

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

Norwegian Government Pension Fund Global



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Prepared December 21, 2023. Although the information in this report has been based upon and obtained from sources we believe to be reliable, CEM Benchmarking Inc. ("CEM") does not guarantee its accuracy or completeness. The information contained herein is proprietary and confidential and may not be disclosed to third parties without the express written mutual consent of both CEM and Norwegian Government Pension Fund Global.

Key Takeaways

Returns

- All returns have been converted using the GPFG currency basket. However, differences in total return between funds reflect in large part home-market biases and the relative performance of currencies. So they are not the primary focus of this report.
- Your 10-year net total return was 6.6%. This was close to the Global median of 6.8% and below the peer median of 7.3%.
- Your 10-year policy return was 6.4%. This was equal to the Global median of 6.4% and below the peer median of 6.8%.

Value added

- Your 10-year net value added was 0.3%. This was slightly below both the Global median of 0.5% and the peer median of 0.5%.

Cost

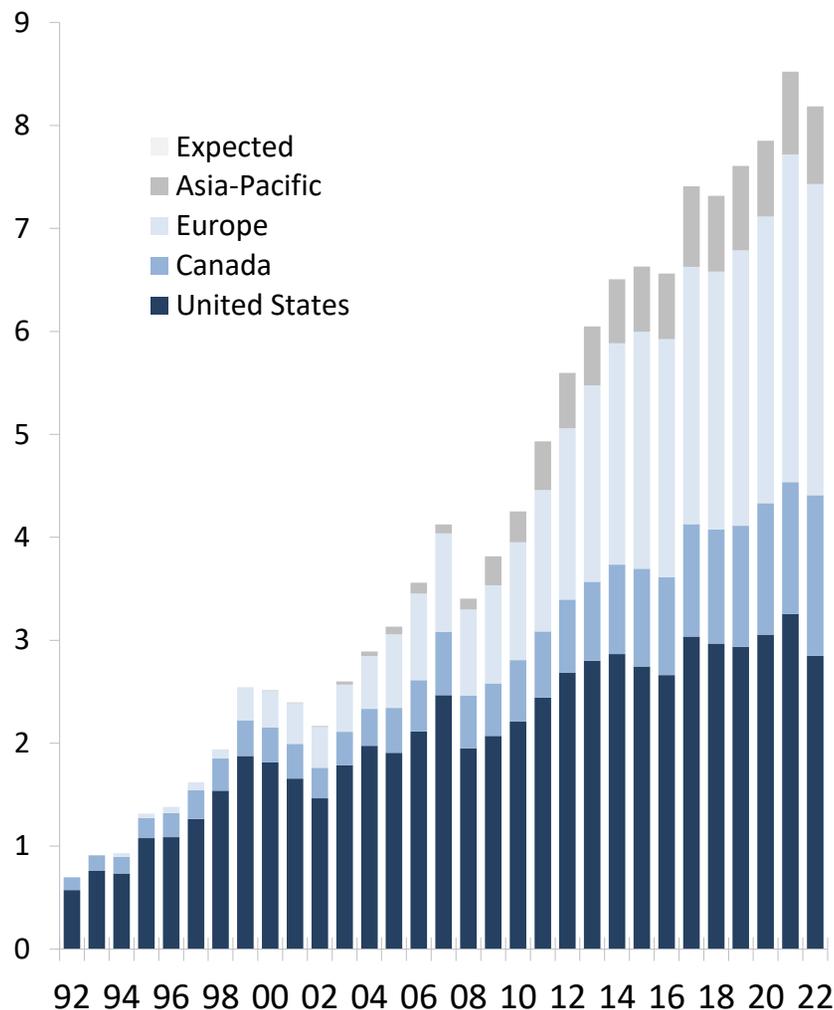
- Your investment cost of 4.5 bps in 2022 was below your benchmark cost of 23.2 bps. This suggests that your fund was low cost compared to your peers.
- Your fund was low cost because it had a lower cost implementation style and it paid less than peers for similar services.
- Your costs decreased by 1.0 bps, from 5.6 bps in 2018 to 4.5 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.

Participating assets (€ trillions)



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

Peer group for Norwegian Government Pension Fund Global

- 10 Global sponsors from €122.9 billion to €500.1 billion
- Median size of €229.5 billion versus your €1,190.3 billion

- Your global peer group is composed 3 Canadian funds, 2 European funds, 4 U.S. funds and 1 Asian-Pacific fund.
- In the report there are also comparisons to CEM's Global database of participants.

Your 10-year net total return of 6.6% was below both the Global median of 6.8% and the peer median of 7.3%.

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

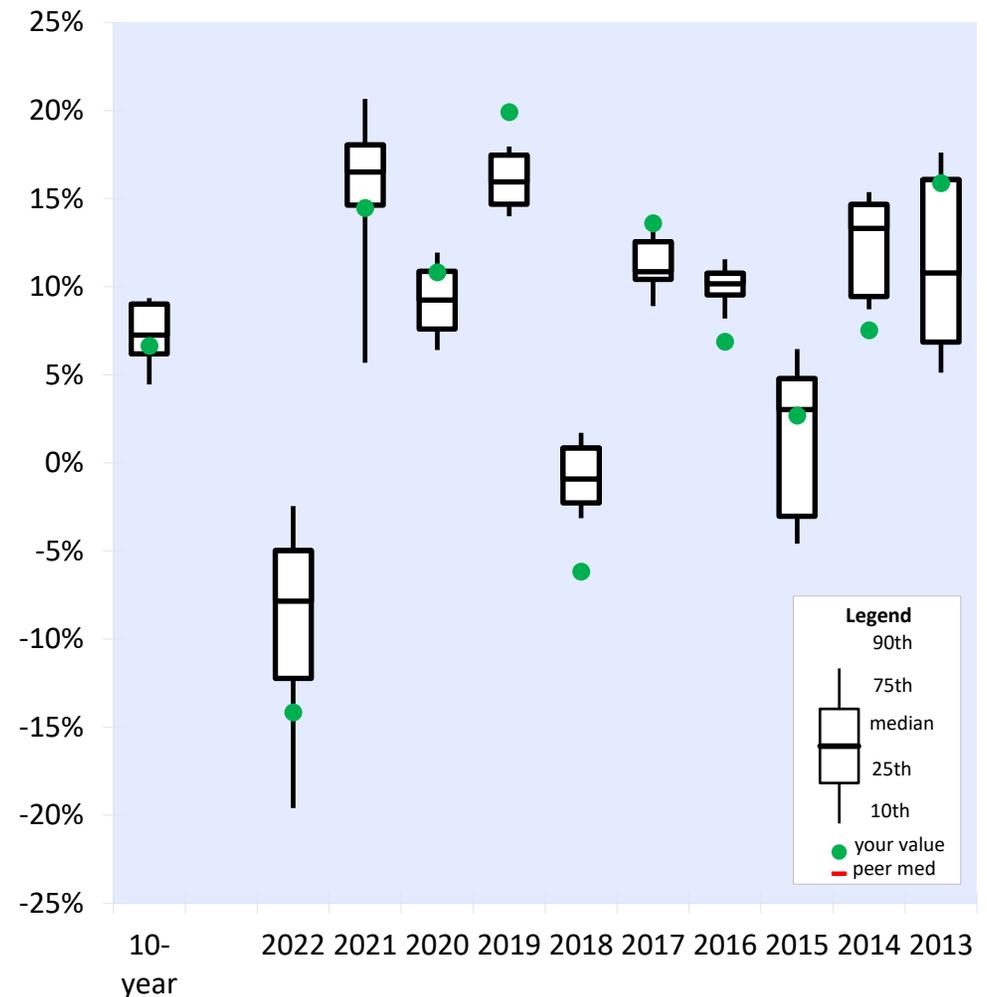
	Your 10-year
Net total fund return	6.6%
- Policy return	6.4%
= Net value added	0.3%

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

Actual and policy returns have been converted to your currency using unhedged currency returns.

The fund return consists of Equity, Fixed Income, Real Estate and Infrastructure. The fund benchmark is the weighted benchmark of Equity and Fixed Income. The benchmark for Real Estate used in the report prior to 2017 was the actual portfolio return, and thereafter the financing cost for the real estate investments.

Peer net total returns - quartile rankings



Your 10-year policy return of 6.4% was equal to the Global median of 6.4% and below the peer median of 6.8%.

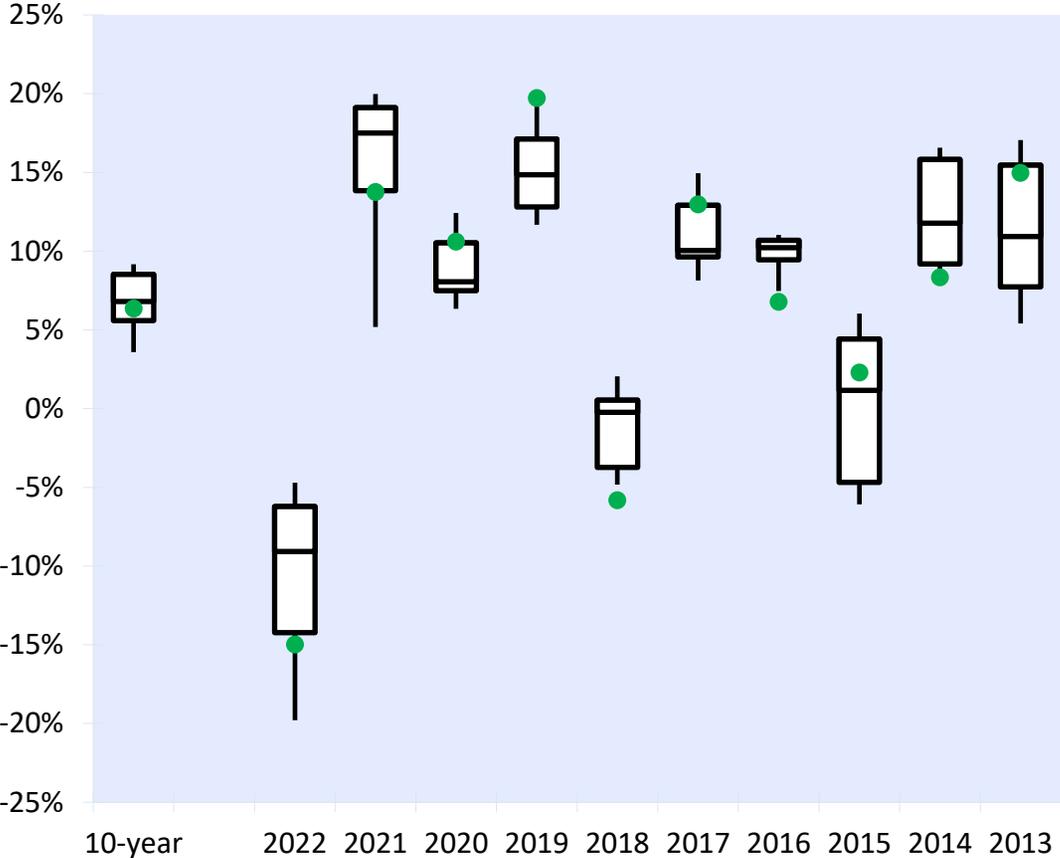
Your policy return is the return you could have earned passively by indexing your investments according to your policy mix.

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

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

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

Peer policy returns - quartile rankings



Your 10-year policy return of 6.4% was equal to the Global median of 6.4% and below the Peer median of 6.8% primarily because of:

- Your policy mix currently has no allocation to real assets, hedge funds or private equity whereas the peer funds had average allocations of 17%, 4%, and 8% respectively. The Global funds' average allocations were 10%, 4% and 6%. The manager however can invest up to 7% in unlisted real estate and up to 2% in unlisted infrastructure for renewable energy.
- Your policy asset mix is more globally diversified than the average Peer or Global fund.

10-year average policy mix¹

	Your Fund	Peer Avg.	Global Avg.
Equity	67%	43%	42%
Fixed Income	32%	29%	36%
Hedge Funds	0%	3%	4%
Real Assets	1%	15%	10%
Private Equity	0%	8%	5%
Private Credit	0%	2%	2%
Total	100%	100%	100%

Regional allocations can significantly influence the policy return. GPF's overweight in European securities and the peer group's overweight in North American securities would cause a difference in the policy returns. Variations in the fixed income portfolios, such as duration, credit quality and country allocation within regions would have an impact as well. Not being invested in asset classes like private equity and having a lower allocation to real estate also had an impact on GPF's policy return.

Net value added is the component of total return from active management. Your 10-year net value added was 0.3%.

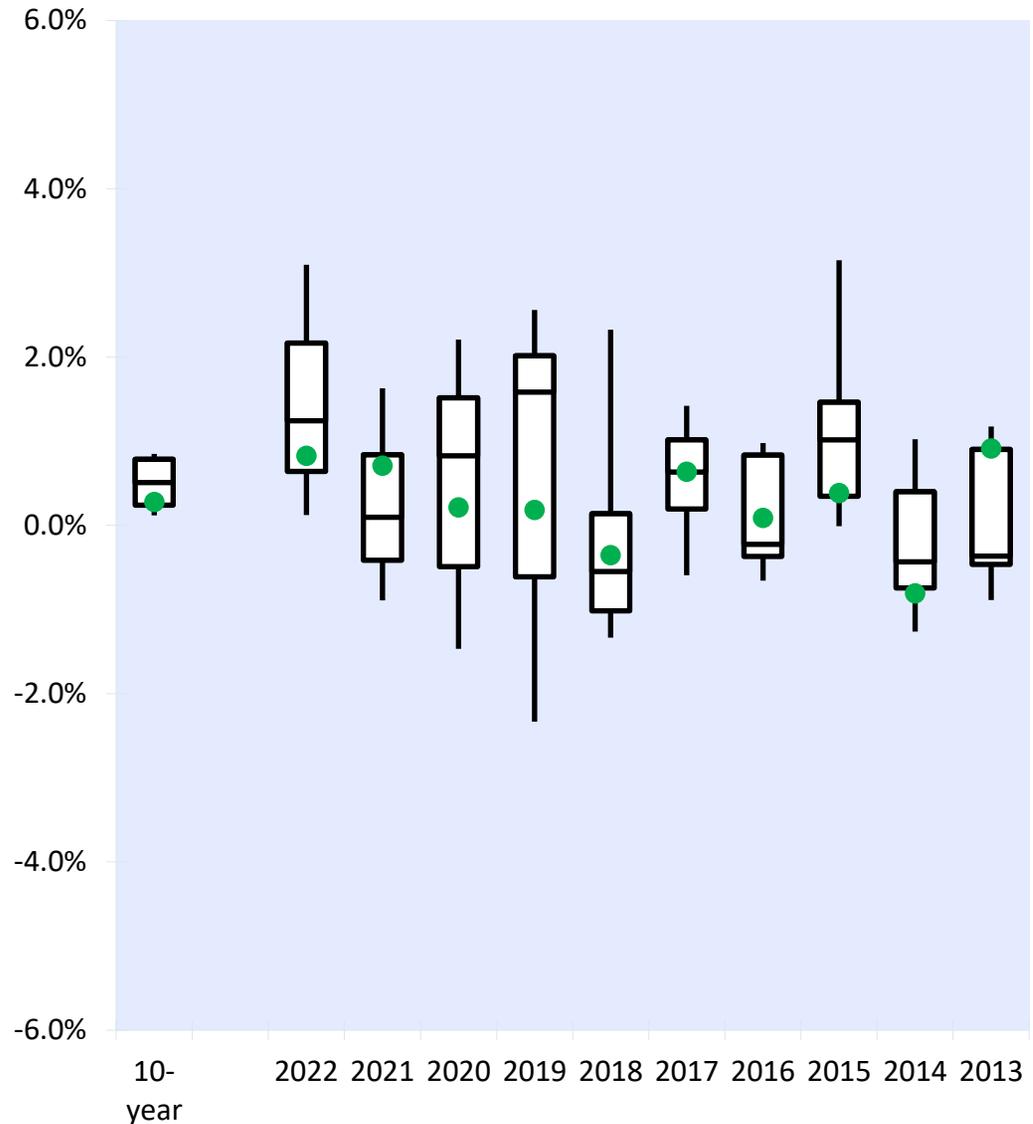
Net value added equals total net return minus policy return.

Value added for Norwegian Government Pension Fund Global

Year	Net return	Policy return	Net value added
2022	-14.2%	-15.0%	0.8%
2021	14.5%	13.8%	0.7%
2020	10.8%	10.6%	0.2%
2019	19.9%	19.7%	0.2%
2018	-6.2%	-5.8%	-0.4%
2017	13.6%	13.0%	0.6%
2016	6.9%	6.8%	0.1%
2015	2.7%	2.3%	0.4%
2014	7.5%	8.3%	-0.8%
2013	15.9%	15.0%	0.9%
10-Year	6.6%	6.4%	0.3%

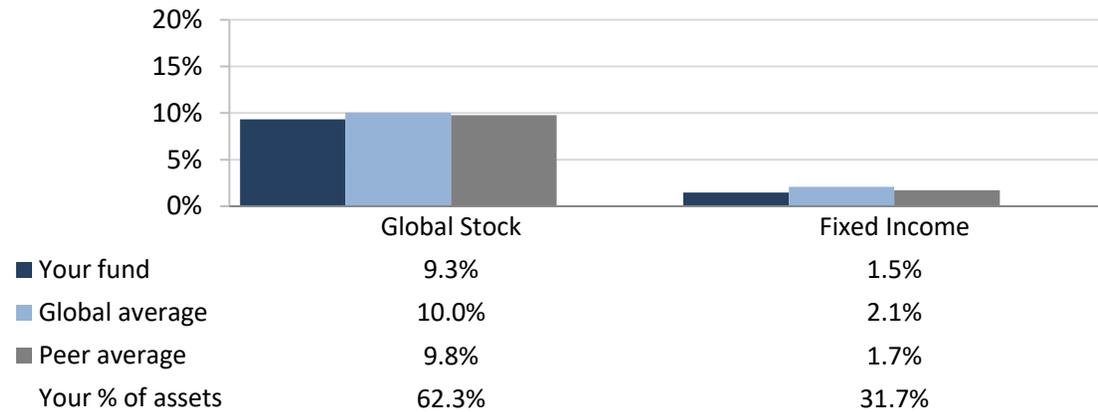
Your 10-year net value added of 0.3% compares to a median of 0.5% for your peers and 0.5% for the Global universe.

