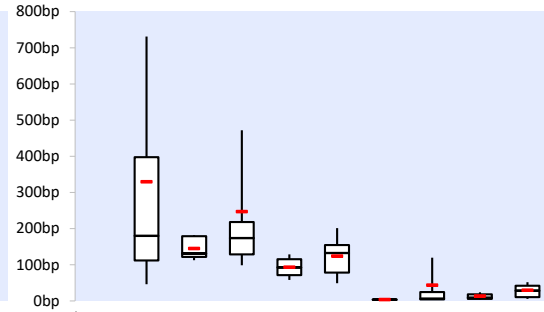
1. The base for fees is usually the committed amount during the commitment period, and unreturned invested capital afterwards.  
 2. The fees of fund of funds include both the top layer fees paid to the fund of funds manager and the underlying fees paid to the 'underlying partnerships' held by the fund of funds. Most funds were unable to provide the underlying fees so defaults of 114 bps (on amount fees are based on) for underlying management fees and 29 bps (on NAV) for underlying performance fees were used.  
 3. The management fees and total cost also include the internal cost of monitoring and selecting infrastructure investments. The peer average cost of monitoring and selecting was 1.1 bps for fund of funds, 4.7 bps for LPs and 2.2 bps for external (not LPs).  
 Some averages on the right chart may be off the chart where there is outlier data resulting from large base or performance fees divided by small NAV.

## Natural resources

Cost as a % of the amount fees are based on<sup>1</sup>



Cost as a % of NAV

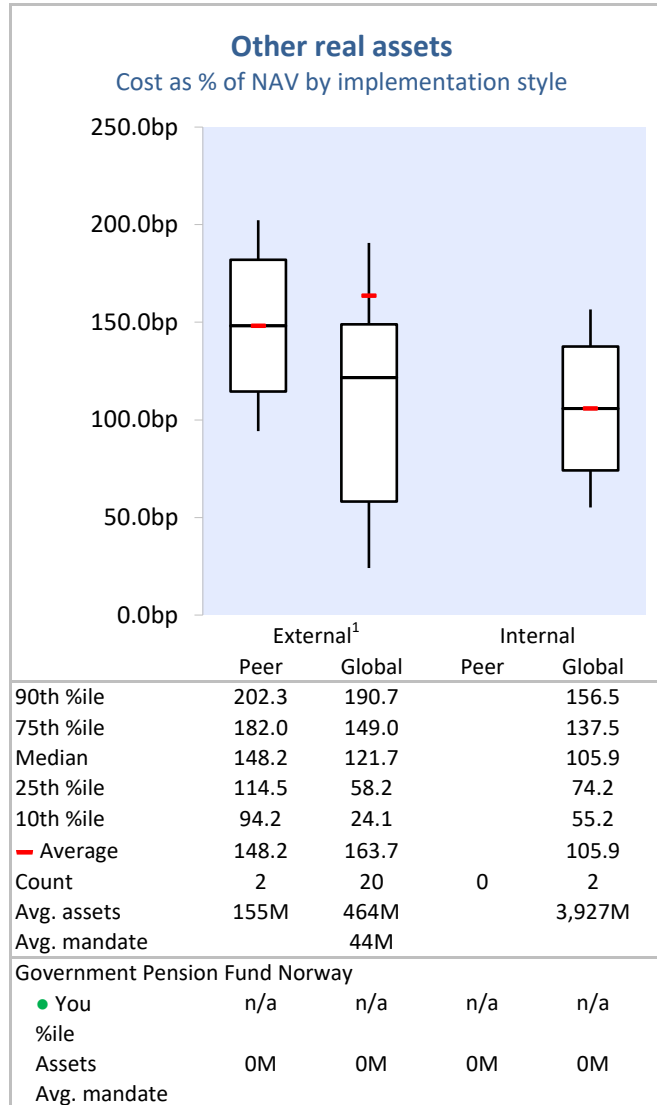


	Fund of Funds										Fund (Direct LP)						Fund (Evergreen)						Co-Inv.		Internal	
	Mgmt fees (Top layer)		Perf. fees (Top layer)		Underlying mgmt. & perf. <sup>2</sup>		Total <sup>3</sup> incl. perf.		Total <sup>3</sup> excl. perf.		Mgmt fees		Perf. fees		Total <sup>3</sup> incl. perf.		Mgmt fees		Perf. fees		Total <sup>3</sup> incl. perf.		Total incl. perf.		Total	
	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global
90th %ile	96.9	28.4	165.3	259.4	226.4	137.6	157.5	47.1	91.0	168.0	299.1	65.6	144.7	63.0	70.0	128.6	197.5	731.1	182.2	472.0	128.6	201.2	4.2	119.6	23.9	51.5
75th %ile	66.6	21.5	152.3	229.0	190.9	137.2	138.1	41.0	41.3	151.7	176.9	62.9	99.0	52.5	70.0	115.4	153.3	397.5	178.9	218.3	115.4	154.6	4.0	24.4	18.3	42.3
Median	44.0	8.8	105.3	180.3	143.3	134.9	133.0	41.0	41.0	137.2	172.4	58.3	70.7	35.0	69.6	93.3	132.8	180.3	131.5	174.0	93.3	132.8	3.7	6.2	8.9	29.0
25th %ile	29.1	0.0	49.2	111.9	87.1	100.6	113.1	0.0	1.7	134.9	137.5	53.8	50.3	17.5	0.0	71.3	68.8	111.9	121.8	128.9	71.3	78.2	3.3	4.6	5.9	10.9
10th %ile	12.8	0.0	19.7	45.9	36.0	94.5	78.7	0.0	0.0	132.8	100.3	51.1	34.0	7.0	0.0	58.1	49.2	45.9	112.7	98.5	58.1	49.2	3.1	3.7	4.1	6.0
Average	51.7	12.7	96.2	160.6	134.6	120.2	131.7	26.6	95.9	146.8	227.5	58.3	78.4	35.0	41.8	93.3	120.2	329.0	144.6	246.6	93.3	124.0	3.7	43.2	13.2	29.7
Count	0	4	0	4	0	4	0	4	0	4	0	4	2	26	2	26	2	26	0	4	5	40	2	6	3	10
Avg. assets	120M	120M	120M	120M	120M	327M	499M	327M	499M	327M	499M	604M	197M	604M	197M	604M	197M	117M	344M	459M	604M	187M	76M	931M	1,005M	2,498M
Government Pension Fund Norway																										
You %ile Assets	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
	0M	0M	0M	0M	0M	0M	0M	0M	0M	0M	0M	0M	0M	0M	0M	0M	0M	0M	0M	0M	0M	0M	0M	0M	0M	0M

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 n/a bps (on amount fees are based on) for underlying management fees and n/a bps (on NAV) for underlying performance fees were used.

3. The management fees and total cost also include the internal cost of monitoring and selecting natural resource investments. The peer average cost of monitoring and selecting was 8.7 bps for LPs and 5.0 bps for external (not LPs).



#### 1. Breakdown of external fees

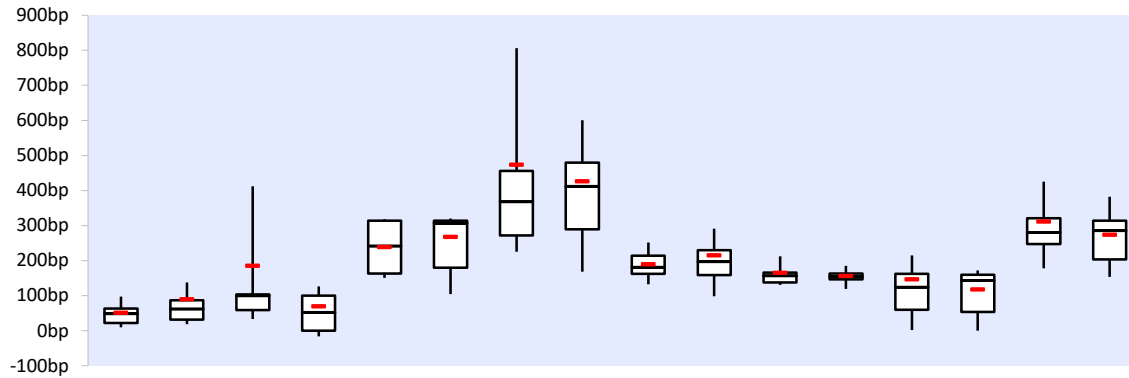
	Your Plan	Peer Average	Global Average
Base fees	n/a	38.6	147.6
Internal and other	n/a	<u>109.7</u>	<u>16.1</u>
Total*	n/a	148.2	163.7
Performance fees**	n/a	0.0	25.3