Peer net value added - quartile rankings

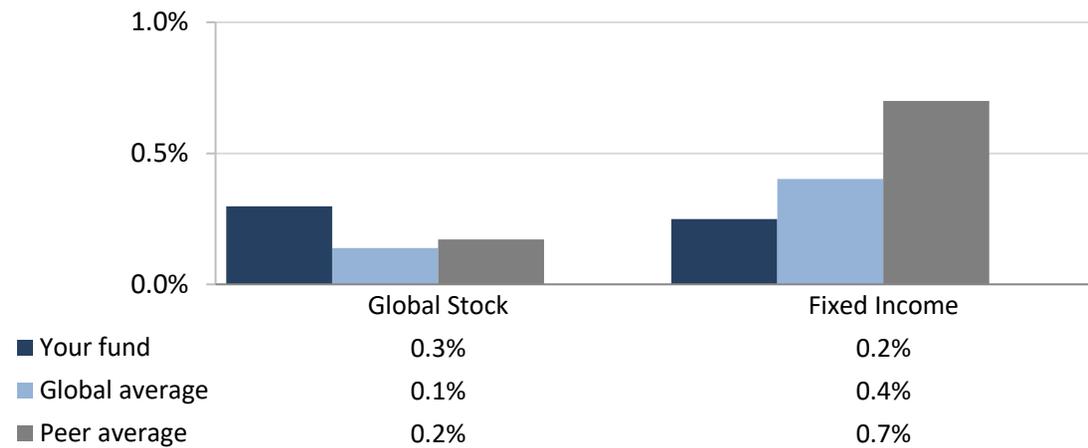


Comparisons of your 10-year net return and net value added by major asset class:

10-year average net return by major asset class



10-year average net value added by major asset class

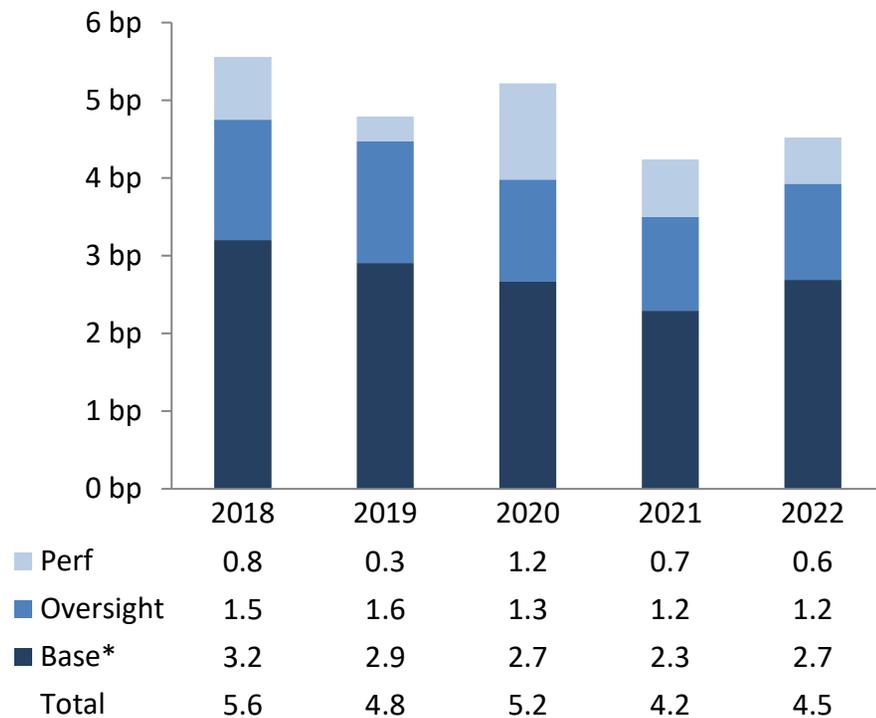


Your investment costs, excluding private asset performance fees, were €538.2 million or 4.5 basis points in 2022.

Asset management costs by asset class and style (€000s)	Internal Mgmt		External Mgmt		Total	
	Active	Overseeing of external	Active base fees	Perform. fees		
Stock - U.S.		255	2,580	-970	1,865	
Stock - EAFE		1,767	17,047	3,073	21,887	
Stock - Emerging		7,120	75,693	68,914	151,727	
Stock - Global	124,816				124,816	
Fixed income - Global	41,040				41,040	
REITs	4,490				4,490	
Infrastructure	3,376				3,376	
Real estate	41,801				41,801	
Total excluding private asset performance fees					391,003	3.3bp
Oversight, custodial and other costs ¹						
Oversight of the fund					88,565	
Trustee & custodial					46,811	
Consulting and performance measurement					7,692	
Audit					4,134	
Other					0	
Total oversight, custodial & other costs					147,202	1.2bp
Total investment costs (excl. transaction costs & private asset performance fees)					538,205	4.5bp

Your costs decreased by 1.0 bps, from 5.6 bps in 2018 to 4.5 bps in 2022, primarily because you paid less in total for similar investment styles.

Trend in cost



Reasons why your costs decreased by 1.0 bps

	Impact in bps
1. Higher cost asset mix	0.1
2. Similar cost implementation style	0.0
3. Paid less in total for similar investment styles	
• Lower internal investment management costs	(0.5)
• Lower oversight, custodial & other costs	(0.3)
• All other differences	(0.2)
	<hr/>
	(1.1)
	<hr/>
Total decrease	(1.0)

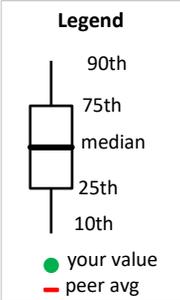
*Includes fees for managing internal assets and internal costs of monitoring external programs, where allocated.

Your total investment cost of 4.5 bps was the lowest of the peers and was substantially below the peer median of 50.6 bps.

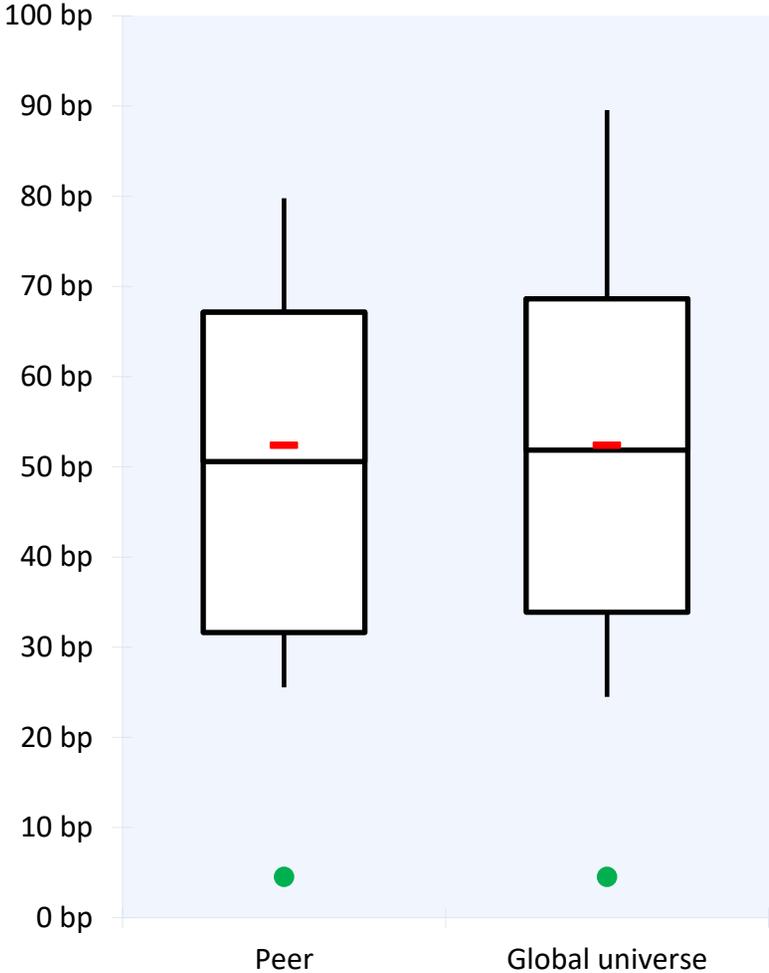
Differences in total investment cost are often caused by two factors that are often outside of management's control:

- 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 3% of your assets at the end of 2022 versus a peer average of 38%.
- 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 18.7 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 4.5 bp was below your benchmark cost of 23.2 bp. Thus, your cost savings were 18.7 bp.

Your cost versus benchmark

	€000s	basis points
Your total investment cost	538,205	4.5 bp
Your benchmark cost	2,762,498	23.2 bp
Your excess cost	(2,224,293)	(18.7) 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	1,649,155	13.9
• Less external management, more lower cost internal	(2,559,914)	(21.5)
• Less overlays	(231,721)	(1.9)
	<u>(1,142,480)</u>	<u>(9.6)</u>
2. Paying less than peers for similar services		
• External investment management costs	(135,511)	(1.1)
• Internal investment management costs	(879,795)	(7.4)
• Oversight, custodial & other costs	(66,506)	(0.6)
	<u>(1,081,813)</u>	<u>(9.1)</u>
Total savings	(2,224,293)	(18.7)

Alternative benchmark cost:

	Average holdings in €mils	GPIG 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
External asset management								
Stock - U.S.*	1,454	12.8	12.1	(0.8)	(0.0)	46.3	33.5	0.0
Stock - EAFE	10,062	21.8	22.0	0.2	0.0	39.5	17.8	0.2
Stock - Emerging	40,554	37.4	41.4	4.0	0.1	65.2	27.8	0.9
Internal asset management								
Stock - Global	756,551	1.6	22.0	20.4	12.9	10.8	9.2	5.8
Fixed income - Global	323,105	1.3	6.6	5.3	1.4	3.2	2.0	0.5
REITs	23,938	1.9	16.3	14.4	0.3	7.4	5.5	0.1
Real estate ex-REITs	33,361	12.5	60.4	47.9	1.3	45.1	32.6	0.9
Infrastructure	1,303	<u>25.9</u>	<u>60.4</u>	34.5	<u>0.0</u>	<u>28.0</u>	2.1	<u>0.0</u>
Total, excl. Overlays and overhead		3.3	19.5		16.2	11.8		8.5
Overlay Programs	1,190,327	0.0	1.9	1.9	1.9	1.9	1.9	1.9
Overhead	1,190,327	1.2	1.8	0.6	0.6	1.8	0.6	0.6
Total	1,190,327	4.5	23.2		18.7	15.6		11.0

Notes:

Internal Global stock uses All stock as the benchmark.

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

Rounding may cause summation issues.

Your Real estate ex-REITs comparable management styles include internally managed assets, joint ventures, and operating subsidiaries.

* The universe median has been used instead of your peer group median due to a low number of observations.

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

	Average holdings in €mils	Current cost in bps	Benchmark target cost in bps
<i>External asset management</i>			
Stock - U.S.*	1,454	12.8	0.7
Stock - EAFE	10,062	21.8	3.2
Stock - Emerging	40,554	37.4	2.6
<i>Internal asset management</i>			
Stock - Global	756,551	1.6	3.5
Fixed income - Global	323,105	1.3	1.7
REITs	23,938	1.9	3.0
Real estate ex-REITs	33,361	12.5	3.0
Infrastructure	1,303	25.9	3.0
Overhead	1,190,327	1.2	1.2
Total	1,190,327	4.5	4.2

Notes:

Internal Global stock uses All stock as the benchmark.

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

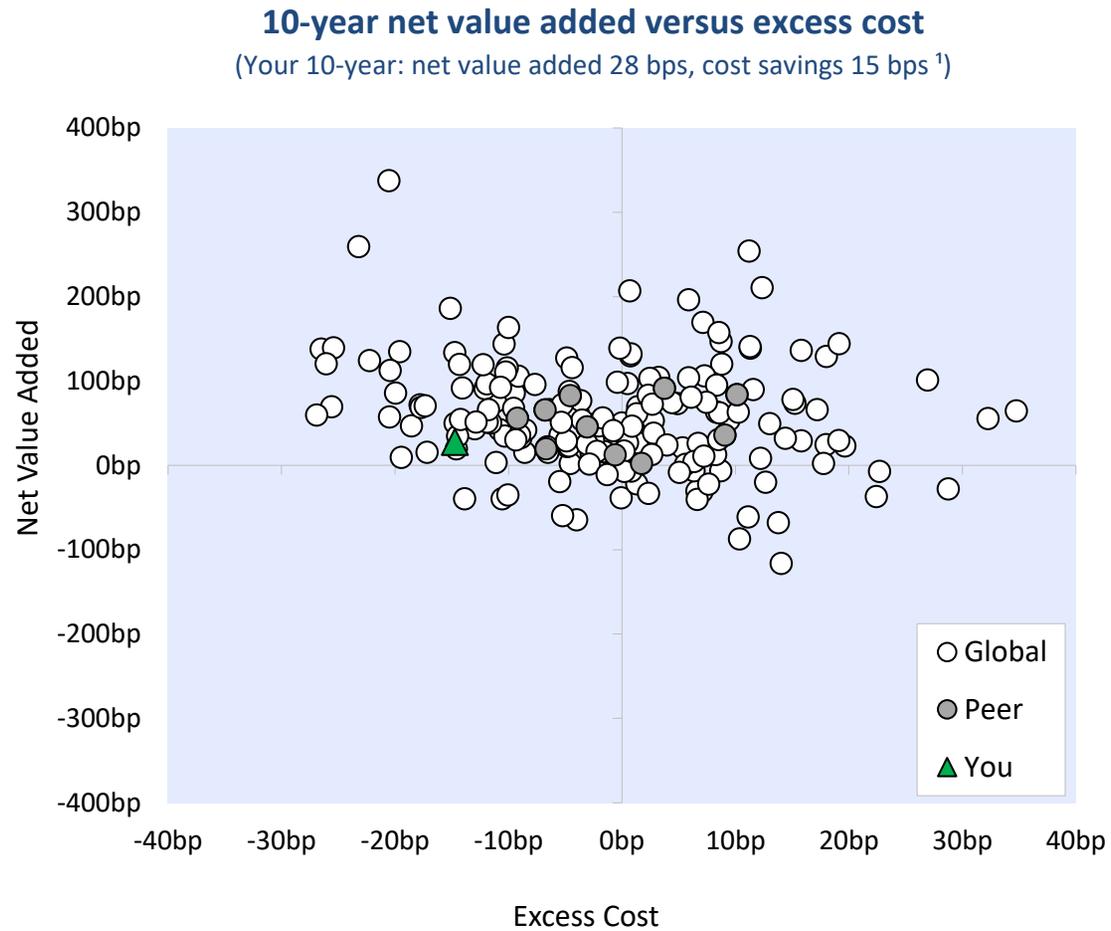
Real estate, REITs, and Infrastructure use the weighted average benchmark for stock and fixed income.

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

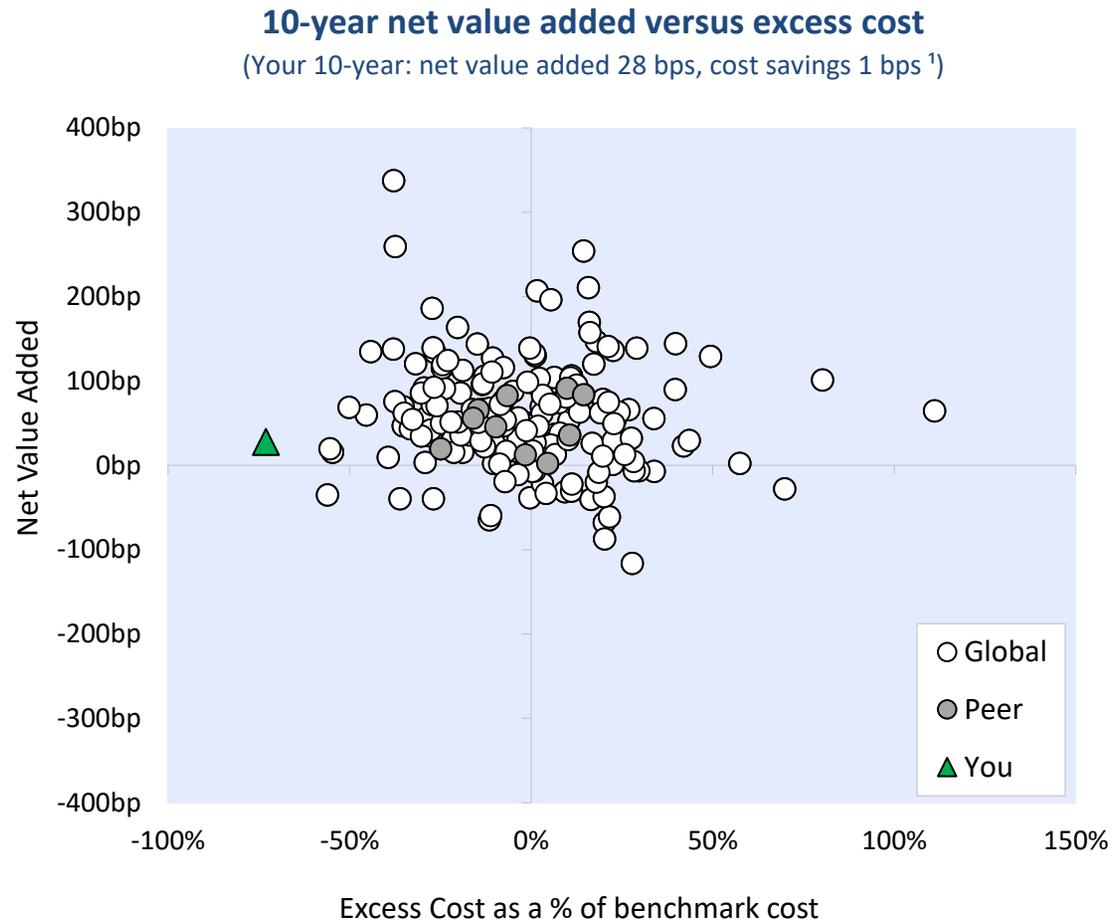
Externally managed assets are compared to the lowest quartile cost, internally managed assets are compared to the median cost.

* The universe median has been used instead of your peer group's median due to a low number of observations.

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

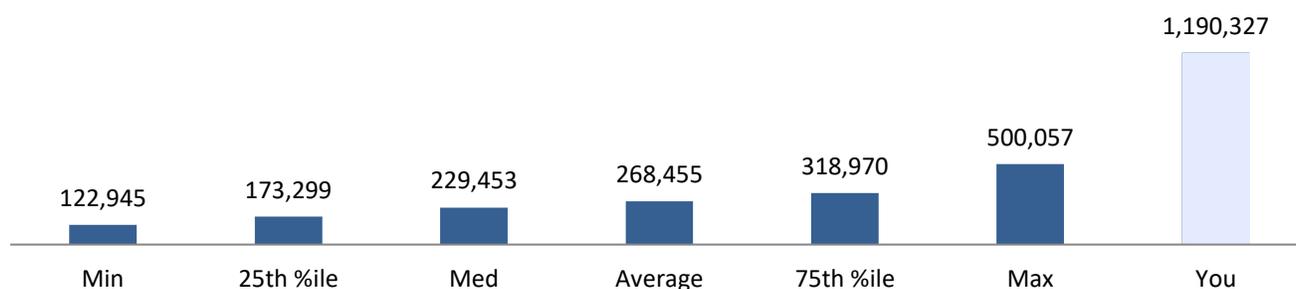
Your peer group is comprised of 10 Global funds, with assets ranging from €122.9 billion to €500.1 billion versus your €1,190.3 billion. The median size is €229.5 billion.

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	1,190.3	122.9 - 500.1	0.1 - 1,190.3
Median		229.5	5.8
<u># of Plans</u>			
Corporate		0	128
Public	1	8	117
Other		2	49
Total		10	294
<u>Implementation style</u>			
% External active	4.4	40.7	68.8
% External passive	0.0	3.9	16.0
% Internal active	95.6	28.1	11.7
% Internal passive	0.0	27.2	3.5
<u>Asset mix</u>			
% Stock	67.9	32.2	34.6
% Fixed Income	27.1	26.9	38.3
% Real Assets	4.9	19.9	12.5
% Private Equity	0.0	14.9	7.1
% Private Credit	0.0	3.4	3.2
% Hedge Funds & Other	0.0	2.7	4.3

Total fund assets (€ millions) - you versus peers

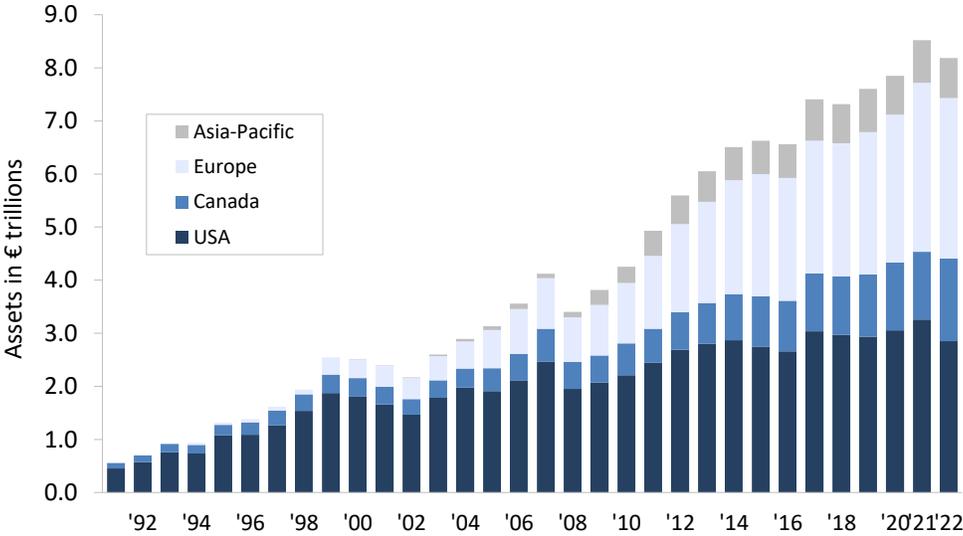


CEM global universe

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 10 Global funds ranging in size from €122.9 - €500.1 billion. The peer median of €229.5 billion compares to your €1,190.3 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 ¹	Corp.	Public	Other	Total	U.S.	Canada	Europe	Asia-Pacific	Total
# of funds										
2022	10	128	117	49	294	147	72	66	9	294
2021	10	128	123	43	294	145	69	68	12	294
2020	10	136	138	41	315	161	70	73	11	315
2019	10	135	139	44	318	155	72	75	16	318
2018	10	147	148	45	340	170	78	77	15	340
2017	10	151	155	48	354	168	80	89	17	354
2016	10	155	146	48	349	170	81	83	15	349
2015	10	162	149	54	365	176	81	92	16	365
2014	10	165	204	56	425	178	88	144	15	425
2013	10	186	199	63	448	193	90	152	13	448
# of funds with uninterrupted data for:										
1 yr	10	128	117	49	294	147	72	66	9	294
2 yrs	10	117	104	40	261	131	63	58	9	261
3 yrs	10	114	101	38	253	128	61	56	8	253
4 yrs	10	105	98	36	239	119	59	53	8	239
5 yrs	10	101	97	35	233	116	58	51	8	233
6 yrs	10	95	92	33	220	111	53	49	7	220
7 yrs	10	91	89	33	213	107	50	49	7	213
8 yrs	10	85	86	32	203	102	47	47	7	203
9 yrs	10	82	85	32	199	100	45	47	7	199
10 yrs	10	78	83	30	191	95	44	46	6	191
Total assets (€ billions)										
2022	2,685	942	5,394	1,931	8,267	2,852	1,558	3,020	837	8,267
2021	2,844	1,287	5,639	1,736	8,662	3,257	1,280	3,181	945	8,662
2020	2,610	1,225	5,207	1,529	7,960	3,055	1,277	2,783	845	7,960
2019	2,388	1,170	4,979	1,577	7,727	2,937	1,174	2,677	939	7,727
2018	2,205	1,119	4,939	1,369	7,427	2,969	1,107	2,506	845	7,427
2017	2,188	1,139	5,020	1,510	7,668	3,036	1,093	2,499	1,041	7,668
2016	1,898	1,080	4,283	1,388	6,751	2,661	951	2,313	826	6,751
2015	1,875	1,102	4,460	1,350	6,912	2,746	948	2,302	916	6,912
2014	1,796	1,164	4,372	1,262	6,798	2,866	869	2,149	914	6,798
2013	1,630	1,106	4,067	1,130	6,304	2,802	765	1,909	827	6,304
2022 asset distribution (€ billions)										
Avg	268.5	7.4	46.1	39.4	28.1	19.4	21.6	45.8	93.0	28.1
Max	500.1	46.6	1,190.3	500.1	1,190.3	327.8	292.3	1,190.3	479.3	1,190.3
75th %ile	319.0	9.5	36.8	35.5	18.6	16.5	9.8	29.7	55.9	18.6
Median	229.5	3.6	9.5	9.5	5.8	5.8	3.5	9.3	49.1	5.8
25th %ile	173.3	1.4	3.2	2.1	2.1	1.9	1.4	3.4	26.6	2.1
Min	122.9	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 ¹	Peer group	Global by type				Global by Country				
			Corp.	Public	Other	Total	U.S.	Canada	Europe	Asia-Pacific	Total
Implementation style											
External Active	4.4	39.7	75.1	57.3	60.7	65.6	74.3	61.5	53.2	46.9	65.6
Fund of funds	0.0	1.0	3.2	3.7	2.4	3.3	3.1	2.6	4.5	2.0	3.3
External passive	0.0	3.9	16.3	15.2	17.1	16.0	16.1	11.3	20.8	14.5	16.0
Internal Active	95.6	28.1	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>27.2</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
Actual asset mix											
Stock	67.9	32.2	25.0	43.2	39.4	34.6	31.0	32.9	43.2	46.4	34.6
Fixed Income ²	27.1	25.3	53.9	24.1	32.9	38.6	44.6	34.0	31.1	30.7	38.6
Global TAA	0.0	0.1	0.4	0.8	0.1	0.5	0.5	0.2	0.9	0.0	0.5
Real Assets	4.9	19.9	8.0	16.4	15.0	12.5	8.1	20.3	13.9	12.1	12.5
Hedge Funds	0.0	3.6	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	0.7	0.3	0.4	0.0	0.3	0.6	0.0	0.0	0.0	0.3
Private Debt	0.0	3.4	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>14.9</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
Policy asset mix											
Stock	70.9	42.1	26.1	44.5	39.3	35.6	33.0	34.0	41.0	52.5	35.6
Fixed Income	29.1	26.1	55.5	24.6	34.4	39.7	46.2	34.9	31.4	29.5	39.7
Global TAA	0.0	0.0	0.4	0.6	0.1	0.4	0.5	0.1	0.6	0.0	0.4
Real Assets	0.0	16.2	7.0	16.5	14.7	12.1	7.5	19.2	14.8	11.3	12.1
Hedge funds	0.0	2.9	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	0.8	0.4	0.4	0.0	0.3	0.6	0.0	0.0	0.0	0.3
Private Debt	0.0	3.5	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>8.5</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 ¹					Peer average ²					Global average ²				
	2022	2021	2020	2019	2018	2022	2021	2020	2019	2018	2022	2021	2020	2019	2018
Implementation style															
External active	4.4	4.4	4.0	3.6	4.4	39.7	37.4	35.9	35.9	35.4	63.5	61.5	61.3	61.4	61.4
Fund of funds	0.0	0.0	0.0	0.0	0.0	1.0	1.0	1.2	1.3	1.4	2.8	2.4	2.1	2.3	2.5
External passive	0.0	0.0	0.0	0.0	0.0	3.9	4.3	4.2	4.6	5.3	16.4	18.0	18.6	18.3	18.4
Internal active	95.6	95.6	96.0	96.4	95.6	28.1	29.4	30.4	30.1	30.9	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>27.2</u>	<u>27.9</u>	<u>28.4</u>	<u>28.1</u>	<u>26.9</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
Actual asset mix															
Stock	67.9	70.6	68.4	67.9	66.1	32.2	37.3	37.3	37.6	37.3	34.8	38.6	39.7	39.5	39.8
Fixed income ³	27.1	25.2	27.5	28.2	30.3	25.3	26.0	28.6	27.2	28.8	36.4	37.1	37.6	37.2	36.8
Global TAA	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.5	0.6	0.8	0.8	0.8
Real assets	4.9	4.3	4.2	3.9	3.5	19.9	16.8	16.5	17.4	17.3	13.1	10.7	10.4	10.7	10.7
Hedge funds	0.0	0.0	0.0	0.0	0.0	3.6	3.2	3.5	3.3	3.6	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	0.7	0.8	0.8	0.8	0.5	0.4	0.5	0.5	0.5	0.5
Private credit	0.0	0.0	0.0	0.0	0.0	3.4	2.7	1.9	2.9	2.2	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>14.9</u>	<u>13.1</u>	<u>11.3</u>	<u>10.6</u>	<u>10.1</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
Policy asset mix															
Stock	70.9	73.2	73.0	71.1	67.3	42.1	43.1	44.2	44.2	44.3	36.4	38.4	39.8	40.3	41.2
Fixed income	29.1	26.8	27.0	28.9	32.7	26.1	27.2	27.2	27.6	29.1	38.0	37.9	37.0	37.3	36.8
Global TAA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.5	0.6	0.6	0.7
Real assets	0.0	0.0	0.0	0.0	0.0	16.2	15.5	15.1	15.3	14.9	12.2	11.2	11.2	10.8	10.7
Hedge funds	0.0	0.0	0.0	0.0	0.0	2.9	3.0	2.9	3.0	3.3	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	0.8	0.8	0.8	0.8	0.5	0.5	0.4	0.5	0.4	0.5
Private credit	0.0	0.0	0.0	0.0	0.0	3.5	2.4	2.3	2.3	1.6	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>8.5</u>	<u>8.0</u>	<u>7.5</u>	<u>6.8</u>	<u>6.4</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 10 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.	100.0	0.0	0.0	0.0	21.8	30.1	10.5	37.6	33.7	50.4	8.3	7.6			
Stock - EAFE	100.0	0.0	0.0	0.0	49.1	5.6	18.7	26.6	55.8	22.8	19.1	2.4			
Stock - Global	0.0	0.0	100.0	0.0	33.0	0.0	16.5	50.5	61.6	23.8	10.8	3.8			
Stock - other					39.3	0.0	34.5	26.2	69.7	6.1	18.3	5.9			
Stock - Emerging	100.0	0.0	0.0	0.0	54.7	4.9	13.6	26.7	67.8	21.7	6.6	3.9			
Stock - ACWI x U.S.					0.0	0.0	0.0	0.0	68.9	29.9	1.0	0.3			
Stock - Aggregate	6.4	0.0	93.6	0.0	35.7	7.5	16.4	40.4	55.1	29.2	11.1	4.5			
Fixed income - U.S.					20.3	15.7	43.8	20.2	68.8	15.3	13.3	2.5			
Fixed income - EAFE					0.0	0.0	0.0	100.0	39.0	32.9	17.1	11.0			
Fixed income - Global	0.0	0.0	100.0	0.0	7.4	0.0	52.7	39.9	53.4	12.2	29.1	5.4			
Fixed income - other					12.1	0.0	20.6	67.3	62.3	15.9	15.8	6.0			
Fixed income - Long bonds					3.1	0.0	12.8	84.1	82.2	6.7	7.1	4.1			
Fixed income - Emerging					37.2	17.0	29.0	16.8	80.4	9.6	8.8	1.2			
Fixed income - Inflation indexed					6.8	19.4	7.7	66.2	16.6	39.6	29.4	14.4			
Fixed income - High yield					60.6	0.0	39.4	0.0	86.5	2.6	9.1	1.8			
Fixed income - Bundled LDI					0.0	0.0	100.0	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					0.0	0.0	0.0	0.0	65.7	0.0	34.3	0.0			
Cash					0.0		100.0		57.6		42.4				
Fixed income - Aggregate	0.0	0.0	100.0	0.0	16.3	5.6	27.5	50.6	67.1	13.9	14.1	4.9			
Commodities					8.1	0.9	52.4	38.6	24.5	15.4	30.6	29.4			
Infrastructure	0.0	0.0	100.0		20.3	0.0	79.7		80.4	4.6	15.0				
Natural resources					53.9	0.3	45.8		68.3	3.6	28.1				
REITs	0.0	0.0	100.0	0.0	25.7	0.0	74.3	0.0	64.2	21.3	11.8	2.7			
Real estate	0.0	0.0	100.0		64.3	0.3	35.4		76.2	7.5	16.3				
Other real assets					10.4	0.0	89.6		94.9	0.0	5.1				
Other listed real assets					0.0	0.0	0.0	0.0	81.2	11.5	5.9	1.3			
Real assets - Aggregate	0.0	0.0	0.0	100.0	0.0	42.9	0.2	0.1	53.2	3.7	76.3	6.0	1.2	16.0	0.5
Hedge funds					93.2	6.8			74.0	26.0					
Global TAA					99.8		0.2		83.2		16.8				
Balanced funds					0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0			
Risk parity					34.7		65.3		94.9		5.1				
Private credit					46.4	0.0	53.6		85.1	5.7	9.2				
Private mortgages					30.8		69.2		89.2		10.8				
Private equity - Diversified					61.0	6.0	33.0		72.5	22.8	4.7				
Venture capital					65.5	0.5	34.0		46.7	50.9	2.3				
LBO					96.3	3.7	0.0		93.1	6.6	0.3				
Private equity - Other					63.8	0.0	36.2		71.5	2.1	26.4				
Private equity - Aggregate					68.1	5.1	26.9		73.5	21.7	4.8				
Total Fund - Avg. Holdings	4.4	0.0	0.0	95.6	0.0	39.7	1.0	3.9	28.1	27.2	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 ¹					Peer average %					Global average %				
	2022	2021	2020	2019	2018	2022	2021	2020	2019	2018	2022	2021	2020	2019	2018
Stock - U.S.	0.1	0.1	0.1		0.0	6.7	8.2	7.4	7.6	7.4	8.7	9.7	10.4	10.6	11.1
Stock - EAFE	0.8	0.8	0.8	0.7	1.0	3.3	3.6	3.9	4.3	4.3	5.1	5.9	6.5	6.2	6.8
Stock - Global	63.6	66.2	64.4	64.3	61.7	15.5	18.0	17.5	17.7	17.7	13.9	14.3	14.2	13.4	12.7
Stock - other						2.3	2.7	3.2	2.9	3.0	2.5	3.1	3.2	3.3	3.4
Stock - Emerging	3.4	3.4	3.2	3.0	3.4	4.4	4.8	5.2	5.1	4.9	2.5	3.0	3.2	3.0	3.1
Stock - ACWI x U.S.											1.9	2.0	2.3	2.4	2.3
Stock - Aggregate	67.9	70.6	68.4	67.9	66.1	32.2	37.3	37.3	37.6	37.3	34.6	37.9	39.7	38.9	39.5
Fixed income - U.S.						5.7	5.5	5.0	5.2	5.0	6.9	6.4	6.4	6.7	6.8
Fixed income - EAFE						2.4	2.1	2.4	4.3	3.6	2.4	2.7	2.6	3.0	3.1
Fixed income - Global	27.1	25.2	27.5	28.2	30.3	5.1	4.3	4.8	5.1	5.7	2.0	2.3	2.3	2.5	2.4
Fixed income - other						7.0	8.0	6.4	6.3	6.9	5.5	5.0	4.8	4.9	5.1
Fixed income - Long bonds						2.4	1.7	3.7	3.7	3.3	12.1	12.3	12.8	12.6	12.8
Fixed income - Emerging						2.0	2.0	1.8	1.5	1.3	1.1	1.2	1.2	1.3	1.1
Fixed income - Inflation indexed						1.4	1.6	2.2	3.1	3.9	1.5	1.5	1.4	1.8	1.7
Fixed income - High yield						1.6	1.7	1.6	1.5	1.2	1.1	1.2	1.1	1.2	1.2
Fixed income - Bundled LDI						2.5	2.9	3.3			3.6	3.4	3.1	2.3	2.3
Fixed income - Convertibles						0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0
Public mortgages											0.1	0.1	0.1	0.1	0.0
Cash						-3.4	-2.7	-1.9	-3.6	-2.6	1.3	1.4	1.5	1.4	1.6
Fixed income - Aggregate	27.1	25.2	27.5	28.2	30.3	26.9	27.1	29.5	27.2	28.5	38.3	37.9	37.9	38.1	38.4
Commodities						1.9	1.7	1.3	1.6	1.7	0.2	0.2	0.2	0.3	0.3
Infrastructure	0.1	0.1				5.5	4.3	4.0	3.9	3.8	3.6	2.6	2.4	2.3	2.1
Natural resources						1.4	1.2	1.1	1.3	1.2	0.4	0.4	0.3	0.3	0.4
REITs	2.0	1.7	1.3	1.1	0.9	1.3	1.2	1.1	1.3	1.2	0.5	0.6	0.5	0.5	0.6
Real estate	2.8	2.4	2.8	2.7	2.6	9.6	8.2	8.7	9.3	9.3	7.5	6.1	6.1	6.3	6.3
Other real assets						0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Other listed real assets											0.2	0.1	0.1	0.1	0.0
Real assets - Aggregate	4.9	4.3	4.2	3.9	3.5	19.9	16.8	16.5	17.4	17.3	12.5	10.1	9.8	10.0	9.9
Hedge funds						3.6	3.2	3.5	3.3	3.6	3.2	3.1	3.1	3.3	3.4
Global TAA						0.1	0.1	0.1	0.2	0.2	0.5	0.6	0.9	1.0	0.9
Balanced funds											0.0	0.0	0.0	0.2	0.4
Risk parity						0.7	0.8	0.8	0.8	0.5	0.3	0.4	0.5	0.6	0.5
Private mortgages						0.9	0.9	0.9	1.9	1.3	0.8	0.6	0.5	0.6	0.6
Private credit						2.4	1.8	1.0	1.0	0.9	2.4	2.2	1.6	1.6	1.4
Private equity - Diversified						10.7	9.6	8.3	7.8	7.4	5.8	5.1	4.2	4.2	3.9
Venture capital						0.7	0.6	0.4	0.4	0.4	0.3	0.3	0.3	0.2	0.3
LBO						2.9	2.5	2.2	2.0	1.9	0.8	0.7	0.6	0.6	0.5
Private equity - Other						0.7	0.5	0.4	0.4	0.3	0.2	0.2	0.2	0.2	0.2
Private equity - Aggregate						14.9	13.1	11.3	10.6	10.1	7.1	6.4	5.3	5.2	4.8
Derivatives/Overlays Mkt Value						-1.6	-1.1	-1.0	0.0	0.4	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	1	1	1	10	10	10	10	10	294	294	315	318	340
Median Assets (€ billions)	1190.3	1122.7	966.7	937.6	872.0	229.5	246.4	218.0	207.0	189.9	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.						4.6	4.6	7.4	7.6	7.8	8.2	8.2	9.5	9.8	10.5
Stock - EAFE						2.3	2.3	4.4	4.7	4.9	4.6	5.2	5.7	5.6	6.4
Stock - Global	70.9	73.2	73.0	71.1	67.3	30.3	30.7	26.4	25.9	25.8	15.9	16.6	16.2	15.3	14.8
Stock - other						2.0	2.3	3.0	2.5	2.4	2.6	3.1	3.1	3.4	3.3
Stock - Emerging						2.9	3.2	3.0	3.4	3.4	2.2	2.6	2.7	2.7	2.8
Stock - ACWI x U.S.											1.9	1.8	2.2	2.4	2.6
Stock - Aggregate	70.9	73.2	73.0	71.1	67.3	42.1	43.1	44.2	44.2	44.3	35.6	37.8	39.6	39.3	40.3
Fixed income - U.S.						4.8	5.5	5.3	4.3	5.1	7.3	6.9	6.7	6.8	7.0
Fixed income - EAFE						2.3	2.2	2.2	4.9	4.4	2.7	2.7	2.7	3.3	3.2
Fixed income - Global	29.1	26.8	27.0	28.9	32.7	3.2	3.3	2.9	4.6	4.9	2.2	2.6	2.6	2.8	2.7
Fixed income - other						6.8	6.7	7.0	6.6	7.0	5.8	5.2	4.8	5.2	5.1
Fixed income - Long bonds						5.0	5.0	5.3	6.7	5.2	13.6	13.5	13.2	13.0	13.2
Fixed income - Emerging						1.7	1.5	1.5	1.1	1.0	1.0	1.1	1.1	1.3	1.1
Fixed income - Inflation indexed						2.3	2.3	2.2	2.6	3.6	1.8	1.8	1.6	2.1	2.0
Fixed income - High yield						1.1	1.1	1.0	1.1	0.7	1.0	1.1	1.1	1.2	1.1
Fixed income - Bundled LDI						3.0	3.1	3.1			3.3	3.1	3.1	2.4	2.2
Fixed income - Convertibles						0.1	0.1	0.1			0.0	0.1	0.0	0.0	0.0
Public mortgages											0.1	0.1	0.1	0.1	0.0
Cash						-4.1	-3.7	-3.2	-4.2	-2.8	-0.1	0.2	0.4	0.5	0.5
Fixed income - Aggregate	29.1	26.8	27.0	28.9	32.7	26.1	27.2	27.2	27.6	29.1	39.7	39.2	38.0	38.7	38.4
Commodities						0.5	0.6	0.7	0.8	0.8	0.1	0.2	0.3	0.3	0.3
Infrastructure						3.4	3.0	2.6	2.5	2.2	3.7	3.1	2.8	2.5	2.1
Natural resources						0.7	0.7	0.7	0.7	0.6	0.3	0.3	0.3	0.3	0.3
REITs						1.2	1.1	1.1	1.1	1.1	0.4	0.5	0.5	0.5	0.6
Real estate						10.4	10.2	9.9	10.2	10.0	7.3	6.6	6.8	6.6	6.4
Other real assets						0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.3
Other listed real assets											0.1	0.1	0.1	0.0	0.0
Real assets - Aggregate						16.2	15.5	15.1	15.3	14.9	12.1	11.1	10.8	10.4	10.0
Hedge funds						2.9	3.0	2.9	3.0	3.3	2.5	2.4	2.7	2.9	3.1
Global TAA						0.0	0.0				0.4	0.5	0.9	0.9	0.9
Balanced funds											0.1	0.0	0.0	0.1	0.2
Risk parity						0.8	0.8	0.8	0.8	0.5	0.3	0.4	0.4	0.5	0.5
Private mortgages						0.8	0.7	0.9	1.1	0.4	0.8	0.6	0.6	0.6	0.6
Private credit						2.6	1.7	1.4	1.2	1.2	2.4	2.4	1.7	1.5	1.3
Private equity - Diversified						8.1	7.6	7.1	6.8	6.4	5.2	4.8	4.5	4.5	4.1
Venture capital						0.4	0.4	0.4			0.1	0.2	0.2	0.2	0.2
LBO											0.4	0.5	0.5	0.4	0.4
Private equity - Other											0.1	0.1	0.1	0.1	0.1
Private equity - Aggregate						8.5	8.0	7.5	6.8	6.4	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	10	10	10	10	10	291	291	314	318	340