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

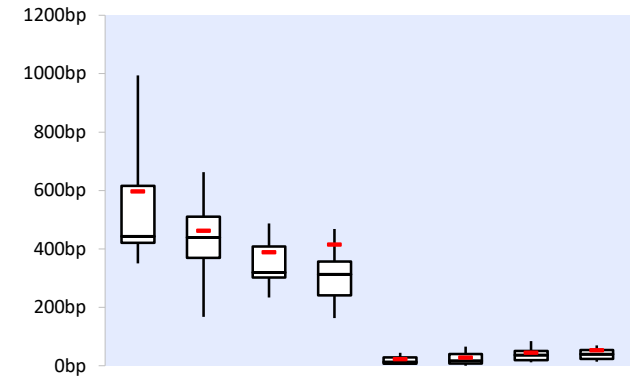
\*\* For funds that did not report a performance fee, a default value of 32 bps was applied. The average performance fee for only those funds that reported a performance fee is 0.0 bps for peers (2 funds) and 22.4 bps for Global participants (14 funds).

## Private equity - Diversified

Cost as a % of the amount fees are based on<sup>1</sup>



Cost as a % of NAV



	Fund of Funds										Direct LP					
	Mgmt fees <sup>3</sup> (Top layer)		Perf. fees (Top layer)		Underlying mgmt. & perf. <sup>2</sup>		Total <sup>3</sup> incl. perf.		Total <sup>3</sup> excl. perf.		Mgmt fees <sup>3</sup>		Perf. fees		Total <sup>3</sup> incl. perf.	
	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global
	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global
90th %ile	97.3	137.4	412.4	126.5	318.6	319.7	806.2	600.4	251.3	291.4	212.3	185.2	214.7	172.0	425.2	382.1
75th %ile	62.9	86.9	103.6	100.0	314.0	314.0	456.2	479.5	213.8	229.6	166.0	163.1	161.8	160.0	321.1	314.0
Median	48.8	62.1	100.0	52.7	242.4	306.6	368.4	412.3	181.7	197.5	156.8	154.0	124.2	143.9	280.2	285.4
25th %ile	22.3	31.5	58.5	0.0	162.7	179.9	271.8	288.9	162.2	158.3	138.1	146.4	59.6	53.2	247.0	203.2
10th %ile	9.9	18.7	33.1	-16.1	150.4	104.3	225.5	168.2	132.6	97.9	130.9	119.3	1.6	0.0	178.2	153.3
— Average	50.8	89.5	184.9	69.6	238.1	267.1	473.8	426.3	189.4	214.6	164.7	156.1	146.8	117.3	311.4	273.4
Count	7	110	7	110	7	110	7	110	7	110	12	161	12	161	12	161
Avg. assets	461M	584M	461M	584M	461M	584M	461M	584M	461M	584M	4,658M	2,546M	4,658M	2,546M	4,658M	2,546M
Government Pension Fund Norway																
● You %ile	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
Assets	0M	0M	0M	0M	0M	0M	0M	0M	0M	0M	0M	0M	0M	0M	0M	0M

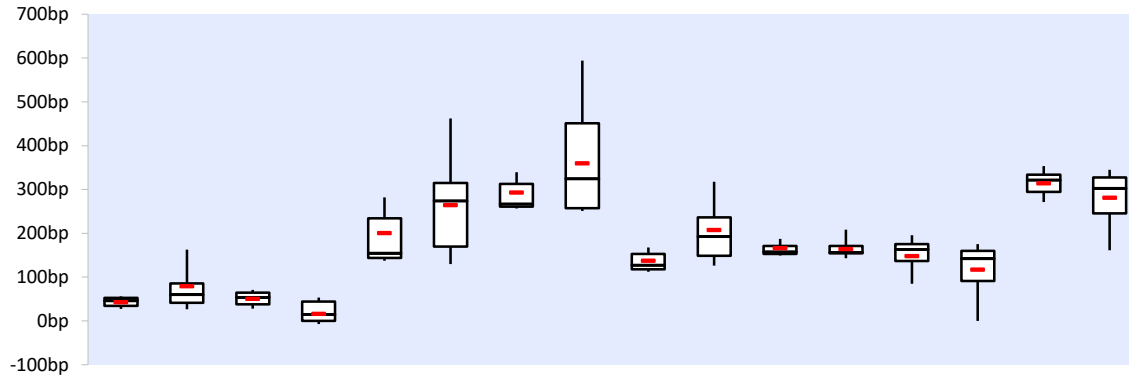
  

	Fund of Funds		Direct LP		Co-Investment		Internal	
	Total <sup>3</sup> incl. perf.		Total <sup>3</sup> incl. perf.		Total incl. perf.		Total	
	Peer	Global	Peer	Global	Peer	Global	Peer	Global
	Peer	Global	Peer	Global	Peer	Global	Peer	Global
90th %ile	994.1	663.0	487.0	468.6	44.7	65.7	84.5	69.7
75th %ile	615.9	510.4	408.1	357.1	28.0	40.5	50.5	53.6
Median	443.5	439.7	320.2	314.0	13.2	17.4	37.0	40.5
25th %ile	420.6	368.9	301.7	241.0	7.0	8.0	19.5	23.2
10th %ile	350.6	167.3	234.1	163.3	6.1	0.0	12.0	13.7
— Average	596.0	462.1	388.2	414.6	21.9	27.7	44.5	52.3
Count	6	109	12	161	5	43	6	22
Avg. assets	412M	604M	3,603M	2,330M	1,516M	1,429M	2,846M	4,135M
Government Pension Fund Norway								
● You %ile	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Assets	0M	0M	0M	0M	0M	0M	0M	0M

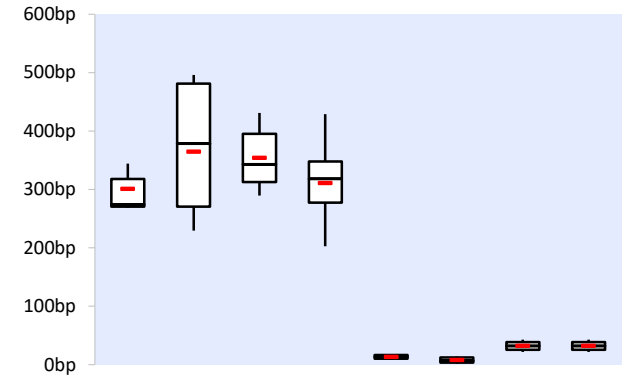
1. The base for fees is usually the committed amount during the commitment period, and unreturned invested capital afterwards.
2. The fees of fund of funds include both the top layer fees paid to the fund of funds manager and the underlying fees paid to the 'underlying partnerships' held by the fund of funds. Most funds were unable to provide the underlying fees so defaults of 154 bps (on amount fees are based on) for underlying management fees and 160 bps (on NAV) for underlying performance fees were used.
3. The management fees and total cost also includes the internal cost of monitoring and selecting private equity investments. The peer average cost of monitoring and selecting was 3.8 bps for fund of funds, 15.0 bps for LPs and 5.0

## LBO

Cost as a % of the amount fees are based on<sup>1</sup>



Cost as a % of NAV

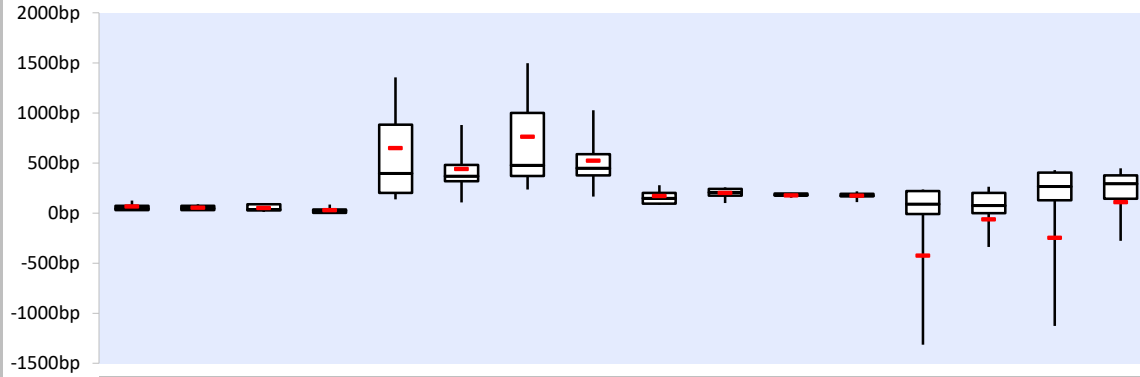


	Fund of Funds										Direct LP						Fund of Funds		Direct LP		Co-Investment		Internal		
	Mgmt fees <sup>3</sup> (Top layer)		Perf. fees (Top layer)		Underlying mgmt. & perf. <sup>2</sup>		Total <sup>3</sup> incl. perf.		Total <sup>3</sup> excl. perf.		Mgmt fees <sup>3</sup>		Perf. fees		Total <sup>3</sup> incl. perf.		Total <sup>3</sup> incl. perf.		Total		Total		Total		
	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer
90th %ile	55.8	162.4	70.7	53.2	281.6	461.9	339.7	594.1	167.6	317.4	187.3	208.2	195.5	175.2	353.6	345.0	344.1	496.0	431.1	428.7	17.9	13.7	42.8	42.8	
75th %ile	52.3	85.5	64.5	44.0	234.0	315.0	312.5	451.1	152.5	236.3	170.9	171.1	175.1	160.0	333.9	327.1	317.9	481.2	395.0	347.8	16.4	12.4	38.9	38.9	
Median	46.4	60.6	54.2	14.9	154.8	274.2	267.1	324.6	127.3	192.5	157.4	156.5	163.6	142.3	321.8	303.1	274.2	378.8	343.4	318.5	13.7	7.0	32.3	32.3	
25th %ile	34.5	41.6	38.0	0.0	143.7	169.4	260.5	257.4	117.6	148.7	152.8	154.2	136.9	91.4	294.7	245.6	270.7	270.7	312.8	277.6	10.4	3.6	25.7	25.7	
10th %ile	27.4	26.4	28.3	-7.2	137.1	129.8	256.5	250.9	111.8	126.0	149.3	142.7	84.5	0.0	271.2	161.2	268.5	229.5	289.3	202.6	8.3	1.8	21.8	21.8	
Average	42.4	79.1	50.3	16.4	200.2	264.2	292.9	359.7	137.6	207.2	166.4	163.9	147.9	117.0	314.2	280.9	301.0	364.5	354.1	311.1	13.2	8.3	32.3	32.3	
Count	3	14	3	14	3	14	3	14	3	14	8	35	8	35	8	35	3	14	8	35	3	11	2	2	
Avg. assets	456M	445M	456M	445M	456M	445M	456M	445M	456M	445M	3,289M	3,483M	3,289M	3,483M	3,289M	3,483M	430M	367M	3,035M	3,159M	1,349M	1,143M	357M	357M	
Government Pension Fund Norway																									
● 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	0M	0M	0M	0M	0M	0M	0M	0M	0M	0M	0M	0M	0M	0M	0M	0M	0M	0M	0M	0M	0M	0M	0M	0M	0M

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 69 bps (on amount fees are based on) for underlying management fees and 86 bps (on NAV) for underlying performance fees were used.
3. The management fees and total cost also include the internal cost of monitoring and selecting private equity investments. The peer average cost of monitoring and selecting was 5.4 bps for fund of funds , 7.3 bps for LPs and 3.0

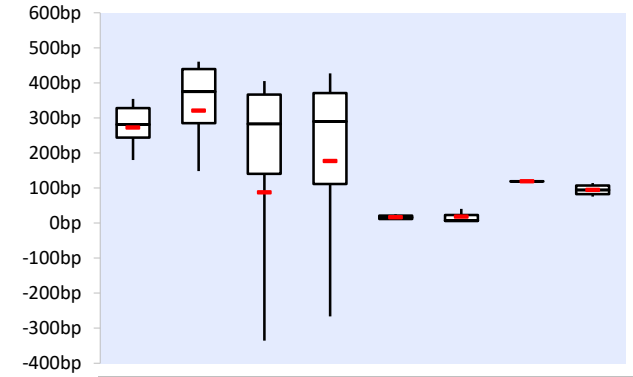
## Venture capital

Cost as a % of the amount fees are based on<sup>1</sup>



	Fund of Funds										Direct LP					
	Mgmt fees <sup>3</sup> (Top layer)		Perf. fees (Top layer)		Underlying mgmt. & perf. <sup>2</sup>		Total <sup>3</sup> incl. perf.		Total <sup>3</sup> excl. perf.		Mgmt fees <sup>3</sup>		Perf. fees		Total <sup>3</sup> incl. perf.	
	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global
90th %ile	124.8	87.0	93.4	85.8	1353.5	880.3	1496.7	1026.7	278.6	258.0	202.0	217.4	236.1	262.1	427.0	446.9
75th %ile	72.5	72.4	88.8	34.8	881.7	479.9	1000.1	588.8	200.6	241.1	196.2	192.5	220.3	200.0	403.5	376.1
Median	45.6	47.4	36.5	25.0	396.7	371.0	478.8	449.7	150.5	207.2	180.5	174.2	90.5	76.4	267.3	293.2
25th %ile	29.6	30.2	27.4	0.9	202.1	316.8	371.2	375.7	95.0	174.6	177.7	166.3	-9.5	0.0	129.2	141.6
10th %ile	23.1	19.4	11.0	0.0	138.2	106.2	233.6	163.4	86.3	100.5	152.7	109.9	-1314.7	-339.2	-1127.1	-276.9
— Average	65.2	54.4	49.9	28.6	648.8	439.4	763.9	522.4	171.4	201.9	177.7	172.6	-424.6	-61.8	-246.9	110.8
Count	5	22	5	22	5	22	5	22	5	22	8	34	8	34	8	34
Avg. assets	267M	271M	267M	271M	267M	271M	267M	271M	267M	271M	691M	702M	691M	702M	691M	702M
Government Pension Fund Norway																
● You %ile	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
Assets	0M	0M	0M	0M	0M	0M	0M	0M	0M	0M	0M	0M	0M	0M	0M	0M

Cost as a % of NAV

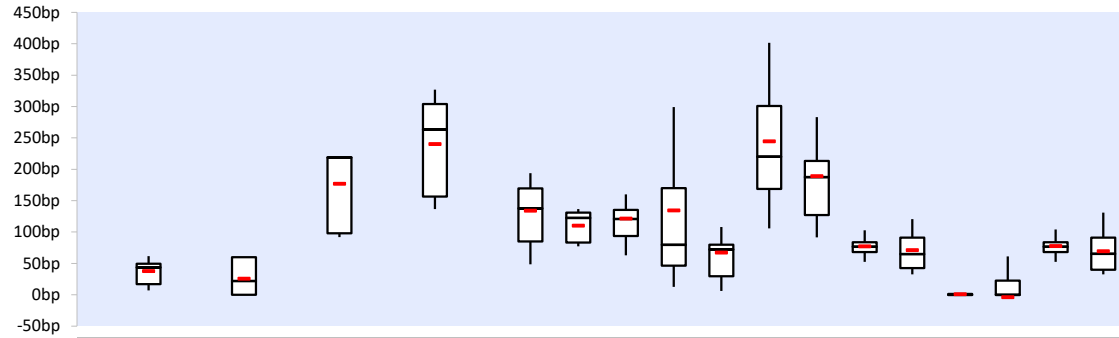


Fund of Funds		Direct LP		Co-Investment		Internal	
Total <sup>3</sup> incl. perf.		Total <sup>3</sup> incl. perf.		Total incl. perf.		Total	
Peer	Global	Peer	Global	Peer	Global	Peer	Global
354.0	460.5	405.5	426.7	24.4	40.2	119.4	114.5
328.1	439.5	366.3	371.0	21.5	22.6	119.4	107.2
281.4	375.4	283.1	290.2	16.6	7.3	119.4	95.0
244.2	285.0	140.6	111.1	11.8	6.0	119.4	82.8
180.1	148.1	-335.5	-266.4	8.9	4.7	119.4	75.5
272.5	321.2	87.6	177.3	16.6	18.7	119.4	95.0
5	22	8	34	2	8	1	2
267M	271M	791M	726M	115M	106M	23M	1,542M
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
0M	0M	0M	0M	0M	0M	0M	0M