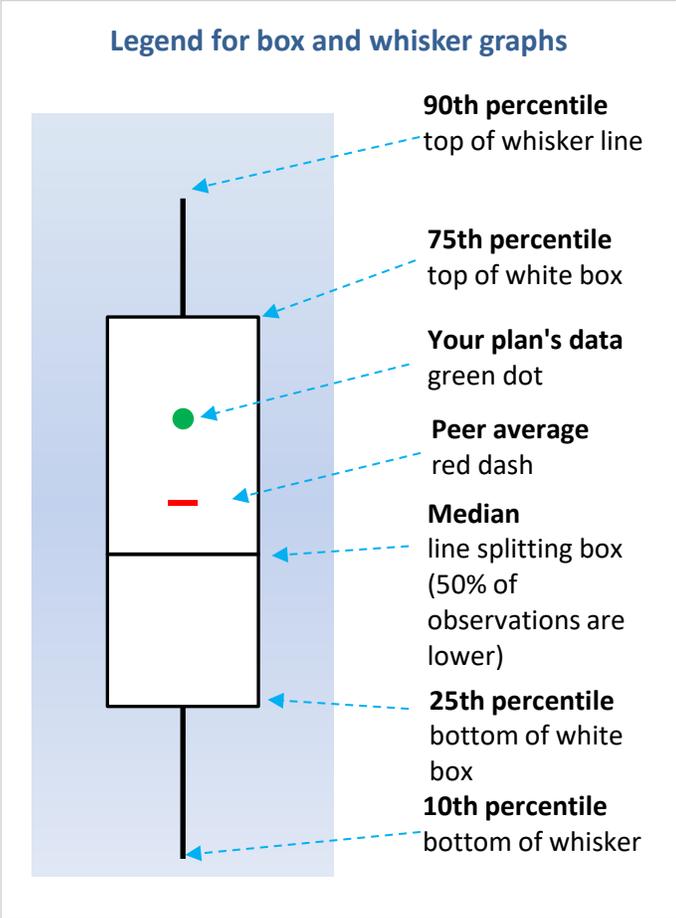
3

Returns, Benchmarks and Value Added

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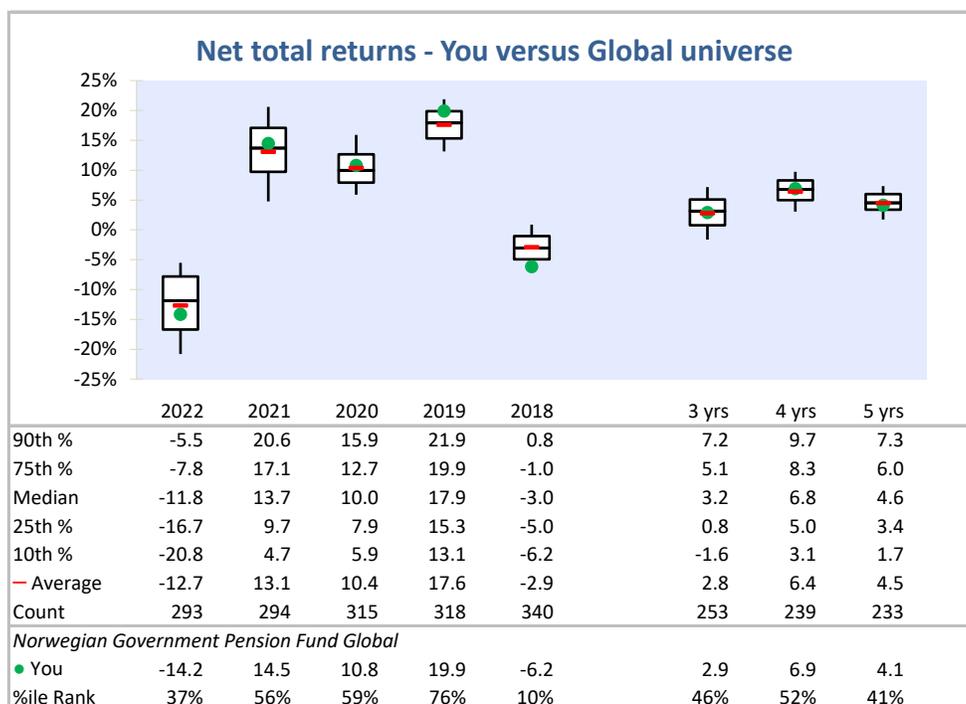
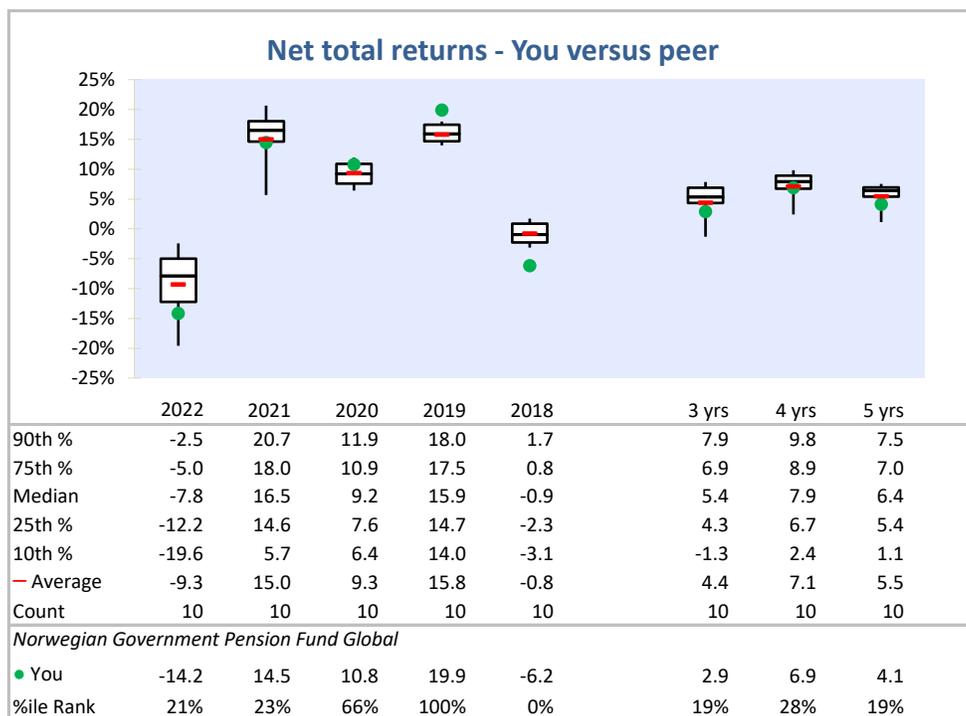
Interpreting box and whisker graphs

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



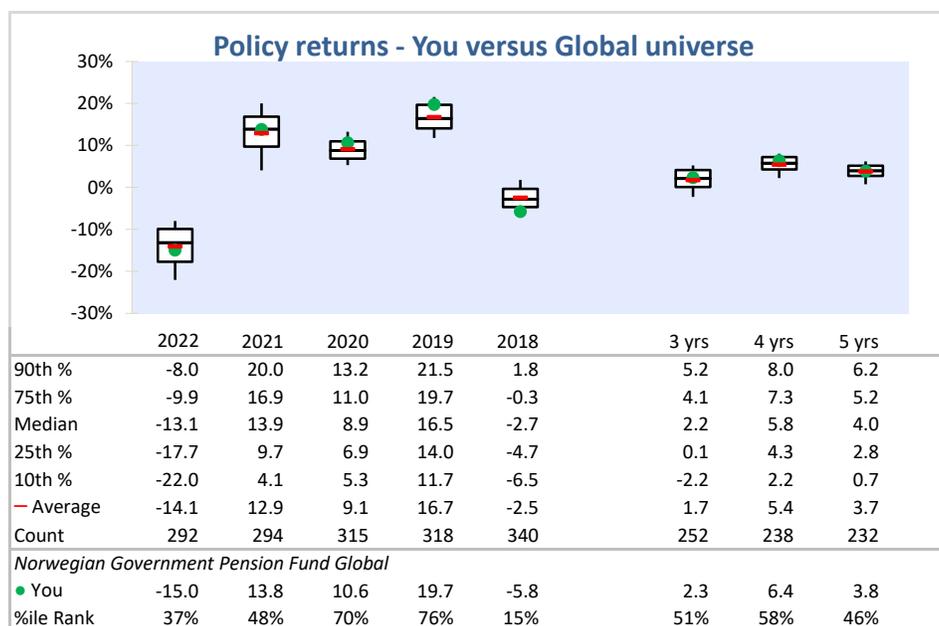
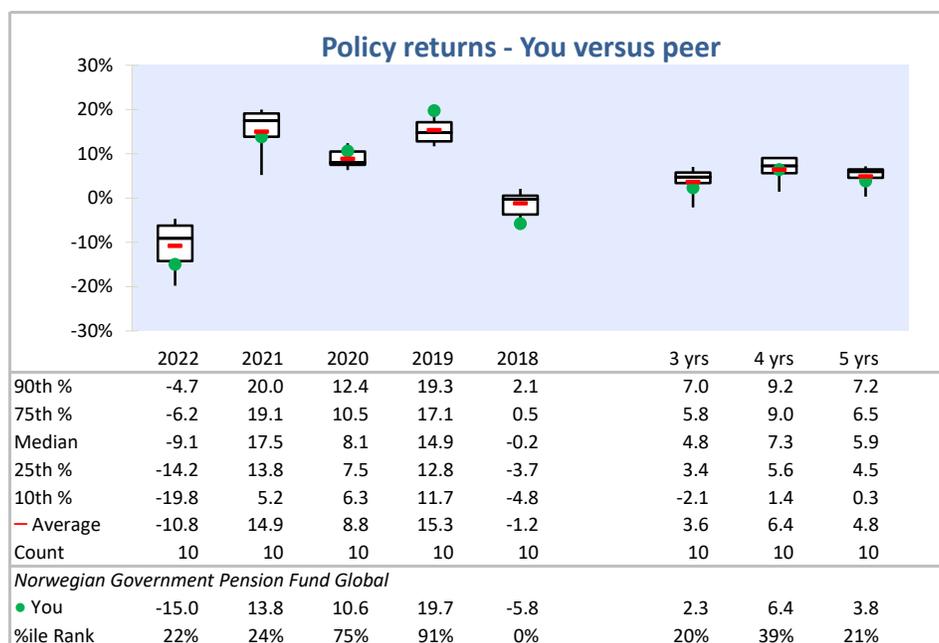
Net total returns

Your 5-year net total return of 4.1% 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