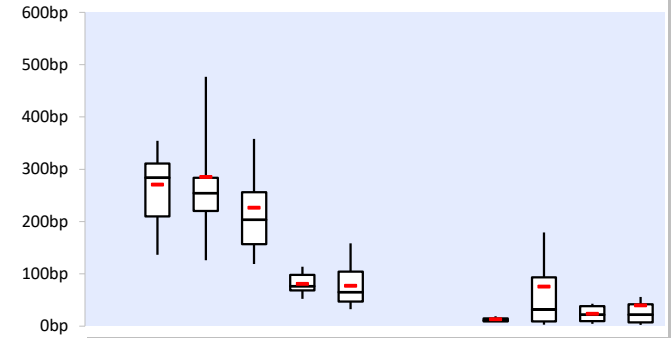
1. The base for fees is usually the committed amount during the commitment period, and unreturned invested capital afterwards.
2. The fees of fund of funds include both the top layer fees paid to the fund of funds manager and the underlying fees paid to the 'underlying partnerships' held by the fund of funds. Most funds were unable to provide the underlying fees so defaults of 105 bps (on amount fees are based on) for underlying management fees and 200 bps (on NAV) for underlying performance fees were used.
3. The management fees and total cost also include the internal cost of monitoring and selecting private equity investments. The peer average cost of monitoring and selecting was 15.7 bps for fund of funds, 16.4 bps for LPs and 2.0

## Private credit

Cost as a % of the amount fees are based on<sup>1</sup>

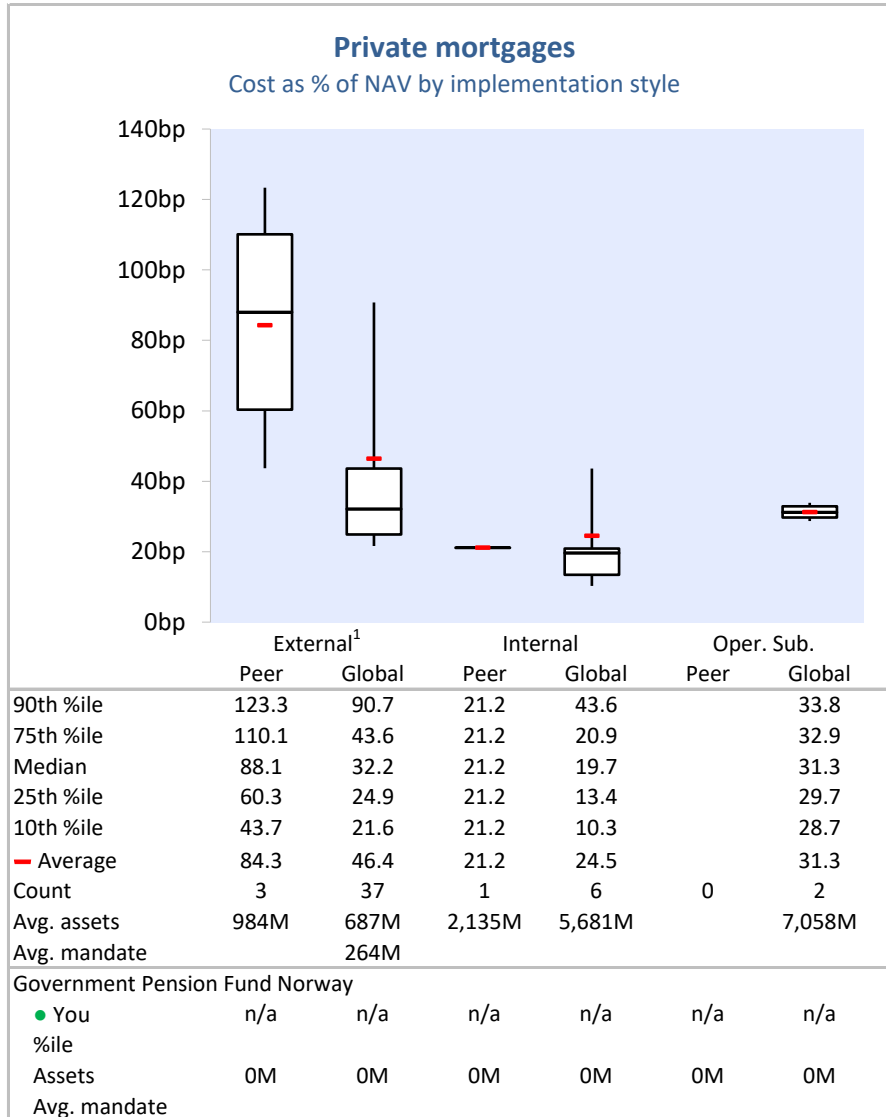


Cost as a % of NAV



	Fund of Funds						Direct LP						Evergreen						Fund of Funds		Direct LP		Evergreen		Oper. Sub.		Co-Inv.		Internal					
	Mgmt fees <sup>3</sup>		Perf. fees		Underlying		Total <sup>3</sup>		Total <sup>3</sup>		Mgmt fees <sup>3</sup>		Perf. fees		Total <sup>3</sup>		Mgmt fees <sup>3</sup>		Perf. fees		Total <sup>3</sup>		Total		Total		Total		Total					
	(Top layer)		(Top layer)		mgmt. & perf. <sup>2</sup>		incl. perf.		excl. perf.		(Top layer)		(Top layer)		incl. perf.		(Top layer)		(Top layer)		incl. perf.		Peer		Global		Peer		Global		Peer		Global	
	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global		
90th %ile	61.7	60.0	219.0	327.0	194.0	136.4	160.1	299.2	107.9	401.5	283.0	102.8	120.4	2.3	61.2	104.2	131.1	354.4	476.8	357.8	113.6	158.4	0	0	19.0	179.4	42.7	56.1						
75th %ile	49.3	60.0	219.0	304.0	169.5	130.9	135.4	169.8	80.0	300.7	213.4	83.7	91.1	1.4	22.7	83.7	91.1	311.0	283.9	256.1	97.8	104.5	0	0	14.9	93.1	38.1	42.0						
Median	44.0	22.1	219.0	263.5	137.8	122.5	121.0	80.0	72.4	220.1	187.6	76.6	65.0	0.0	0.0	76.6	65.6	284.0	254.4	203.6	76.6	65.4	0	0	11.2	32.0	21.9	21.9						
25th %ile	16.8	0.0	98.2	156.4	85.0	83.2	93.7	46.3	29.7	168.8	127.1	68.1	42.6	0.0	0.0	68.1	39.8	209.6	220.1	157.0	68.1	47.1	0	0	9.3	8.9	9.6	7.3						
10th %ile	6.8	0.0	91.8	136.7	48.8	77.3	63.0	12.6	6.2	105.6	91.6	52.3	32.7	0.0	-0.1	52.3	32.5	136.7	126.2	118.8	52.3	32.5	0	0	8.5	2.9	4.4	2.4						
Average	37.7	25.6	176.9	240.1	133.9	110.0	121.5	134.4	67.4	244.4	189.0	77.2	71.1	1.0	-3.8	77.7	69.2	271.0	285.5	226.3	80.8	77.3	0	0	13.0	75.5	23.5	39.8						
Count	0	17	0	17	0	5	120	5	120	5	120	6	60	3	29	6	60	0	17	5	120	6	60	0	0	4	15	8	24					
Avg. assets	137M	137M	137M	137M	137M	2,692M	684M	2,692M	684M	2,692M	684M	1,935M	682M	3,870M	1,412M	1,935M	682M	126M	2,345M	608M	1,779M	654M	0	0	360M	317M	1,906M	3,483M						
Government Pension Fund Norway	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	n/a	n/a	n/a				
You %ile Assets	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	n/a	n/a					

- 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 n/a bps (on amount fees are based on) for underlying management fees and n/a bps (on NAV) for underlying performance fees were used.
- The management fees and total cost also include the internal cost of monitoring and selecting real estate investments. The peer average cost of monitoring and selecting was 5.2 bps for LPs and 11.0 bps for external (not LPs).



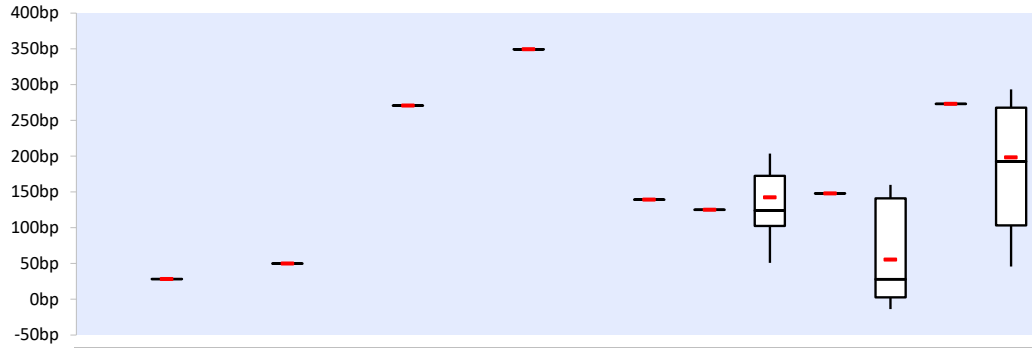
#### 1. Breakdown of external fees

	Your Plan	Peer Average	Global Average
Base fees	n/a	76.5	44.5
Internal and other	<u>n/a</u>	<u>7.8</u>	<u>1.9</u>
Total	n/a	84.3	46.4
Performance fees	n/a	0.0	7.7

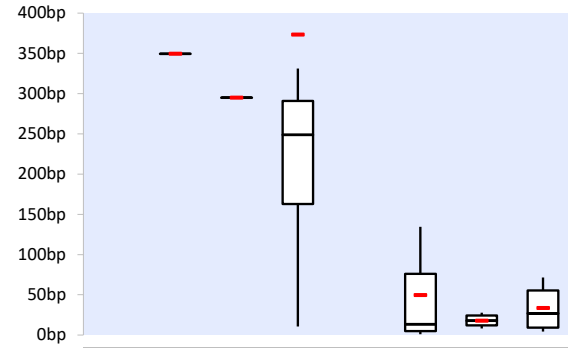


## Private equity - Other

Cost as a % of the amount fees are based on<sup>1</sup>



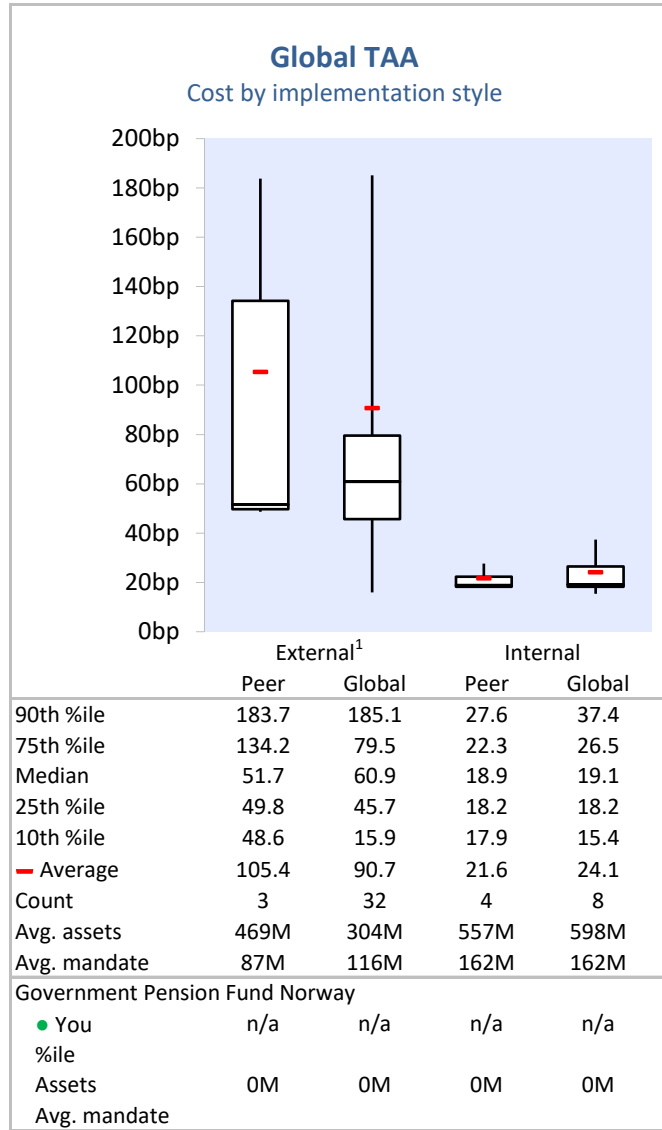
Cost as a % of NAV



	Fund of Funds										Direct LP						Fund of Funds		Direct LP		Co-Investment		Internal	
	Mgmt fees <sup>3</sup> (Top layer)		Perf. fees (Top layer)		Underlying mgmt. & perf. <sup>2</sup>		Total <sup>3</sup> incl. perf.		Total <sup>3</sup> excl. perf.		Mgmt fees <sup>3</sup>		Perf. fees		Total <sup>3</sup> incl. perf.		Total <sup>3</sup> incl. perf.		Total incl. perf.		Total			
	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global		
	Peer		Global		Peer		Global		Peer		Global		Peer		Global		Peer		Global		Peer		Global	
90th %ile		28.6		50.0		271.0		349.6		139.6	125.2	203.6	148.1	160.0	273.3	293.5	349.6	295.2	331.1	134.5	27.9	71.4		
75th %ile		28.6		50.0		271.0		349.6		139.6	125.2	172.4	148.1	141.1	273.3	267.7	349.6	295.2	291.0	75.9	24.2	55.6		
Median		28.6		50.0		271.0		349.6		139.6	125.2	124.2	148.1	28.2	273.3	193.0	349.6	295.2	249.0	13.7	18.0	27.1		
25th %ile		28.6		50.0		271.0		349.6		139.6	125.2	102.6	148.1	2.7	273.3	103.4	349.6	295.2	162.7	4.9	11.9	9.1		
10th %ile		28.6		50.0		271.0		349.6		139.6	125.2	51.0	148.1	-13.7	273.3	45.8	349.6	295.2	10.6	1.0	8.2	4.3		
Average		28.6		50.0		271.0		349.6		139.6	125.2	142.7	148.1	55.7	273.3	198.3	349.6	295.2	373.5	49.7	18.0	33.6		
Count	0	1	0	1	0	1	0	1	0	1	1	20	1	20	1	20	0	1	20	6	2	8		
Avg. assets		24M		24M		24M		24M		24M	1,015M	1,410M	1,015M	1,410M	1,015M	1,410M	24M	939M	1,029M	431M	218M	1,585M		
Government Pension Fund Norway																								
You %ile Assets	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		
	0M	0M	0M	0M	0M	0M	0M	0M	0M	0M	0M	0M	0M	0M	0M	0M	0M	0M	0M	0M	0M	0M		

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

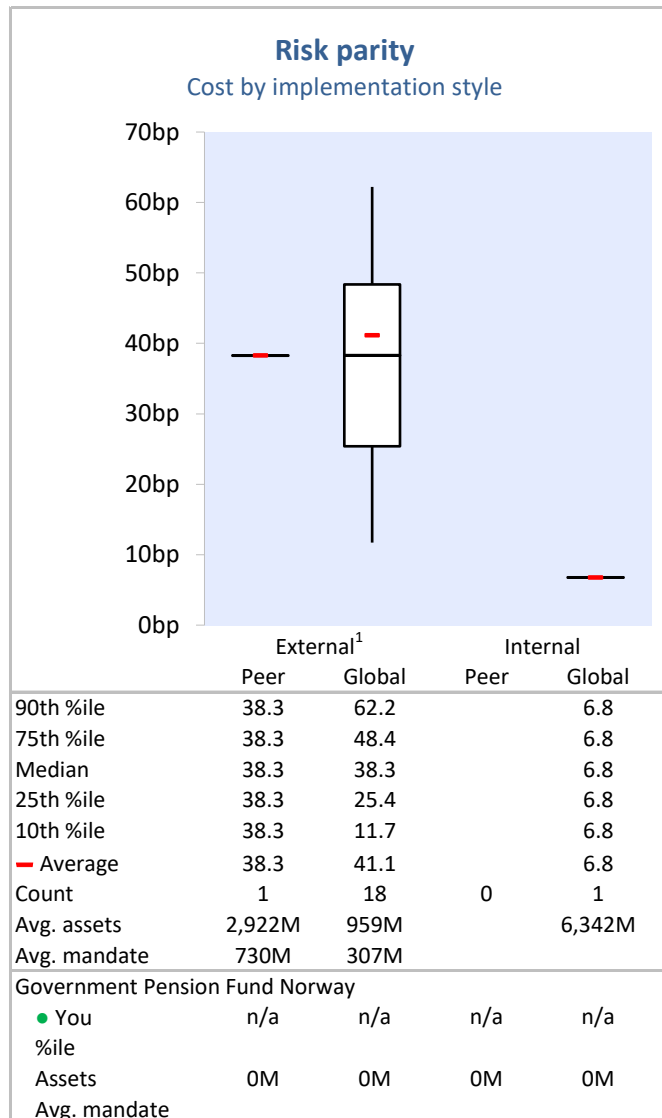
2. The fees of fund of funds include both the top layer fees paid to the fund of funds manager and the underlying fees paid to the 'underlying partnerships' held by the fund of funds. Most funds were unable to provide the underlying fees so defaults of n/a bps (on amount fees are based on) for underlying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