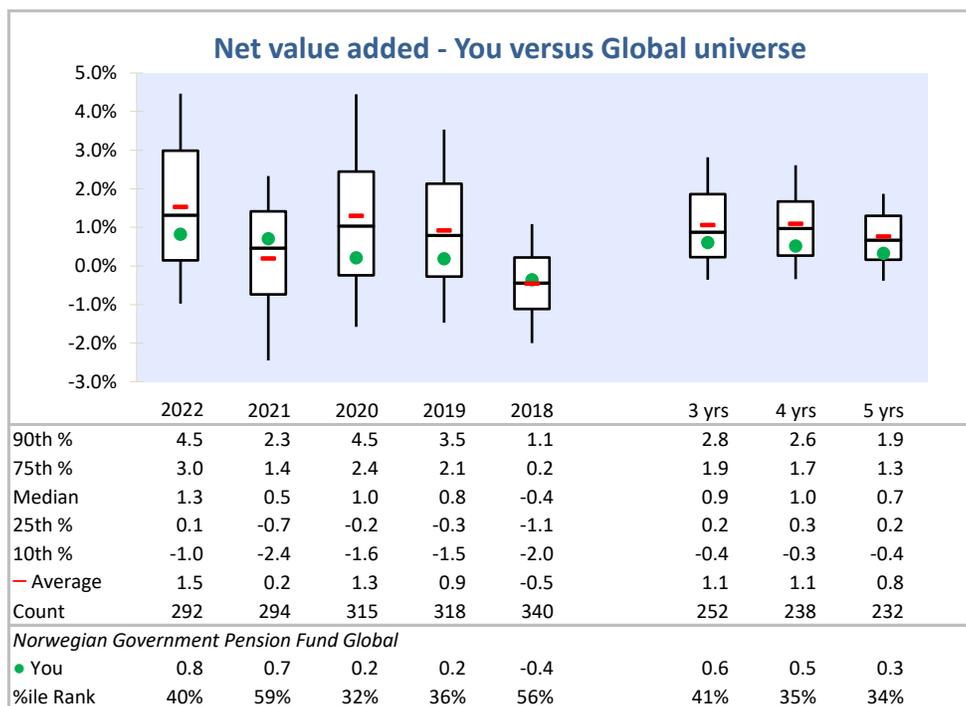
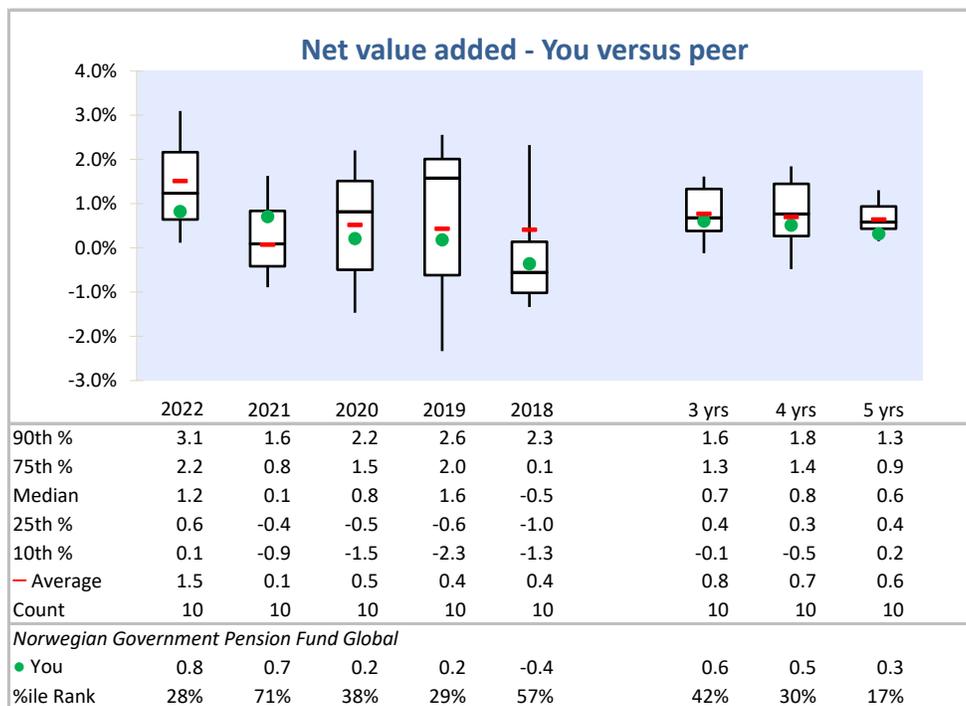
Your 5-year policy return of 3.8% was below the peer median and close to the Global universe median. Policy return is the return you would have earned had you passively implemented your policy asset mix decision through your benchmark portfolios.



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 0.3% was below the peer median and below the median of the Global universe. Net value added is the difference between your net total return and your policy return.



Net returns by asset class

Asset class	Your fund %						Peer average %						Global average %					
	2022	2021	2020	2019	2018	5-yr ¹	2022	2021	2020	2019	2018	5-yr ¹	2022	2021	2020	2019	2018	5-yr ¹
Stock - U.S.	-33.3	3.0	49.8		0.0		-14.6	32.1	13.6	25.1	-1.4	9.7	-15.0	28.9	15.8	29.7	-4.0	9.7
Stock - EAFE	-19.1	16.7	9.4	21.2	-15.2	1.2	-13.9	14.4	8.6	23.4	-12.1	3.0	-11.5	14.7	8.0	21.9	-12.3	3.3
Stock - Global	-15.1	21.2	12.9	26.6	-9.2	5.9	-14.7	22.2	10.6	27.6	-4.5	7.0	-14.3	21.3	13.1	25.5	-6.5	6.5
Stock - other							-12.0	18.0	9.3	23.6	-13.8	4.5	-8.0	20.5	8.6	20.6	-11.2	6.3
Stock - Emerging	-9.8	11.1	8.1	16.0	-13.9	1.6	-16.4	3.4	13.4	20.8	-11.4	0.9	-17.4	2.1	15.6	20.2	-12.9	0.1
Stock - ACWI x U.S.													-14.7	12.7	10.6	22.7	-12.8	3.1
Stock - Aggregate	-14.9	20.6	12.7	26.1	-9.5	5.7	-14.4	19.7	11.9	24.9	-7.5	5.8	-13.5	20.7	12.3	25.4	-8.1	6.2
Fixed income - U.S.							-12.1	4.4	6.6	10.0	1.3	2.1	-13.3	1.3	7.6	10.1	1.6	1.4
Fixed income - EAFE							-16.6	-7.8	11.9	5.2	-0.8	-5.1	-22.1	-3.6	11.9	6.8	-2.3	-2.8
Fixed income - Global	-12.1	-2.0	7.4	7.5	0.5	0.0	-11.5	2.8	3.3	11.7	1.1	1.3	-21.8	0.2	8.5	5.8	-2.0	0.1
Fixed income - other							-4.9	3.1	2.2	7.6	2.5	3.6	-9.7	3.6	6.1	9.3	-1.1	1.2
Fixed income - Long bonds							-24.8	-0.4	12.6	14.7	-1.8	-0.9	-23.9	0.1	12.7	19.2	-3.4	-0.1
Fixed income - Emerging							-8.6	6.5	1.6	13.1	-4.4	2.0	-10.4	-2.0	3.1	12.6	-4.4	-0.8
Fixed income - Inflation indexed							-2.6	5.2	-0.4	8.1	-3.6	3.7	-17.5	6.8	8.8	10.6	-2.3	1.1
Fixed income - High yield							-3.6	8.6	2.9	12.2	2.0	4.4	-5.0	7.8	4.0	11.1	-0.9	3.0
Fixed income - Bundled LDI							-55.0	-19.6	24.5				-35.5	-1.6	21.1	19.2	-3.2	-3.3
Public mortgages													-7.9	4.4	0.3	8.1	6.1	3.4
Fixed income - Convertibles							-7.1	8.7	4.8	16.0	1.8	4.6	-11.1	3.4	20.9	13.6	-1.2	2.4
Cash							1.2	3.5	-0.4	2.8	0.9	1.9	1.6	1.9	-0.8	2.4	0.9	0.7
Fixed income - Aggregate	-12.1	-2.0	7.4	7.5	0.5	0.0	-14.9	1.4	8.0	11.2	0.5	0.7	-17.1	0.9	10.3	12.9	-1.7	0.4
Commodities							18.7	23.7	1.4	0.7	-15.6	2.1	18.6	25.5	-4.2	7.8	-9.9	6.4
Infrastructure	4.8	3.9					11.1	15.1	3.7	9.0	8.6	9.3	9.6	13.8	6.0	10.7	7.0	9.1
Natural resources							16.1	18.4	-2.7	3.5	-0.4	6.4	14.4	16.4	-5.3	3.4	5.2	5.9
REITs	-30.8	26.8	-14.9	20.9	-10.4	-4.2	-18.8	29.3	-13.7	31.0	-7.1	-1.3	-18.8	32.1	-8.4	23.0	-2.8	2.8
Real estate	0.0	13.5	-0.2	6.7	7.3	5.3	12.5	16.4	-4.5	8.5	7.9	7.8	8.3	20.0	0.0	7.1	9.4	8.1
Other real assets							-0.4	19.7	1.6	-1.6	-5.5	2.0	15.8	22.3	-1.4	3.5	-3.7	1.2
Real assets - Aggregate	-12.5	18.8	-4.9	10.8	2.8	2.4	12.8	19.3	-2.8	9.7	5.2	8.5	7.9	19.8	0.2	8.7	6.0	8.2
Hedge funds							9.8	11.1	3.8	6.6	-1.5	6.1	6.3	10.9	2.2	6.1	-1.0	4.3
Global TAA							0.4	-0.1	-6.9	10.1	-12.2	-2.1	-2.4	10.0	2.1	11.8	-3.4	3.4
Balanced funds													-2.1	7.2	-11.5	30.1	-15.5	
Risk parity							-3.5	15.5	0.1	23.4	-4.2	5.7	-18.9	12.0	5.8	18.0	-5.2	2.3
Private mortgages							-6.9	4.4	7.0	7.1	1.0	2.3	-7.3	3.8	6.4	6.9	-0.3	0.9
Private credit							3.0	11.8	2.6	6.3	4.2	5.4	1.9	14.7	2.6	9.8	5.2	6.7
Private equity - Diversified							3.1	38.9	15.2	11.4	12.8	15.5	3.3	46.3	12.4	9.5	15.8	16.4
Venture capital							-4.1	40.2	22.7	13.2	20.3	17.0	-5.0	58.5	22.0	8.9	19.6	17.6
LBO							4.4	42.4	19.9	10.7	12.4	17.1	4.9	46.8	12.6	11.7	15.5	16.9
Private equity - Other							7.1	17.1	22.4	9.4	48.1	14.4	4.9	29.0	11.5	8.5	11.5	14.9
Private equity - Aggregate							2.6	41.6	16.4	12.1	13.1	16.3	3.3	47.2	13.1	9.3	15.8	16.4
Total Fund Return	-14.2	14.5	10.8	19.9	-6.2	4.1	-9.3	15.0	9.3	15.8	-0.8	5.5	-12.7	13.1	10.4	17.6	-2.9	4.5

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 ¹	2022	2021	2020	2019	2018	5-yr ¹	2022	2021	2020	2019	2018	5-yr ¹
Stock - U.S.	-24.2	13.3	47.1		3.6		-15.3	30.1	17.4	30.6	-3.6	10.3	-15.4	28.5	16.5	29.9	-3.7	9.7
Stock - EAFE	-15.9	18.0	5.4	22.7	-13.7	2.1	-10.9	15.6	4.4	22.1	-11.7	3.0	-10.4	15.1	4.5	22.0	-11.5	3.1
Stock - Global	-15.6	20.4	12.2	26.1	-8.4	5.7	-13.5	22.7	10.2	26.5	-6.8	6.7	-14.3	22.4	12.2	25.9	-7.0	6.6
Stock - other							-8.7	16.8	9.6	25.6	-11.1	5.9	-9.8	21.8	5.6	23.9	-10.7	6.3
Stock - Emerging	-11.3	8.9	3.4	15.0	-14.7	-0.4	-15.5	3.7	12.4	20.7	-10.6	1.2	-16.1	2.0	14.7	18.2	-11.9	0.3
Stock - ACWI x U.S.													-12.9	12.3	7.7	21.6	-12.2	2.4
Stock - Aggregate	-15.4	19.8	11.8	25.6	-8.8	5.4	-14.0	20.0	11.9	25.3	-7.3	6.0	-13.7	21.2	11.7	25.4	-7.9	6.2
Fixed income - U.S.							-11.8	3.8	8.7	11.1	0.5	2.1	-13.0	0.9	6.7	9.2	1.6	1.1
Fixed income - EAFE							-16.6	-7.9	11.0	5.1	-0.5	-4.9	-23.3	-4.1	11.5	6.5	-2.2	-3.1
Fixed income - Global	-13.8	-1.9	6.7	7.4	0.6	-0.5	-10.7	3.0	2.0	10.4	0.9	1.3	-11.2	-0.1	7.0	7.7	-1.2	0.0
Fixed income - other							-7.2	3.6	3.5	6.6	1.0	1.4	-11.0	2.7	5.5	9.5	-1.3	0.3
Fixed income - Long bonds							-24.5	-2.4	11.7	15.4	-1.8	-0.9	-23.2	0.1	11.4	19.2	-3.3	-0.4
Fixed income - Emerging							-9.9	3.5	1.0	13.5	-4.4	1.3	-10.9	-1.8	2.7	13.0	-3.3	-0.3
Fixed income - Inflation indexed							-4.0	6.6	0.8	8.0	-3.9	3.7	-18.0	6.3	9.2	9.8	-2.3	0.7
Fixed income - High yield							-6.9	7.1	2.4	12.1	1.5	3.4	-6.9	6.8	3.7	12.4	-1.0	2.8
Fixed income - Bundled LDI							-53.5	-20.3	24.6				-37.1	-2.7	21.0	19.5	-2.9	-3.9
Public mortgages													-7.2	3.1	-0.1	5.6	5.4	2.2
Fixed income - Convertibles							-16.2	7.3	47.4	22.6	3.2	10.9	-13.2	6.3	23.6	15.5	-1.1	5.7
Cash							1.0	1.5	0.0	2.4	0.4	1.3	1.8	2.2	-0.6	2.6	0.8	1.3
Fixed income - Aggregate	-13.8	-1.9	6.7	7.4	0.6	-0.5	-18.1	-1.5	9.3	10.0	-0.4	-0.9	-17.9	0.5	9.5	12.8	-1.7	-0.3
Commodities							22.4	33.2	-13.0	13.8	-12.0	7.2	18.6	27.2	-7.3	10.6	-9.6	6.9
Infrastructure	-20.0	-3.9					11.6	9.9	4.4	9.0	3.6	7.4	4.4	11.3	6.1	11.1	2.2	6.5
Natural resources							20.4	25.9	-1.6	2.4	3.4	9.4	10.3	19.5	-2.0	8.4	2.5	6.6
REITs	-13.7	17.1	10.1	17.1	-4.6	4.4	-10.5	31.7	-18.0	32.8	-4.1	2.4	-19.0	31.5	-9.6	21.7	-2.8	2.5
Real estate	-14.5	7.3	8.7	13.0	-2.1	2.0	13.8	15.4	-2.1	8.0	7.6	8.3	7.8	17.8	0.9	7.9	6.5	7.8
Other real assets							-9.8	11.1	11.7	20.1	-0.1	5.9	2.3	19.5	3.8	10.9	-0.1	5.3
Real assets - Aggregate	-14.4	10.9	8.8	14.3	-2.7	2.8	12.4	16.6	-1.9	9.5	5.2	8.0	6.6	17.1	0.8	9.5	4.2	7.2
Hedge funds							4.5	6.8	3.6	7.4	1.4	4.8	1.1	8.2	3.1	8.7	-0.1	4.1
Global TAA							-2.9	10.0	7.9	13.1	-7.5	3.5	-4.4	10.9	2.7	14.1	-1.5	4.3
Balanced funds													-11.9	6.8	-25.8	40.1	-14.4	
Risk parity							-21.3	13.7	6.7	22.5	-4.3	2.3	-12.0	13.2	5.2	15.8	-1.1	3.2
Private mortgages							-9.4	0.9	8.4	5.3	-0.4	0.2	-12.0	-0.9	7.1	6.5	-1.2	-0.5
Private credit							-0.3	6.6	4.0	8.0	1.2	3.9	-2.8	9.1	1.3	13.1	1.0	4.0
Private equity - Diversified							-14.2	52.6	-1.4	-13.5	24.7	6.7	-13.6	52.4	-3.2	-12.2	23.4	6.7
Venture capital							-14.0	58.2	-2.5	-16.6	29.8	7.4	-13.7	51.4	-3.2	-12.1	24.1	7.0
LBO							-13.8	59.1	-2.8	-18.8	31.3	7.2	-13.9	51.8	-2.3	-12.6	24.5	6.9
Private equity - Other							-14.3	60.7	-2.8	-21.4	33.2	6.9	-13.9	49.2	-2.9	-11.7	21.6	5.8
Private equity - Aggregate							-14.2	52.6	-1.4	-13.5	24.7	6.7	-13.6	52.4	-3.1	-12.2	23.4	6.7
Total Policy Return	-15.0	13.8	10.6	19.7	-5.8	3.8	-10.8	14.9	8.8	15.3	-1.2	4.8	-14.1	12.9	9.1	16.7	-2.5	3.7

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 ¹	2022	2021	2020	2019	2018	5-yr ¹	2022	2021	2020	2019	2018	5-yr ¹
Stock - U.S.	-9.1	-10.3	2.8		-3.6		0.8	2.0	-3.7	-5.6	2.2	-0.6	0.6	0.3	-0.7	-0.1	-0.3	0.0
Stock - EAFE	-3.2	-1.3	4.0	-1.5	-1.5	-0.9	-3.0	-1.3	4.2	1.4	-0.4	0.0	-1.2	-0.4	3.6	0.0	-0.8	0.3
Stock - Global	0.5	0.8	0.7	0.5	-0.8	0.3	-1.3	-0.6	0.4	1.1	2.3	0.3	0.0	-1.1	0.9	-0.5	0.6	-0.1
Stock - other							-1.8	1.2	-0.5	-2.0	-2.8	0.5	2.0	0.0	5.9	-3.7	-0.6	0.1
Stock - Emerging	1.5	2.2	4.7	1.0	0.8	2.0	-0.9	-0.3	0.9	0.1	-0.8	-0.3	-1.1	0.0	1.0	1.9	-1.0	-0.2
Stock - ACWI x U.S.													-1.5	0.4	2.9	1.1	-0.7	0.8
Stock - Aggregate	0.5	0.8	0.9	0.5	-0.7	0.3	-0.4	-0.3	0.1	-0.4	-0.2	-0.3	0.2	-0.5	0.6	0.0	-0.2	0.0
Fixed income - U.S.							-0.3	4.1	-2.1	-1.1	0.9	0.4	-0.2	0.6	0.7	0.8	0.0	0.4
Fixed income - EAFE							0.0	0.1	0.2	0.0	-0.3	-0.2	0.5	0.0	0.4	1.0	-0.2	0.0
Fixed income - Global	1.7	-0.1	0.7	0.1	0.0	0.5	0.1	-0.2	1.3	1.9	0.2	0.1	-0.1	0.3	0.9	-1.8	-0.7	0.0
Fixed income - other							0.5	-0.5	-1.3	1.1	1.5	1.1	0.6	1.1	0.2	-0.2	0.3	0.6
Fixed income - Long bonds							-0.3	2.0	0.9	-0.7	0.1	0.0	-0.7	0.0	1.2	0.0	0.0	0.3
Fixed income - Emerging							1.3	3.0	0.6	-0.4	0.0	0.8	0.6	-0.1	0.5	-0.5	-1.2	-0.3
Fixed income - Inflation indexed							0.4	-0.3	-0.1	0.1	0.3	0.0	0.7	0.6	-0.5	0.8	-0.1	0.4
Fixed income - High yield							1.2	1.5	0.6	0.0	0.6	0.1	1.4	1.0	0.3	-1.5	0.2	0.3
Fixed income - Bundled LDI							-1.5	0.7	-0.1				-0.9	0.3	0.5	0.3	-0.1	0.4
Public mortgages													-1.7	0.9	1.7	0.5	0.0	1.0
Fixed income - Convertibles							9.1	1.4	-42.6	-6.6	-1.4	-6.3	-1.2	-1.3	-2.6	-4.8	-0.4	-3.3
Cash							-0.1	-0.3	0.1	0.4	-0.6	-0.2	-0.4	-0.5	-0.2	-0.3	0.0	-0.7
Fixed income - Aggregate	1.7	-0.1	0.7	0.1	0.0	0.5	3.2	2.9	-1.3	1.2	1.0	1.6	1.1	0.4	0.7	0.1	0.0	0.7
Commodities							-3.6	-9.5	14.4	-14.3	-3.6	-5.1	-0.6	-3.7	2.3	-3.3	-0.9	-0.7
Infrastructure	24.8	7.8					-0.6	5.2	-0.8	0.0	5.0	1.9	5.3	2.3	0.2	-0.3	4.8	2.6
Natural resources							-4.3	-7.5	-1.2	1.1	-3.8	-2.9	2.5	-2.4	-3.7	-4.9	2.4	-1.5
REITs	-17.1	9.7	-25.0	3.7	-5.7	-8.6	-8.4	-2.4	4.3	-1.8	-3.1	-3.7	-1.1	0.7	1.7	1.2	-0.2	-0.3
Real estate	14.5	6.2	-9.0	-6.4	9.4	3.3	-1.2	0.9	-2.5	0.5	0.3	-0.5	1.0	2.1	-0.9	-0.8	2.9	0.4
Other real assets							9.4	8.7	-10.1	-21.7	-5.4	-3.8	19.0	0.5	-5.0	-8.0	-3.1	-5.8
Real assets - Aggregate	1.9	7.9	-13.7	-3.5	5.5	-0.4	0.4	2.7	-0.8	0.3	0.1	0.5	1.5	2.8	-0.6	-0.8	1.8	0.9
Hedge funds							5.3	4.3	0.3	-1.0	-3.7	1.3	4.2	2.7	-1.4	-2.7	-0.9	0.4
Global TAA							-0.2	-7.3	-14.8	-0.9	-4.8	-3.6	2.0	-1.3	-1.3	-3.0	-2.2	-1.0
Balanced funds														1.0	16.5	-10.0	-0.7	
Risk parity							17.7	1.8	-6.7	0.9	0.1	3.4	-5.0	-0.7	-1.0	2.0	-4.0	-0.8
Private mortgages							2.6	3.5	-0.7	1.8	2.0	2.2	3.9	4.5	-1.0	0.5	1.2	1.5
Private credit							3.3	6.3	0.1	-1.7	2.9	1.1	4.4	5.3	0.7	-2.9	4.1	3.3
Private equity - Diversified							17.3	-13.7	16.5	24.9	-11.9	8.8	16.9	-6.1	15.3	21.6	-7.6	9.5
Venture capital							9.9	-18.0	25.2	29.8	-9.5	9.6	8.8	7.9	24.4	20.9	-4.3	10.3
LBO							18.1	-16.7	22.7	29.5	-18.9	9.9	18.9	-5.3	14.5	24.3	-9.0	9.9
Private equity - Other							21.4	-48.1	25.2	30.8	14.9	8.5	18.7	-20.6	13.5	20.2	-11.4	8.7
Private equity - Aggregate							16.8	-11.0	17.7	25.6	-11.7	9.6	17.0	-5.0	16.1	21.4	-7.6	9.6
Total Fund Return	0.8	0.7	0.2	0.2	-0.4	0.3	1.5	0.1	0.5	0.4	0.4	0.6	1.5	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.

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	Description	Benchmark	Return	Net return	Value added
Stock - U.S.		Custom		-24.2%	-33.3%	-9.1%
Stock - EAFE		Custom		-15.9%	-19.1%	-3.2%
Stock - Global	70.9%	Your Stock: Global benchmark		-15.6%	-15.1%	0.5%
Stock - Emerging		Custom		-11.3%	-9.8%	1.5%
Fixed income - Global	29.1%	Barclays Global Aggregate + Barclays Global Inflation		-13.8%	-12.1%	1.7%
Infrastructure		Custom		-20.0%	4.8%	24.8%
REITs		Custom		-13.7%	-30.8%	-17.1%
Real estate		Custom		-14.5%	0.0%	14.5%
Total	100.0%					
Net Actual Return (reported by you)						-14.2%
Calculated Policy Return = sum of (policy weights X benchmark returns)					-15.1%	
Adjustment to reflect rebalancing and overlay impacts					<u>0.1%</u>	
Policy Return (reported by you)						<u>-15.0%</u>
Net Value Added (Net Return - Policy Return)						0.8%

The fund return consists of Equity, Fixed Income, Real Estate and Infrastructure. The fund benchmark is the weighted benchmark of Equity and Fixed Income. The benchmark for Real Estate used in the report prior to 2017 was the actual portfolio return, and thereafter the financing cost for the real estate investments.

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 - U.S.		Custom	13.3%	3.0%	-10.3%
Stock - EAFE		Custom	18.0%	16.7%	-1.3%
Stock - Global	73.2%	Your Stock: Glot	20.4%	21.2%	0.8%
Stock - Emerging		Custom	8.9%	11.1%	2.2%
Fixed income - Global	26.8%	Barclays Global	-1.9%	-2.0%	-0.1%
Infrastructure		Custom	-3.9%	3.9%	7.8%
REITs		Custom	17.1%	26.8%	9.7%
Real estate		Custom	7.3%	13.5%	6.2%
Total	100.0%				
Net Return (reported by you)					14.5%
Calculated policy return (sum: Policy weights x benchmarks)				14.4%	
Adjustment to reflect rebalancing and overlay impacts				<u>-0.7%</u>	
Policy return (reported by you)					<u>13.8%</u>
Net Value Added (Net Return - Policy Return)					0.7%

2019 Policy Return and Value Added

Asset class	Policy	Benchmark		Net return	Value added
	weight	Description	Return		
Stock - U.S.		Custom	22.7%	21.2%	-1.5%
Stock - EAFE		Custom	26.1%	26.6%	0.5%
Stock - Global	71.1%	Your Stock: Glot	26.1%	26.6%	0.5%
Stock - Emerging		Custom	15.0%	16.0%	1.0%
Fixed income - Global	28.9%	Barclays Global	7.4%	7.5%	0.1%
REITs		Custom	17.1%	20.9%	3.7%
Real estate		Custom	13.0%	6.7%	-6.4%
Total	100.0%				
Net Return (reported by you)					19.9%
Calculated policy return (sum: Policy weights x benchmarks)				20.7%	
Adjustment to reflect rebalancing and overlay impacts				<u>-1.0%</u>	
Policy return (reported by you)					<u>19.7%</u>
Net Value Added (Net Return - Policy Return)					0.2%

2020 Policy Return and Value Added

Asset class	Policy	Benchmark		Net return	Value added
	weight	Description	Return		
Stock - U.S.		Custom	47.1%	49.8%	2.8%
Stock - EAFE		Custom	5.4%	9.4%	4.0%
Stock - Global	73.0%	Your Stock: Glot	12.2%	12.9%	0.7%
Stock - Emerging		Custom	3.4%	8.1%	4.7%
Fixed income - Global	27.0%	Barclays Global	6.7%	7.4%	0.7%
Infrastructure		Custom	10.1%	-14.9%	-25.0%
REITs		Custom	8.7%	-0.2%	-9.0%
Total	100.0%				
Net Return (reported by you)					10.8%
Calculated policy return (sum: Policy weights x benchmarks)				10.7%	
Adjustment to reflect rebalancing and overlay impacts				<u>-0.1%</u>	
Policy return (reported by you)					<u>10.6%</u>
Net Value Added (Net Return - Policy Return)					0.2%

2018 Policy Return and Value Added

Asset class	Policy	Benchmark		Net return	Value added
	weight	Description	Return		
Stock - U.S.		Custom	3.6%	0.0%	-3.6%
Stock - EAFE		Custom	-13.7%	-15.2%	-1.5%
Stock - Global	67.3%	Your Stock: Glot	-8.4%	-9.2%	-0.8%
Stock - Emerging		Custom	-14.7%	-13.9%	0.8%
Fixed income - Global	32.7%	Barclays Global	0.6%	0.5%	0.0%
REITs		Custom	-4.6%	-10.4%	-5.7%
Real estate		Custom	-2.1%	7.3%	9.4%
Total	100.0%				
Net Return (reported by you)					-6.2%
Calculated policy return (sum: Policy weights x benchmarks)				-5.5%	
Adjustment to reflect rebalancing and overlay impacts				<u>-0.4%</u>	
Policy return (reported by you)					<u>-5.8%</u>
Net Value Added (Net Return - Policy Return)					-0.4%

Profit/Loss on overlay programs

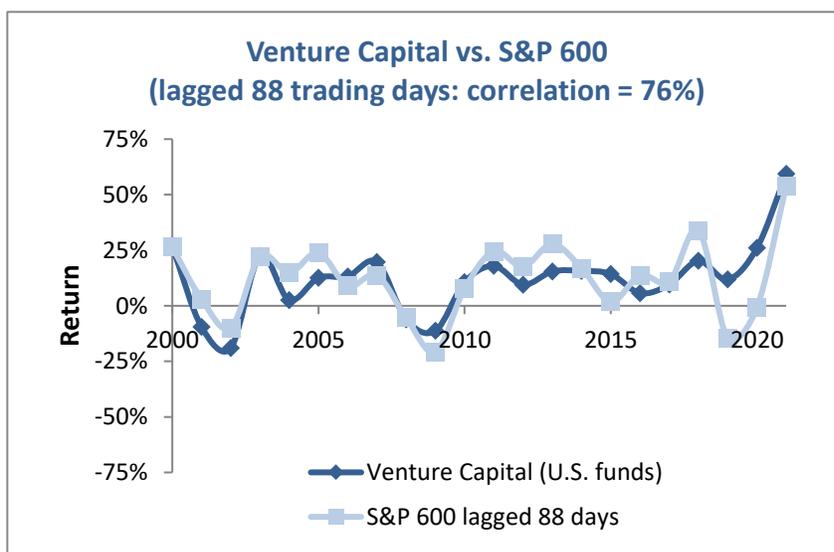
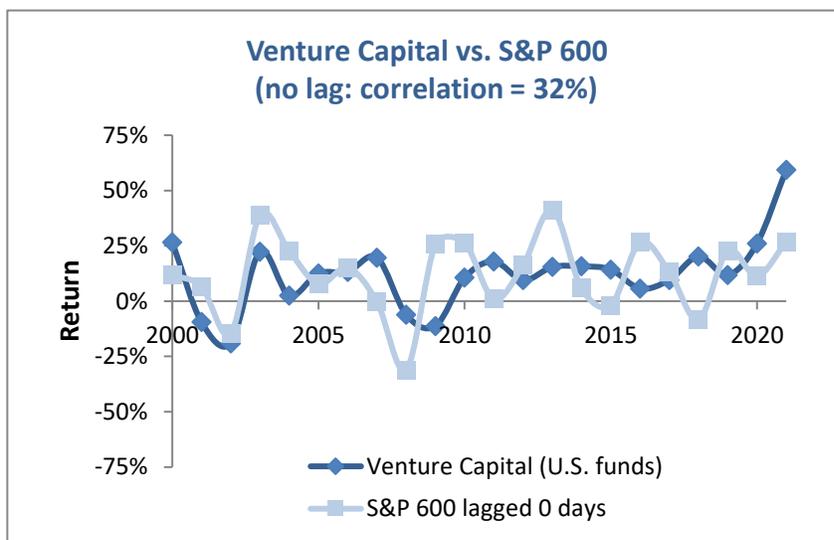
Overlay type	Your fund		Peer median				Global median			
	2022	2021	2022		2021		2022		2021	
	bps	bps	bps	#	bps	#	bps	#	bps	#
Int. Discretionary Currency			-15.2	1	-15.1	1	-10.9	7	2.6	9
Ext. Discretionary Currency			-1.7	1	0.5	1	0.0	9	0.3	10
Internal Global TAA							4.2	5	13.0	4
External Global TAA			22.4	1			10.5	2	3.0	2
Internal PolicyTilt TAA							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							3.0	5	6.5	6
External Long/Short							0.4	1	-2.2	1
Internal Other			43.2	1	31.5	1	7.5	6	15.0	7
External Other							-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.



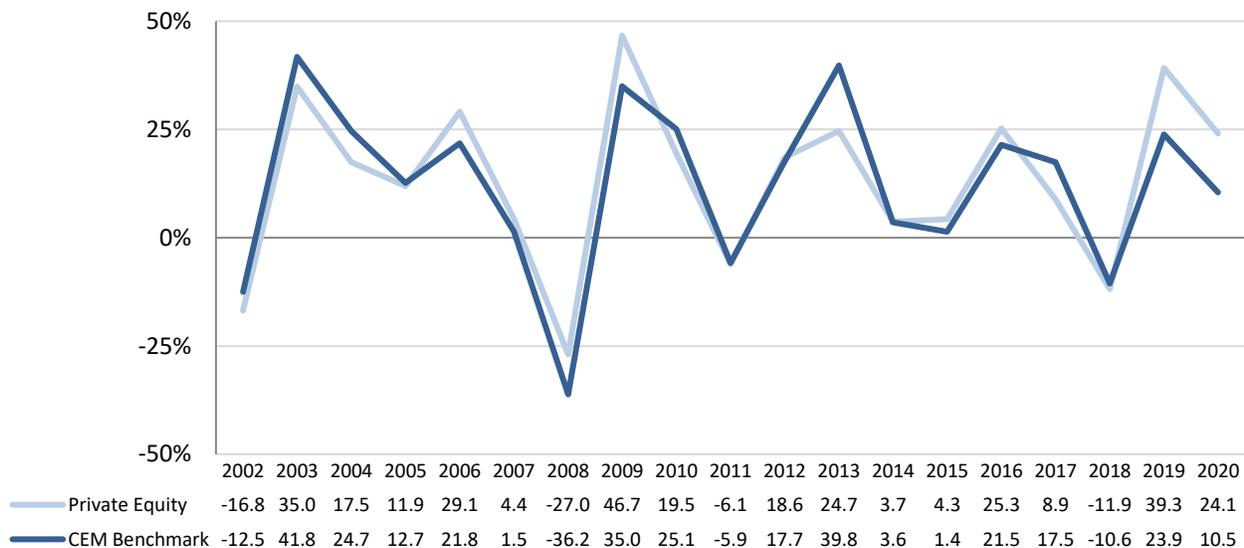
- Un-investable peer-based benchmarks. Peer based benchmarks reflect the reporting lags in peer portfolios so they have much better correlations than un-lagged investable benchmarks. But their relationship statistics are not as good as for lagged investable benchmarks.
- Aspirational premiums (i.e., 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.

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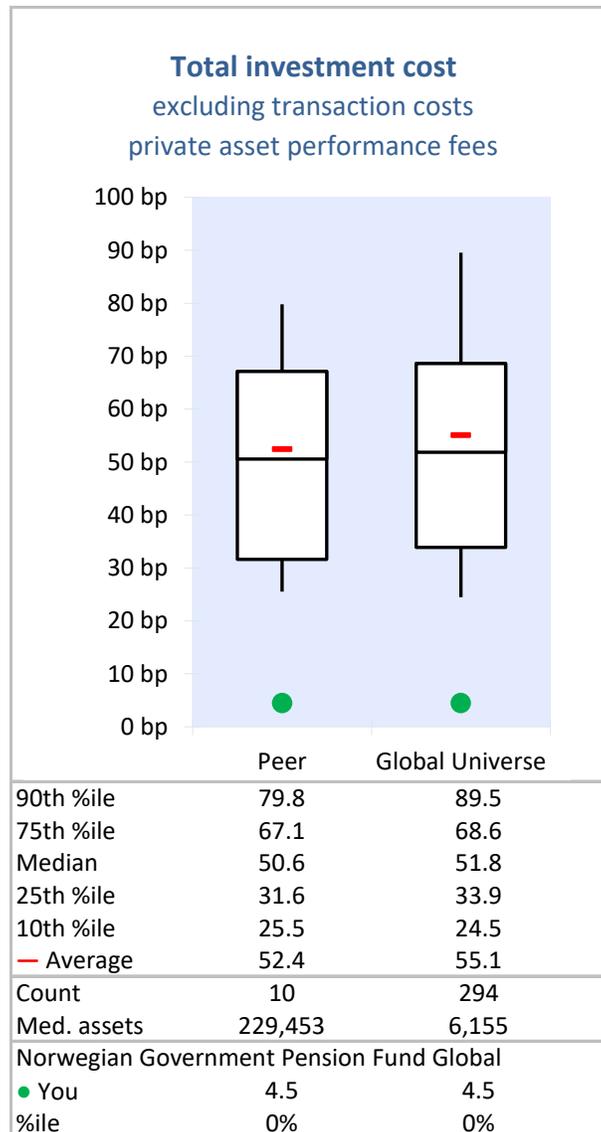
Cost: total, benchmark, trend

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Comparisons of total investment cost

Your total investment cost, excluding transaction costs and private asset performance fees, of 4.5 bps was below the peer median of 50.6 bps.