#### 1. Breakdown of external fees

	Your Plan	Peer Average	Global Average
Base fees	n/a	99.4	66.8
Internal and other	n/a	3.8	5.8
Performance fees	<u>n/a</u>	<u>6.7</u>	<u>41.6</u>
Total*	n/a	105.4	90.7

\* For funds that did not report a performance fee, a value of 'zero' was used. The average performance fee for those funds that reported a performance fee is 6.7 bps for peers (1 fund) and 41.6 bps for Global participants (17 funds).



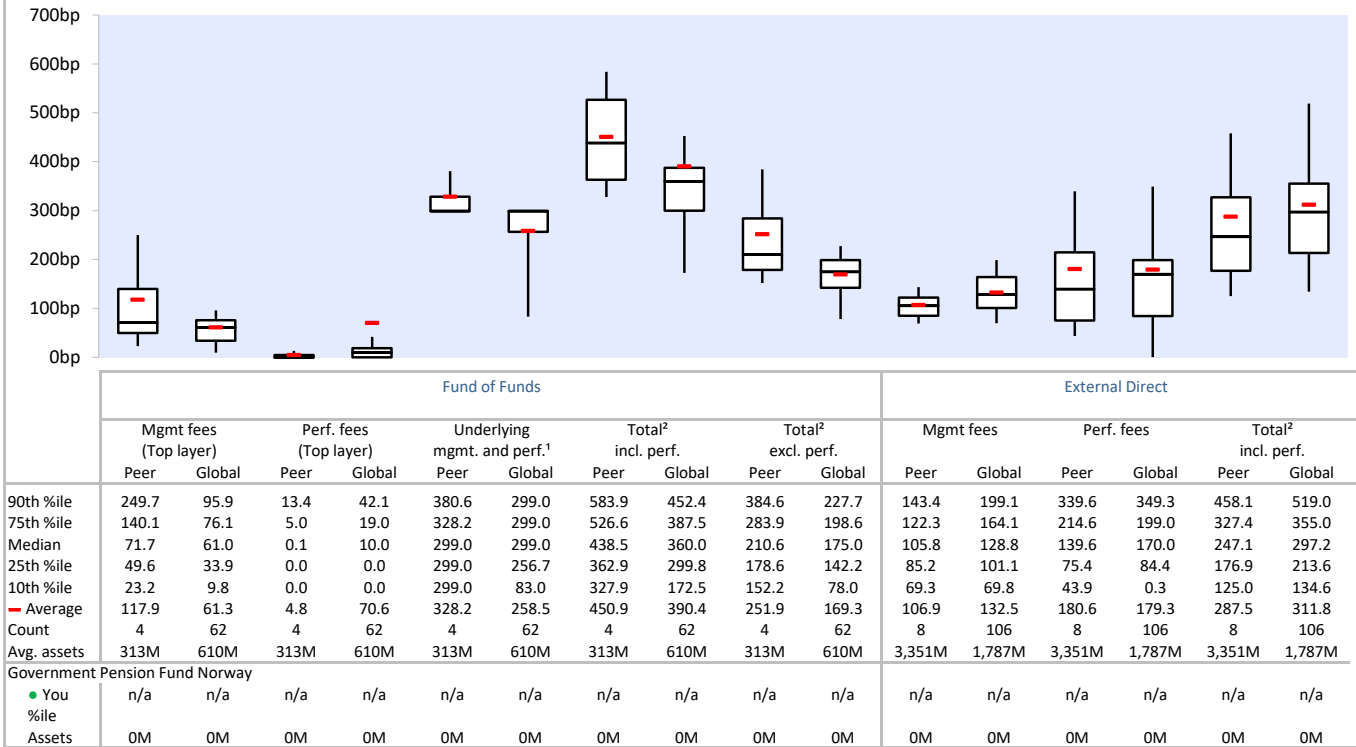
#### 1. Breakdown of external fees

	Your Plan	Peer Average	Global Average
Base fees	n/a	38.1	37.8
Internal and other	n/a	0.1	3.9
Performance fees	<u>n/a</u>	<u>n/a</u>	<u>4.3</u>
Total*	n/a	38.3	41.1

\* For funds that did not report a performance fee, a value of 'zero' was used. The average performance fee for those funds that reported a performance fee is 4.3 bps for Global participants (6 funds).

## Hedge funds

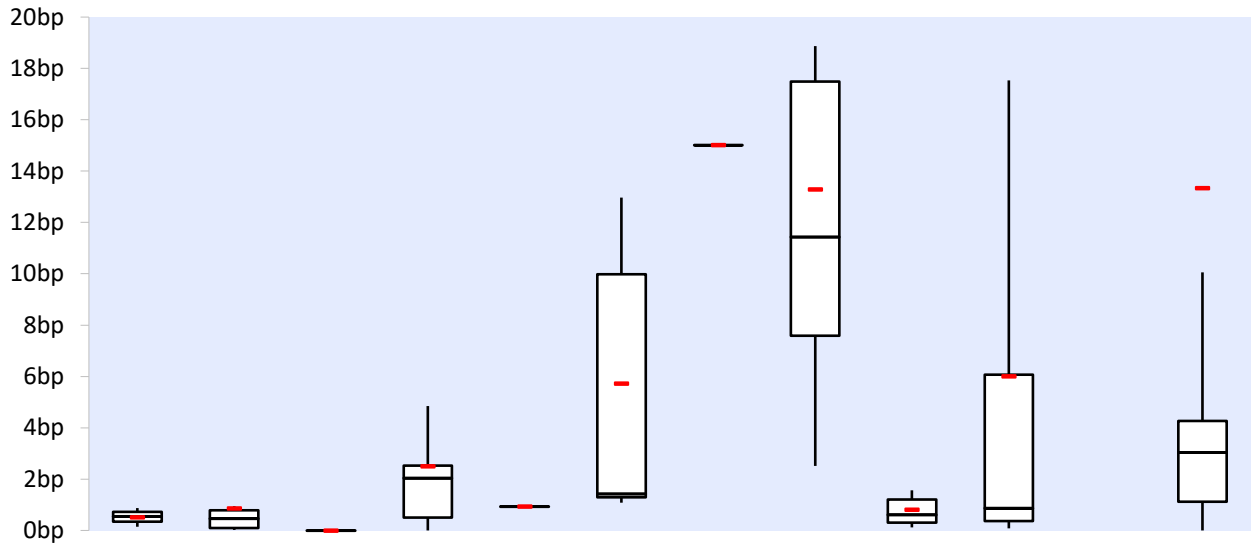
### Cost by implementation style



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 170 bps (on NAV) for underlying performance fees were used.