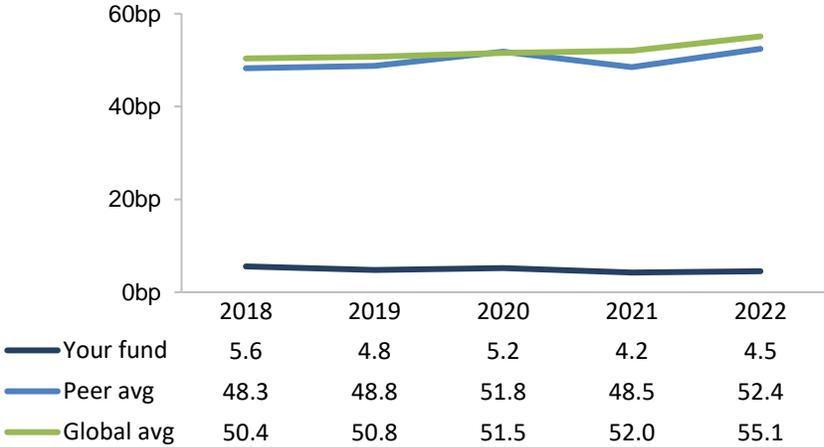
Differences in total investment cost are often caused by two factors that are usually outside of management's control: asset mix and fund size. Therefore, to assess whether your fund's total investment cost is high or low given your unique asset mix and size, CEM calculates a benchmark cost for your 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 5.6 bps in 2013 to 4.5 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 10 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 & 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 4.5 bp or €538.2 million.

	Internal		External passive		External active			Total ¹		
	Passive	Active	Fees	Monitoring & Other	Base Fees	Perform. Fees	Monitor. & Other	€000s	bps	% of Total
Asset management										
Stock - U.S.					2,580	-970	255	1,865		0%
Stock - EAFE					17,047	3,073	1,767	21,887		4%
Stock - Emerging					75,693	68,914	7,120	151,727		28%
Stock - Global		124,816						124,816		23%
Fixed income - Global		41,040						41,040		8%
REITs		4,490						4,490		1%
Real estate ¹		41,801						41,801		8%
Infrastructure ¹		3,376						3,376		1%
Total asset management costs excluding private asset performance fees								391,003	3.3bp	73%
Oversight, custodial & other asset related costs										
Oversight of the fund								88,565		16%
Trustee & custodial								46,811		9%
Consulting and performance measurement								7,692		1%
Audit								4,134		1%
Other										
Total oversight, custodial & other costs								147,202	1.2bp	27%
Total investment costs excluding transaction costs and private asset performance fees								538,205	4.5bp	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
Asset management													
Stock - U.S.	1,865	2,426	6,720		855	-561	-4,295			-23%	-64%		
Stock - EAFE	21,887	23,713	29,828	9,642	27,553	-1,826	-6,115	20,186	-17,911	-8%	-20%	209%	-65%
Stock - Emerging	151,727	151,239	157,543	87,450	122,257	488	-6,304	70,093	-34,807	0%	-4%	80%	-28%
Stock - Global	124,816	87,800	104,566	115,092	104,260	37,016	-16,766	-10,526	10,832	42%	-16%	-9%	10%
Fixed income - Global	41,040	31,769	40,877	44,434	42,087	9,271	-9,108	-3,557	2,347	29%	-22%	-8%	6%
REITs	4,490	2,951	2,681	1,620	2,013	1,539	270	1,061	-393	52%	10%	66%	-20%
Real estate ¹	41,801	37,863	35,060	44,007	50,360	3,938	2,803	-8,948	-6,353	10%	8%	-20%	-13%
Infrastructure ¹	3,376	2,272				1,104				49%			
Total excl. private asset perf. fees	391,003	340,033	377,276	302,245	349,386	50,970	-37,243	75,030	-47,140	15%	-10%	25%	-13%
Oversight, custodial & other asset related costs													
Oversight of the fund	88,565	78,246	71,921	89,677	76,723	10,319	6,325	-17,756	12,954	13%	9%	-20%	17%
Trustee & custodial	46,811	45,995	44,144	42,622	39,045	815	1,851	1,523	3,576	2%	4%	4%	9%
Consulting and performance measurement	7,692	7,681	7,035	10,715	14,930	11	646	-3,680	-4,215	0%	9%	-34%	-28%
Audit	4,134	3,800	3,892	3,792	4,358	334	-93	100	-566	9%	-2%	3%	-13%
Other													
Total oversight, custodial & other	147,202	135,722	126,992	146,806	135,056	11,479	8,730	-19,814	11,750	8%	7%	-13%	9%
Total investment costs ¹	538,205	475,755	504,268	449,051	484,442	62,449	-28,513	55,216	-35,390	13%	-6%	12%	-7%
Total in basis points	4.5bp	4.2bp	5.2bp	4.8bp	5.6bp								

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 18.7 bps below your benchmark cost of 23.2 bps. This implies that your fund was low cost by 18.7 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	538,205	4.5 bp
- Your fund's benchmark	2,762,498	23.2 bp
= Your fund's cost savings	-2,224,293	-18.7 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	1,649,155	13.9 bp
More int. active % of total active	-2,559,914	-21.5 bp
Less overlays and unfunded strategies	-231,721	-1.9 bp
Total style impact	-1,142,480	-9.6 bp
<u>Paying more/-less for similar services:</u>		
External investment management	-135,511	-1.1 bp
Internal investment management	-879,795	-7.4 bp
Oversight, custodial and other	-66,506	-0.6 bp
Total impact of paying more /-less	-1,081,813	-9.1 bp
Total savings	-2,224,293	-18.7 bp

Benchmark cost calculation

Your 2022 benchmark cost was 23.2 basis points or 2.8 billion. 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 ¹ (B)	Benchmark €000s (A X B)
Asset management costs			
Stock - U.S.	1,454	12.1 bp	1,756
Stock - EAFE	10,062	22.0 bp	22,139
Stock - Emerging	40,554	41.4 bp	167,789
Stock - Global ⁴	756,551	22.0 bp	1,664,830
Fixed income - Global ⁴	323,105	6.6 bp	212,871
REITs	23,938	16.3 bp	39,055
Real estate	33,361	60.6 bp	202,174
Infrastructure	1,303	49.6 bp	6,456
Overlay Programs ²	1,190,327	1.9 bp	231,721
Benchmark for asset management	1,190,327	21.4 bp	2,548,789
Oversight, custody and other costs³			
Oversight	1,190,327	0.9 bp	
Trustee & custodial	1,190,327	0.5 bp	
Consulting	1,190,327	0.0 bp	
Audit	1,190,327	0.0 bp	
Other	1,190,327	0.1 bp	
Benchmark for oversight, custody, other	1,190,327	1.8 bp	213,708
Total benchmark cost		23.2 bp	2,762,498

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 - Global', 'Fixed income - Aggregate' for 'Fixed income - Global'.

Cost impact of differences in implementation style

Differences in implementation style (passive vs. active, internal vs. external, etc.) relative to your peers saved you 9.6 bps.

Implementation choices	Assets by style	Peer benchmark cost			Style 1 %			Cost/	
		Style 1	Style 2	Style 1 -Savings	Your	Peer average	More/ -Less	-Savings €000s	bps
	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 - U.S.	1,454	2 bp	35 bp	-33 bp	0%	69%	-69%	3,339	
Stock - EAFE	10,062	4 bp	30 bp	-26 bp	0%	31%	-31%	7,978	
Stock - Emerging	40,554	6 bp	57 bp	-51 bp	0%	31%	-31%	63,567	
Stock - Global	756,551	3 bp	40 bp	-37 bp	0%	48%	-48%	1,352,701	
Fixed income - Global	323,105	1 bp	13 bp	-12 bp	0%	56%	-56%	221,572	
Less passive								1,649,155	13.9 bp
<u>Internal active vs external active</u>	Active assets	Internal active	External active		Internal active % of active				
Stock - U.S.	1,454	12 bp	46 bp	-35 bp	0%	32%	-32%	1,640	
Stock - EAFE	10,062	6 bp	40 bp	-34 bp	0%	28%	-28%	9,650	
Stock - Emerging	40,554	25 bp	65 bp	-40 bp	0%	20%	-20%	33,135	
Stock - Global	756,551	11 bp	53 bp	-42 bp	100%	32%	68%	-2,199,113	
Fixed income - Global	323,105	3 bp	30 bp	-27 bp	100%	62%	38%	-329,470	
REITs	23,938	7 bp	42 bp	-35 bp	100%	74%	26%	-21,380	
Real estate	33,361	45 bp	68 bp	-23 bp	100%	33%	67%	-51,572	
Infrastructure	1,303	28 bp	118 bp	-90 bp	100%	76%	24%	-2,804	
More int. active % of total active								-2,559,914	-21.5 bp
Less overlays and unfunded strategies								-231,721	-1.9 bp
Total impact of differences in implementation style								-1,142,480	-9.6 bp

Cost impact of overlays

As summarized on the previous page, the style impact of overlays saved you 1.9 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)	
Internal Overlays				
Currency - Hedge	1,190,327	NA	0.01 bp	-769
Currency - Discretionary	1,190,327	NA	0.02 bp	-2,203
Rebalancing / Passive beta - Hedge	1,190,327	NA	0.01 bp	-935
Inflation linked - Hedge	1,190,327	NA	0.00 bp	-5
Global TAA - Discretionary	1,190,327	NA	0.06 bp	-6,899
Long/Short - Discretionary	1,190,327	NA	1.23 bp	-146,585
Other overlay - Discretionary	1,190,327	NA	0.00 bp	-578
External Overlays				
Currency - Hedge	1,190,327	NA	0.03 bp	-3,771
Currency - Discretionary	1,190,327	NA	0.02 bp	-2,455
Global TAA - Discretionary	1,190,327	NA	0.54 bp	-64,688
Long/Short - Discretionary	1,190,327	NA	0.02 bp	-2,833
Total impact in 000s				-231,721
Total impact in basis points				-1.9 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 9.1 bps.

	Style	Your avg holdings (mils) (A)	Cost in bps			Cost/-Savings	
			Your	Peer median	More/-less (B)	€000s (A X B)	bps
External asset management							
Stock - U.S. ¹	active	1,454	12.8	46.3	-33.5	-4,869	
Stock - EAFE	active	10,062	21.8	39.5	-17.8	-17,878	
Stock - Emerging	active	40,554	37.4	65.2	-27.8	-112,764	
Total for external management						-135,511	-1.1 bp
Internal asset management							
		(A)			(B)	(A X B)	
Stock - Global	active	756,551	1.6	10.8	-9.2	-693,601	
Fixed income - Global	active	323,105	1.3	3.2	-2.0	-63,933	
REITs	active	23,938	1.9	7.4	-5.5	-13,185	
Real estate	active	33,361	12.5	45.1	-32.6	-108,800	
Infrastructure	active	1,303	25.9	28.0	-2.1	-276	
Total for internal management						-879,795	-7.4 bp
Oversight, custody and other costs²							
Oversight			0.7	0.9	-0.2		
Trustee & custodial			0.4	0.5	-0.1		
Consulting			0.1	0.0	0.1		
Audit			0.0	0.0	0.0		
Other			0.0	0.1	-0.1		
Benchmark for oversight, custody, other		1,190,327	1.2	1.8	-0.6	-66,506	-0.6 bp
Total						-1,081,813	-9.1 bp

1. Universe median used because peer data was insufficient.

2. 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 ¹	More/-less	Your average assets (or fee basis)	More/-less in €000s		
					Total More/-less	Due to Impl. style	Due to paying more/less
Asset management costs	(A)	(B)	(C = A - B)	(D)	(C X D)		
Stock - U.S.	12.8 bp	12.1 bp	0.8 bp	1,454	110	4,979	-4,869
Stock - EAFE	21.8 bp	22.0 bp	-0.2 bp	10,062	-251	17,627	-17,878
Stock - Emerging	37.4 bp	41.4 bp	-4.0 bp	40,554	-16,062	96,702	-112,764
Stock - Global ⁴	1.6 bp	22.0 bp	-20.4 bp	756,551	-1,540,013	-846,412	-693,601
Fixed income - Global ⁴	1.3 bp	6.6 bp	-5.3 bp	323,105	-171,831	-107,898	-63,933
REITs	1.9 bp	16.3 bp	-14.4 bp	23,938	-34,565	-21,380	-13,185
Real estate	12.5 bp	60.6 bp	-48.1 bp	33,361	-160,372	-51,572	-108,800
Infrastructure	25.9 bp	49.6 bp	-23.6 bp	1,303	-3,080	-2,804	-276
Overlay Programs ²	0.0 bp	1.9 bp	-1.9 bp	1,190,327	-231,721	-231,721	0
Total asset management	3.3 bp	21.4 bp	-18.1 bp	1,190,327	-2,157,786	-1,142,480	-1,015,306
Oversight, custody and other costs³							
Oversight of the fund	0.7 bp	0.9 bp	-0.2 bp				
Trustee & custodial	0.4 bp	0.5 bp	-0.1 bp				
Consulting	0.1 bp	0.0 bp	0.1 bp				
Audit	0.0 bp	0.0 bp	0.0 bp				
Other	0.0 bp	0.1 bp	-0.1 bp				
Total oversight, custody & other	1.2 bp	1.8 bp	-0.6 bp	1,190,327	-66,506	n/a	-66,506
Total	4.5 bp	23.2 bp	-18.7 bp	1,190,327	-2,224,293	-1,142,480	-1,081,813

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.

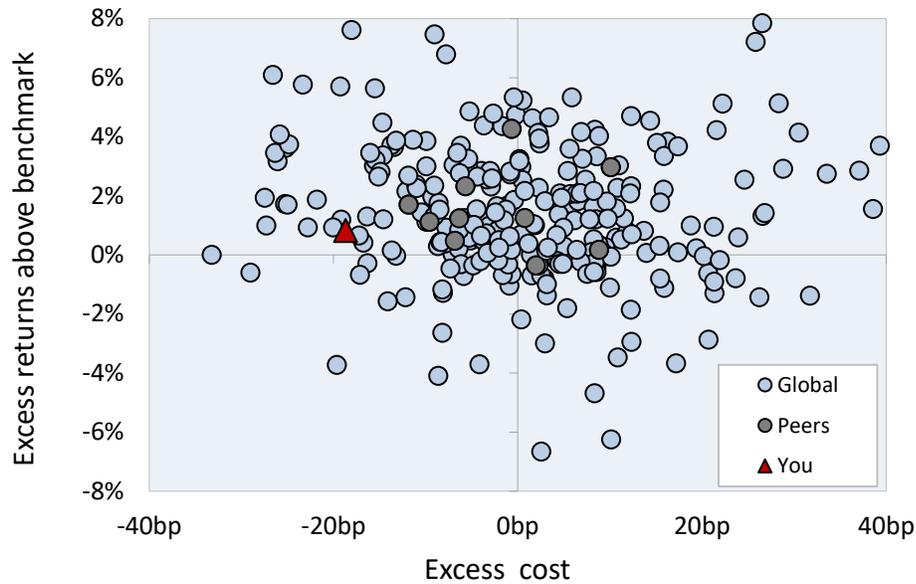
3. Benchmarks for oversight total and individual lines are based on peer medians. Sum of the lines may be different from the total.

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

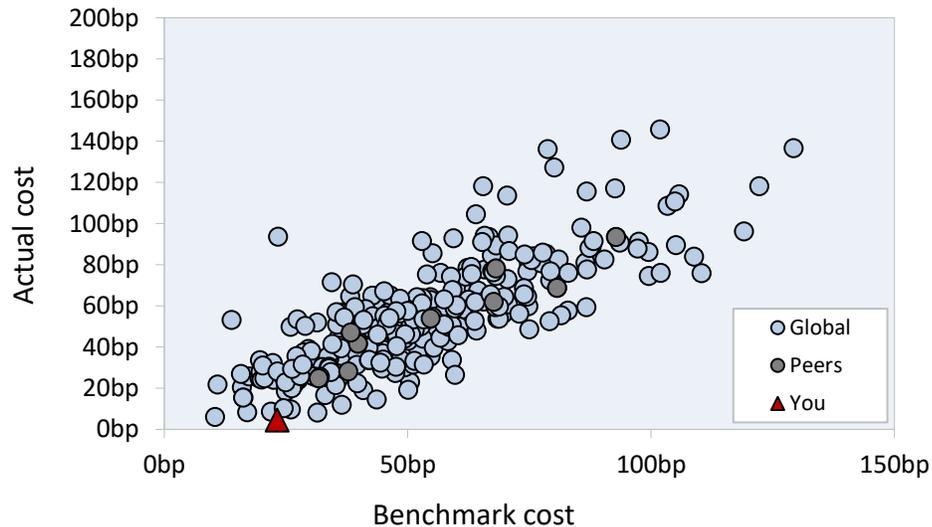
Your cost impact ranking

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 0.8%, Excess cost -19 bps



Your 2022 Actual cost 4.5 bps, Benchmark cost 23.2 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 - U.S.'