2. The total cost also includes the internal cost of monitoring and selecting real estate investments. The peer average cost of monitoring and selecting was 1.5 bps for fund of

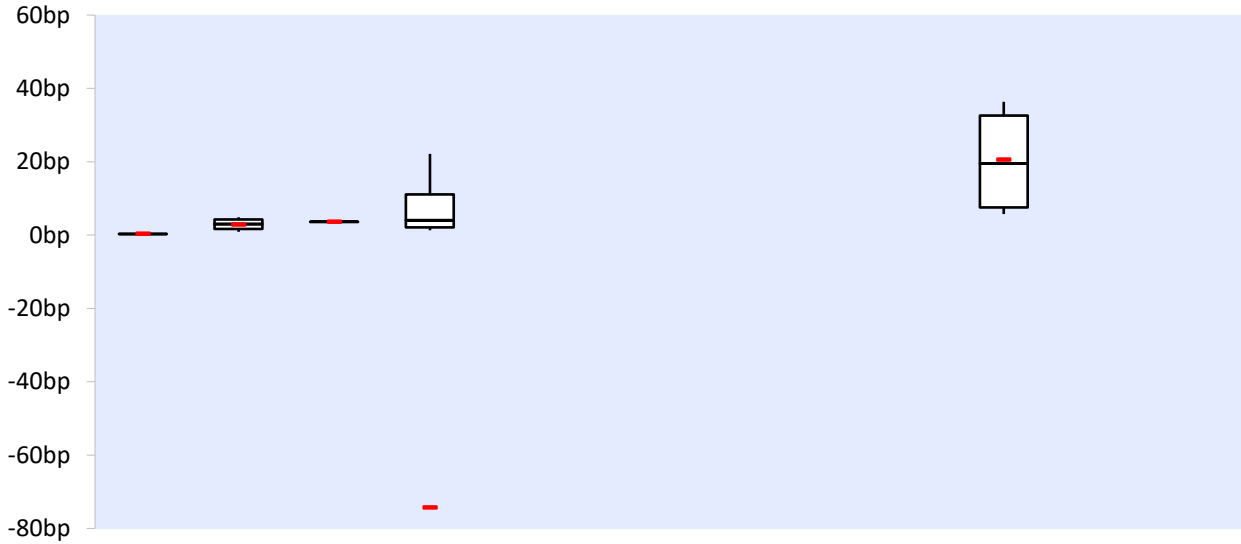
### Overlays: currency, duration Cost by implementation style



	Currency Hedge				Discretionary Currency				Duration Management			
	Internal		External		Internal		External		Internal		External	
	% of notional Peer	% of notional Global	% of notional Peer	% of notional Global	% of notional Peer	% of notional Global	% of notional Peer	% of notional Global	% of notional Peer	% of notional Global	% of notional Peer	% of notional Global
90th %ile	0.9	0.9	0.0	4.8	0.9	13.0	15.0	18.9	1.6	17.5		10.1
75th %ile	0.7	0.8	0.0	2.5	0.9	10.0	15.0	17.5	1.2	6.1		4.3
Median	0.6	0.5	0.0	2.0	0.9	1.4	15.0	11.4	0.6	0.9		3.0
25th %ile	0.3	0.1	0.0	0.5	0.9	1.3	15.0	7.6	0.3	0.4		1.1
10th %ile	0.1	0.0	0.0	0.0	0.9	1.1	15.0	2.5	0.1	0.1		0.0
— Average	0.5	0.9	0.0	2.5	0.9	5.7	15.0	13.3	0.8	6.0		13.3
Count	4	14	1	27	1	5	1	16	3	7	0	28
Avg. notional	14,277M	19,061M	8,670M	1,438M	4,391M	5,821M	1,233M	935M	443M	3,581M		1,876M
Government Pension Fund Norway												
● 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												
Avg. notional												

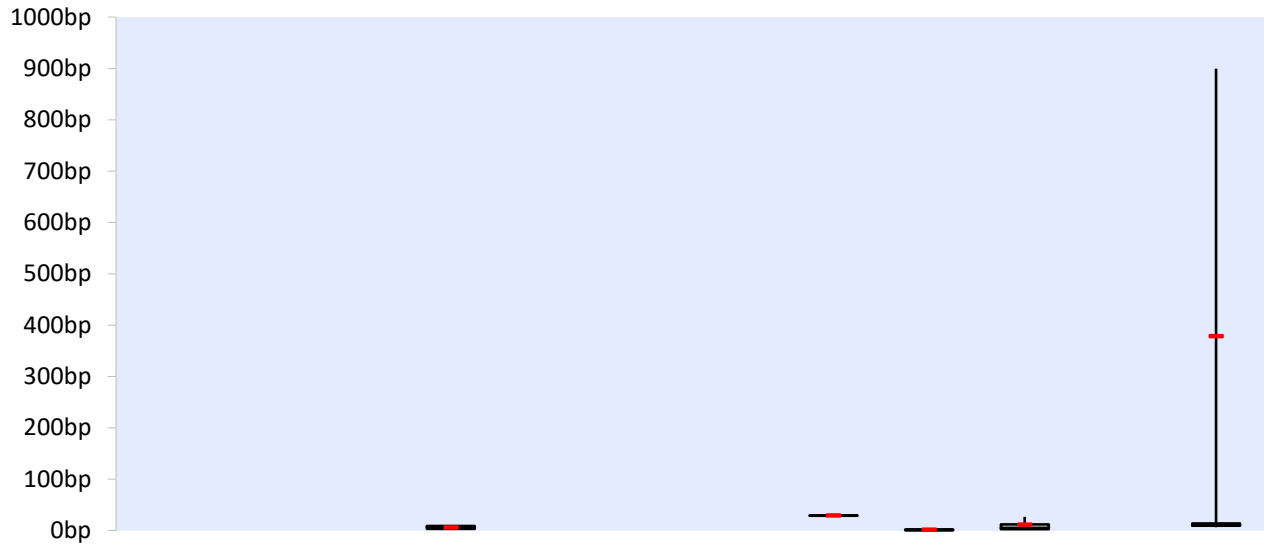
### Overlays: passive beta/rebalancing, global TAA, policy tilt TAA

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	% of notional	% of notional	% of notional	% of notional	% of notional	
	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global
90th %ile	0.3	4.9	3.7	22.2						36.4		
75th %ile	0.3	4.2	3.7	11.1						32.6		
Median	0.3	3.0	3.7	4.1						19.6		
25th %ile	0.3	1.7	3.7	2.1						7.6		
10th %ile	0.3	0.9	3.7	1.3						5.7		
— Average	0.3	2.9	3.7	-74.3						20.6		
Count	1	4	1	28	0	0	0	0	0	4	0	0
Avg. notional	5,828M	5,982M	14,309M	1,651M						547M		
Government Pension Fund Norway												
● 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												
Avg. notional												

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



	Commodity				Long/ Short				Other			
	Internal % of notional		External % of notional		Internal % of notional		External % of notional		Internal % of notional		External % of notional	
	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global
90th %ile			9.6				29.3		1.4	26.3		899.5
75th %ile			8.6				29.3		1.4	11.8		13.3
Median			6.8				29.3		1.4	5.0		10.5
25th %ile			3.3				29.3		1.3	2.4		9.1
10th %ile			1.2				29.3		1.3	1.4		5.9
— Average			5.9				29.3		1.4	10.9		378.4
Count	0	0	0	6	0	0	0	1	2	8	0	8
Avg. notional			808M				476M		11,892M	3,604M		1,725M
Government Pension Fund Norway												
● 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												
Avg. notional												

# 7

## Appendices

Appendix A - Data Summary

Appendix B - Currency conversion

Appendix C - Data quality

Appendix D - Glossary of terms



## Appendix A - Data Summary

### Government Pension Fund Norway

Plan Info	2022	2021	2020	2019	2018
Survey Preparer	Jørn Terje Krekling	Jørn Terje Krekling	Jørn Terje Krekling	Jørn Terje Krekling	Jørn Terje Krekling
Additional Contact	Jørn Nilsen	Jørn Nilsen	Jørn Nilsen	Jørn Nilsen	Jørn Nilsen
Type of fund (corporate, public, other)	Public	Public	Public	Public	Public
Total fund size (€mils) as at December 31	30,268.0	33,200.0	27,892.0	27,245.0	24,165.0
Asset-class level holdings provided on survey are: year end or average?	Average	Year End	Year End	Year End	Average
Total return for year ended Is the return net or gross?	-4.40% Gross	14.00% Gross	8.80% Gross	12.42% Gross	-0.36% Gross
Total fund policy or benchmark return	-5.09%	13.03%	7.91%	12.02%	-1.12%

Ancillary Data	2022	2021	2020	2019	2018
What is your hedging policy for: Foreign non-U.S. Holdings?					
What were your actuarial fees in 000s?					
How many plan members/beneficiaries do you have:					
Active?					
Active (no-accrual)?					
Retired?					
Other?					
What type of plan(s) do you have?					
To what extent are your retired members' benefits indexed to inflation?					
Contractual %					
If the indexation is subject to a cap, describe the cap					
What % of the plan's liabilities pertain to retired members?					
Actuarial valuation assumptions for funding purposes:					
Liability discount rate					
Salary progression rate					
What was your actuarial assumption for expected rate of return?					

## Appendix A - Data Summary: Policy Weights and Benchmarks

### Government Pension Fund Norway

Asset Class	Year	Policy Weight	Benchmark	
			Description	Return
Stock - Europe	2022	60.2	CMVINXBINN - Custom Index 15 % - OSEBX 85 %	-2.8
	2021	63.1	CMVINXBINN - Custom Index 15 % - OSEBX 85 %	23.6
	2020	65.1	CMVINXBINN - Custom Index 15 % - OSEBX 85 %	8.2
	2019	62.0	CMVINXBINN - Custom Index 15 % - OSEBX 85 %	17.7
	2018	59.0	CMVINXBINN - Custom Index - OSEBX	-2.6
	2017	64.5	CMVINXBINN - Custom Index - OSEBX	19.1
	2016	61.1	CMVINXBINN - Custom Index - OSEBX	8.7
	2015	59.5	CMVINXBINN - Custom Index - OSEBX	9.2
	2014	58.1	CMVINXBINN - Custom Index - OSEBX	7.4
	2013	62.8	CMVINXBINN - Custom Index, OSEBX	26.3
Fixed income - Europe	2022	39.8	Bloomberg Global Treasuries Norway 30% 70% Bloomberg Global Aggregated Norway ex. treasuries	-8.9
	2021	36.9	Barclays Capital Global Aggregate Nordic ex Norway Custom Index 30% 70% Barclays Capital Clobal Aggregated Norway ex. treasuries Barclays Capital Treasuries Norway	-2.1
	2020	34.9	Barclays Capital Global Aggregate Nordic ex Norway Custom Index 30% 70% Barclays Capital Clobal Aggregated Norway ex. treasuries Barclays Capital Treasuries Norway	4.9
	2019	38.0	Barclays Capital Global Aggregate Nordic ex Norway Custom Index 30% 70% Barclays Capital Clobal Aggregated Norway ex. treasuries Barclays Capital Treasuries Norway	3.8
	2018	41.0	Barclays Capital Global Aggregate Nordic ex Norway Custom Index 30% 70% Barclays Capital Clobal Aggregated Norway ex. treasuries Barclays Capital Treasuries Norway	1.0
	2017	35.5	Barclays Capital Global Aggregate Nordic ex Norway Custom Index 30% 70% Barclays Capital Clobal Aggregated Norway ex. treasuries Barclays Capital Treasuries Norway	2.9
	2016	38.9	Barclays Capital Global Aggregate Nordic ex Norway Custom Index 30% 70% Barclays Capital Clobal Aggregated Norway ex. treasuries Barclays Capital Treasuries Norway	1.8
	2015	40.5	Barclays Capital Global Aggregate Nordic ex Norway Custom Index 30% 70% Barclays Capital Clobal Aggregated Norway ex. treasuries Barclays Capital Treasuries Norway	2.7
	2014	41.9	Barclays Capital Global Aggregate Nordic ex Norway Custom Index - 70% Barclays Capital Clobal Aggregated Norway ex. treasuries - 30% Barclays Capital Treasuries Norway	9.2
	2013	37.2	Barclays Capital Global Aggregate Nordic ex Norway Custom Index, 70% Barclays Capital Clobal Aggregated Norway ex. treasuries 30% Barclays Capital Treasuries Norway	2.5
Cash	2022			
	2019			

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

Government Pension Fund Norway

Asset Class/Style	Year	Asset (€millions)	Net Return %	Cost (€000)				Cost (bps)			
				Internal & Other	Base Fees	Perf Fees	Total	Internal & Other	Base Fees	Perf Fees	Total
Stock - Europe Internal active	2022	18,216.0	-1.65	7,649.0			7,649.0	4.2			4.2
	2021	20,953.0	24.86	7,014.8			7,014.8	3.6			3.6
	2020	18,168.2	8.05	6,792.0			6,792.0	3.9			3.9
	2019	16,888.3	18.15	7,016.5			7,016.5	4.5			4.5
	2018	14,255.5	-1.83	7,472.3			7,472.3	5.2			5.2
Fixed income - Europe Internal active	2022	12,052.0	-8.86	8,150.0			8,150.0	6.8			6.8
	2021	12,248.3	-1.43	8,162.2			8,162.2	7.4			7.4
	2020	9,723.7	7.37	7,483.0			7,483.0	7.5			7.5
	2019	10,356.9	4.19	7,920.8			7,920.8	7.8			7.8
	2018	9,909.2	1.69	6,426.2			6,426.2	6.5			6.5
Cash Internal active	2022										
	2021										
	2020										
	2019		64.7								

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

Government Pension Fund Norway

Asset Class/Style	Year	Asset (€millions)	Net Return %	Cost (€000)				Cost (bps)			
				Internal & Other	Base Fees	Perf Fees	Total	Internal & Other	Base Fees	Perf Fees	Total

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

### Government Pension Fund Norway

Oversight, Custodial and Other Costs			
		000s	bps
Oversight of the fund assets <sup>1</sup>	2022	1,253.0	0.4bp
	2021	1,388.0	0.5bp
	2020	1,202.0	0.4bp
	2019	1,270.0	0.5bp
	2018	937.0	0.4bp
Custodial total	2022	625.0	0.2bp
	2021	612.0	0.2bp
	2020	575.0	0.2bp
	2019	582.0	0.2bp
	2018	624.0	0.3bp
Consulting / performance measurement	2022	123.0	0.0bp
	2021	155.0	0.1bp
	2020	61.0	0.0bp
	2019	56.0	0.0bp
	2018	66.0	0.0bp
Audit	2022	285.0	0.1bp
	2021	239.0	0.1bp
	2020	222.0	0.1bp
	2019	252.0	0.1bp
	2018	227.0	0.1bp
Other (legal etc)	2022	287.0	0.1bp
	2021	361.0	0.1bp
	2020	142.0	0.1bp
	2019	131.0	0.1bp
	2018	155.0	0.1bp
Total	2022	2,573.0	0.9bp
	2021	2,755.0	0.9bp
	2020	2,202.0	0.8bp
	2019	2,291.0	0.9bp
	2018	2,009.0	0.8bp

Summary of All Asset Management Costs			
		000s	bps
Investment Management Costs	2022	15,799.0	5.2bp
	2021	15,177.0	5.0bp
	2020	14,275.0	5.2bp
	2019	14,937.3	5.8bp
	2018	13,898.5	5.8bp
Oversight, Custodial & Other Costs	2022	2,573.0	0.9bp
	2021	2,755.0	0.9bp
	2020	2,202.0	0.8bp
	2019	2,291.0	0.9bp
	2018	2,009.0	0.8bp
Total	2022	18,372.0	6.1bp
	2021	17,932.0	5.9bp
	2020	16,477.0	6.0bp
	2019	17,228.3	6.7bp
	2018	15,907.5	6.6bp

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 B - Currency conversion

Government Pension Fund Norway

All currency amounts have been converted to your currency basket<sup>1</sup>. The table below shows the foreign exchange rates for the past 5 years.

Currency conversion table					
	2022	2021	2020	2019	2018
United States Dollars - USD*	0.684	0.690	0.711	0.714	0.723
Canada Dollars - CAD	0.544	0.553	0.594	0.572	0.580
Euro - EUR*	1.000	1.000	1.000	1.000	1.000
Sweden Kronor - SEK	0.079	0.079	0.080	0.079	0.080
United Kingdom Pounds - GBP	0.990	1.015	0.993	1.015	1.013
Australia Dollars - AUD	0.473	0.461	0.486	0.493	0.496
New Zealand Dollars - NZD	0.461	0.483	0.487	0.480	0.498

1. Source OECD website.

\* USD - Some participating Asia-Pacific funds report holdings and performance in USD.

EUR - Participating funds from Denmark and Norway report holdings and performance in Euros.

## Appendix C - 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 32nd 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 D - 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.