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

$$= (38\% \times 1.6 \text{ bp}) + (10\% \times 11.6 \text{ bp}) + (31\% \times 1.9 \text{ bp}) + (21\% \times 46.3 \text{ bp}) = 12.1 \text{ bp}$$

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

$$= 12.8 \text{ bp} - 12.1 \text{ bp} = 0.8 \text{ bp}$$

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)

$$= 23.0 \text{ bp} + 0.0 \text{ bp} + 11.3 \text{ bp} = 34.2 \text{ bp}$$

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

$$\begin{aligned} &= (\text{peer average passive cost} - \text{peer average active cost}) \times \\ &\quad (\text{passive \% of asset, you} - \text{passive \% of asset, peer average}) \\ &= (1.7 \text{ bp} - 35.0 \text{ bp}) \times (0\% - 69\%) = 23.0 \text{ bp} \end{aligned}$$

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

$$= [(38\% \times 1.6 \text{ bp}) + (31\% \times 1.9 \text{ bp})] / (38\% + 31\%) = 1.7 \text{ bp}$$

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

$$= [(10\% \times 11.6 \text{ bp}) + (21\% \times 46.3 \text{ bp})] / (10\% + 21\%) = 35.0 \text{ bp}$$

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

$$\begin{aligned} &= (\text{peer average internal passive cost} - \text{peer average external passive cost}) \times \\ &\quad (\text{internal passive \% of passive, you} - \text{internal passive \% of passive, peer average}) \times \text{passive \% of asset, you} \\ &= (1.6 \text{ bp} - 1.9 \text{ bp}) \times (0\% - 0\%) \times 0\% = 0.0 \text{ bp} \end{aligned}$$

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

$$\begin{aligned} &= (\text{peer average internal active cost} - \text{peer average external active cost}) \times \\ &\quad (\text{internal active \% of active, you} - \text{internal active \% of active, peer avg}) \times \text{active \% of asset, you} \\ &= (11.6 \text{ bp} - 46.3 \text{ bp}) \times (0\% - 32\%) \times 100\% = 11.3 \text{ bp} \end{aligned}$$

Cost impact of paying more/-less

$$\begin{aligned} &= (\text{cost internal passive, you} - \text{cost internal passive, peer}) \times \text{internal passive \% of asset, you} + \\ &\quad (\text{cost internal active, you} - \text{cost internal active, peer}) \times \text{internal active \% of asset, you} + \\ &\quad (\text{cost external passive, you} - \text{cost external passive, peer}) \times \text{external passive \% of asset, you} + \\ &\quad (\text{cost external active, you} - \text{cost external active, peer}) \times \text{external active \% of asset, you} \\ &= (0.0 \text{ bp} - 1.6 \text{ bp}) \times 0\% + (0.0 \text{ bp} - 11.6 \text{ bp}) \times 0\% + (0.0 \text{ bp} - 1.9 \text{ bp}) \times 0\% + (12.8 \text{ bp} - 46.3 \text{ bp}) \times 100\% = -33.5 \text{ bp} \end{aligned}$$

Your cost versus benchmark (-savings/+excess)

$$\begin{aligned} &= \text{cost impact of differences in implementation style} + \text{cost impact of paying more/-less} \\ &= 34.2 \text{ bp} + -33.5 \text{ bp} = 0.8 \text{ bp} \end{aligned}$$

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 - U.S.				12.8				1.6	11.6	1.9	46.3				12.1
Stock - EAFE				21.8				4.3	5.8	4.4	39.5				22.0
Stock - Emerging				37.4				4.8	25.1	10.4	65.2				41.4
Stock - Global		1.6						2.4	10.8	3.2	53.3				22.0
Fixed income - Global		1.3						1.0	3.2	3.9	30.4				6.6
REITs		1.9							7.4		42.2				16.3
Real estate		12.5							45.1		45.3	19.4	148.4	49.8	60.4
Underlying base fees														77.3	0.2
Infrastructure		25.9							28.0		83.3	23.9	152.0		49.6
Underlying base fees															0.0

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 - U.S.	0.0%	0.0%	0.0%	100.0%				37.7%	10.1%	31.2%	21.0%			
Stock - EAFE	0.0%	0.0%	0.0%	100.0%				24.9%	19.6%	6.0%	49.5%			
Stock - Emerging	0.0%	0.0%	0.0%	100.0%				25.7%	14.2%	4.8%	55.3%			
Stock - Global	0.0%	100.0%	0.0%	0.0%				40.0%	16.5%	7.9%	35.6%			
Fixed income - Global	0.0%	100.0%	0.0%	0.0%				50.7%	27.3%	5.7%	16.4%			
REITs		100.0%		0.0%					74.3%		25.7%			
Real estate		100.0%		0.0%	0.0%	0.0%	0.0%		33.0%		42.0%	8.0%	16.7%	0.3%
Underlying base fees		100.0%		0.0%	0.0%	0.0%	0.0%		33.0%		42.0%	8.0%	16.7%	0.3%
Infrastructure		100.0%		0.0%	0.0%	0.0%			76.1%		9.0%	1.5%	13.4%	
Underlying base fees		100.0%		0.0%	0.0%	0.0%			76.1%		9.0%	1.5%	13.4%	

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.

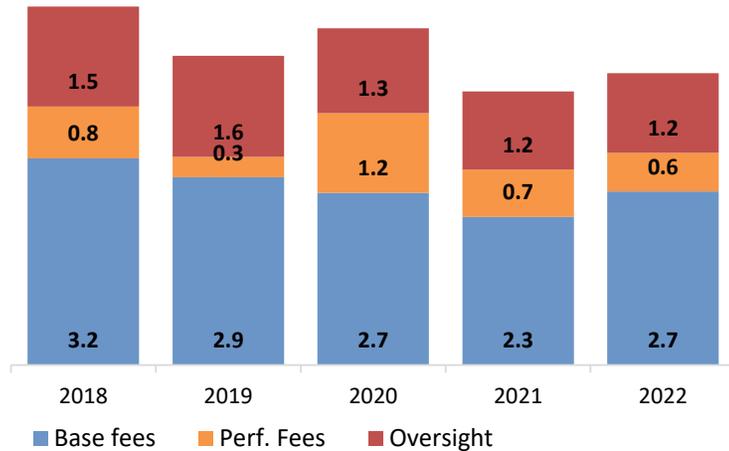
Further, cost difference for style & paying impacts (CostBpsH - CostBpsL) for one style =

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

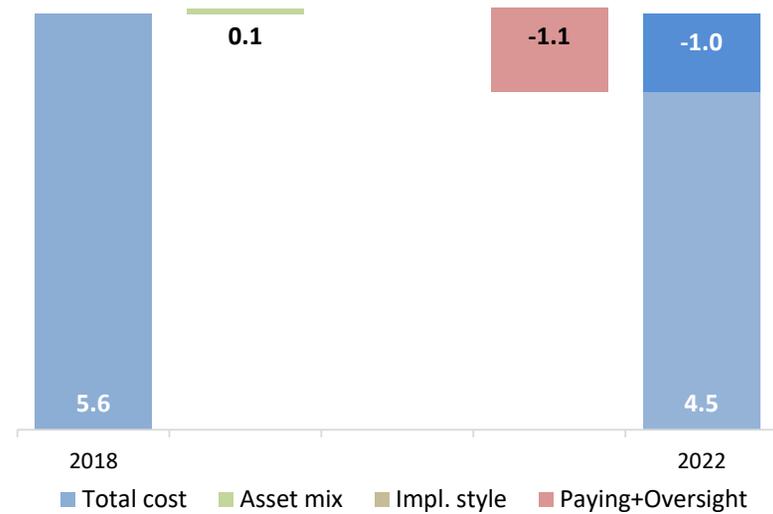
where CostStyleBps is the style cost in basis points; Wg is the weight for that style within the asset class.

Total plan cost and cost changes

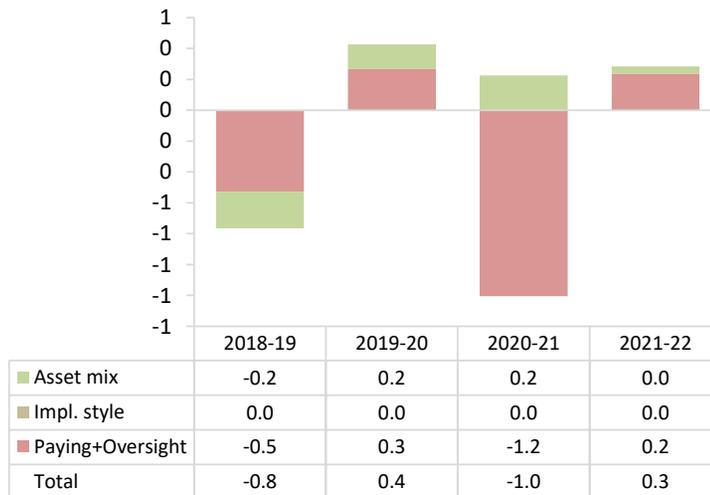
Total plan cost over time, bps



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 1.0 bps between 2018 and 2022 because of changes in: asset mix (0.1 bps), implementation style (0.0 bps), and paying more/less for similar services (-1.1 bps).

	bps	€000s
Starting total cost, 2018	5.6	484,442
Growth in asset value		176,873
Asset mix	<u>0.1</u>	<u>8,484</u>
Stock	0.0	3,553
Fixed income	-0.1	-6,041
Real estate ex-REITs	0.0	4,273
Real assets ex real estate	0.1	6,699
Implementation style (less expensive vs. more)	<u>0.0</u>	<u>0</u>
Paying more/-less for	<u>-0.8</u>	<u>-94,430</u>
Stock	-0.4	-51,258
Fixed income	-0.1	-10,372
Real estate ex-REITs	-0.3	-31,219
Real assets ex real estate	0.0	-1,581
Oversight, custodial, other (pay more/-less)	<u>-0.3</u>	<u>-37,164</u>
Total difference	-1.0	53,763
Ending total cost, 2022	4.5	538,205

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	5.6	484,442	4.8	449,051	5.2	504,268	4.2	475,755	5.6	484,442
Growth in asset value		36,448		13,928		81,422		28,643		176,873
Asset mix	-0.2	-22,378	0.2	15,189	0.2	25,352	0.0	5,612	0.1	8,484
Stock	-0.2	-21,855	0.2	14,775	0.3	31,628	0.0	-4,782	0.0	3,553
Fixed income	0.0	-3,151	0.0	-1,174	0.0	-4,015	0.0	2,637	-0.1	-6,041
Real estate ex-REITs	0.0	2,155	0.0	1,253	0.0	-5,503	0.1	5,997	0.0	4,273
Real assets ex real estate	0.0	474	0.0	334	0.0	3,242	0.0	1,761	0.1	6,699
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	-0.5	-51,049	0.5	50,467	-1.1	-123,512	0.2	24,886	-0.8	-94,430
Stock	-0.4	-40,066	0.7	65,117	-1.0	-113,330	0.2	23,935	-0.4	-51,258
Fixed income	0.0	2,331	0.0	-3,761	-0.1	-11,694	0.0	4,721	-0.1	-10,372
Real estate ex-REITs	-0.1	-12,296	-0.1	-11,565	0.0	2,645	0.0	-4,338	-0.3	-31,219
Real assets ex real estate	0.0	-1,018	0.0	677	0.0	-1,133	0.0	568	0.0	-1,581
Oversight, custodial, other (pay more/-less)	0.0	1,589	-0.3	-24,367	-0.1	-11,775	0.0	3,308	-0.3	-37,164
Total difference	-0.8	-35,390	0.4	55,216	-1.0	-28,513	0.3	62,449	-1.0	53,763
Ending total cost	4.8	449,051	5.2	504,268	4.2	475,755	4.5	538,205	4.5	538,205
	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 €54 million in 2022 compared to 2018. An increase of €177 million was due to the €318 billion rise in plan total average nav holdings. The remaining decrease of €123 million is explained by the changes in the asset mix (€8.5 million), implementation style (€0.0 thousand), and paying more/less for similar services (-€132 million).

Asset class ¹	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 - U.S.	855	3,223	0	-2,524	698	1,011	312	1,865
Stock - EAFE	27,553	-5,959	0	-9,766	-15,726	-5,666	10,060	21,887
Stock - Emerging	122,257	2,038	0	-17,205	-15,167	29,470	44,637	151,727
Stock - Global	104,260	4,252	0	-21,763	-17,510	20,556	38,066	124,816
Fixed income - Global	42,087	-6,041	0	-10,372	-16,413	-1,047	15,366	41,040
REITs	2,013	3,323	0	-1,581	1,742	2,477	735	4,490
Real estate	50,360	4,273	0	-31,219	-26,945	-8,559	18,387	41,801
Infrastructure	n/a	3,376	0	0	3,376	3,376	0	3,376
Total for asset management	349,386	8,484	0	-94,430	-85,946	41,617	127,563	391,003
Oversight	76,723			-16,169	-16,169	11,842	28,012	88,565
Trustee & custodial	14,930			-12,689	-12,689	-7,238	5,451	7,692
Consulting	39,045			-6,490	-6,490	7,766	14,256	46,811
Audit	4,358			-1,816	-1,816	-224	1,591	4,134
Other	0			0	0	0	0	0
Total for fund oversight ²	135,056			-37,164	-37,164	12,145	49,310	147,202
Total	484,442	8,484	0	-131,594	-123,110	53,763	176,873	538,205

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 1.0 bps in 2022 vs. 2018. It was driven by the changes in the asset mix (0.1 bps), implementation style (0.0 bps), and paying more/less for similar services (-1.1 bps).

Asset class	Asset mix bps	Implement. style bps	Paying more/-less bps	Total difference bps	Total ¹ ex asset gr. €000s
	B	C	D	B+C+D	
Stock - U.S.	0.0	0.0	0.0	0.0	698
Stock - EAFE	-0.1	0.0	-0.1	-0.1	-15,726
Stock - Emerging	0.0	0.0	-0.1	-0.1	-15,167
Stock - Global	0.0	0.0	-0.2	-0.1	-17,510
Fixed income - Global	-0.1	0.0	-0.1	-0.1	-16,413
REITs	0.0	0.0	0.0	0.0	1,742
Real estate	0.0	0.0	-0.3	-0.2	-26,945
Infrastructure	0.0	0.0	0.0	0.0	3,376
Total for asset management	0.1	0.0	-0.8	-0.7	-85,946
Oversight			-0.1	-0.1	-16,169
Trustee & custodial			-0.1	-0.1	-12,689
Consulting			-0.1	-0.1	-6,490
Audit			0.0	0.0	-1,816
Other			0.0	0.0	0
Total for fund oversight			-0.3	-0.3	-37,164
Total	0.1	0.0	-1.1	-1.0	-123,110
Total basis point costs in years 2022 and 2018		4.5	5.6	-1.0	

1. Calculated by multiplying total difference in bps by plan total nav average holdings for year 2022, €1,190 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 increased your total cost by €8.5 million or 0.1 bps.

Asset class	2018 Cost bps	2022 Cost bps	2018 asset ¹ weight %	2022 asset ¹ weight %	Change in asset weight	Asset mix changes ² bps	Asset mix changes ³ €000s
	A	B	C	D	E=D-C	A (or B) x E	
Stock - U.S.	30.2	12.8	0%	0%	0%	0.0	3,223
Stock - EAFE	31.5	21.8	1%	1%	0%	-0.1	-5,959
Stock - Emerging	41.7	37.4	3%	3%	0%	0.0	2,038
Stock - Global	1.9	1.6	62%	64%	2%	0.0	4,252
Fixed income - Global	1.6	1.3	30%	27%	-3%	-0.1	-6,041
REITs	2.5	1.9	1%	2%	1%	0.0	3,323
Real estate	21.9	12.5	3%	3%	0%	0.0	4,273
Infrastructure	n/a	25.9	0%	0%	0%	0.0	3,376
Total for asset management						0.1	8,484

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, €1,190 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 €132 million less for similar asset management and oversight / support services vs. 2018.

Asset class styles where you had assets in both 2022 and 2018 ¹	Style	2022 avg. assets €mils	Cost in bps		More/ -less	Cost/ -Savings €000s
			2022	2018		
<u>External asset management</u>		A			B	A x B
Stock - U.S.	active	1,454	12.8	30.2	-17.4	-2,524
Stock - EAFE	active	10,062	21.8	31.5	-9.7	-9,766
Stock - Emerging	active	40,554	37.4	41.7	-4.2	-17,205
Total for external management						-29,496
<u>Internal asset management</u>		A			B	A x B
Stock - Global	active	756,551	1.6	1.9	-0.3	-21,763
Fixed income - Global	active	323,105	1.3	1.6	-0.3	-10,372
REITs	active	23,938	1.9	2.5	-0.7	-1,581
Real estate	active	33,361	12.5	21.9	-9.4	-31,219
Total for internal management						-64,934
Oversight		1,190,327	0.7	0.9	-0.1	-16,169.5
Trustee & custodial		1,190,327	0.1	0.2	-0.1	-12,689
Consulting		1,190,327	0.4	0.4	-0.1	-6,490
Audit		1,190,327	0.0	0.0	0.0	-1,816
Other		1,190,327	0.0	0.0	0.0	0
Total for fund oversight						-37,164
Total						-131,594

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

5

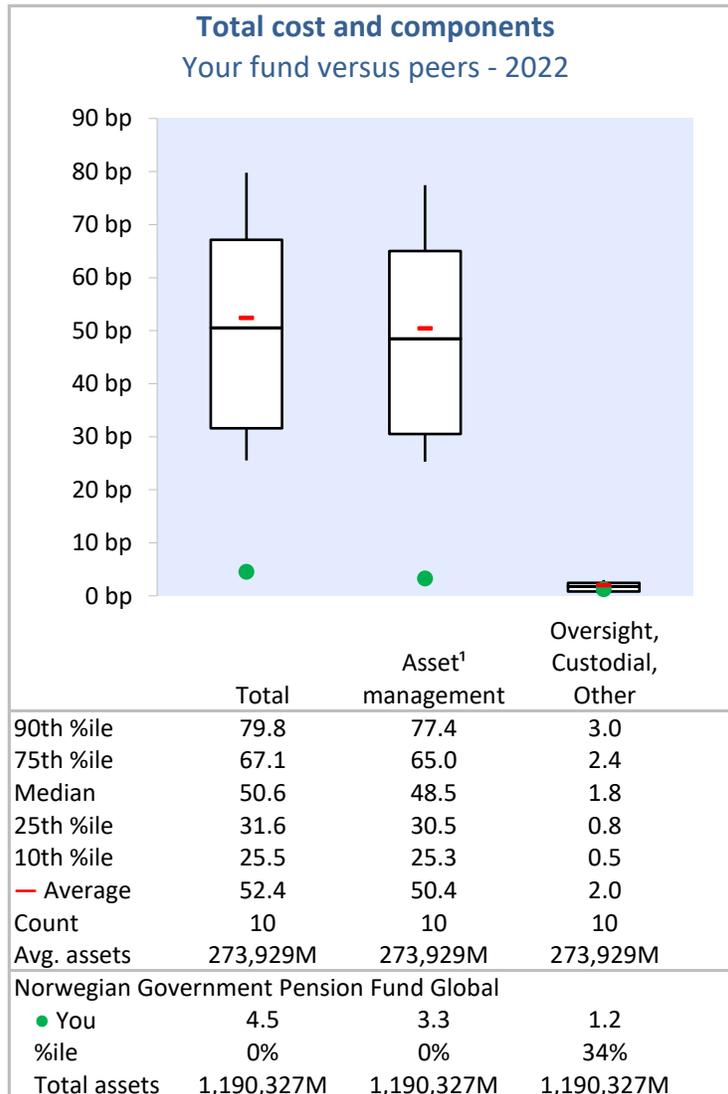
Cost comparisons

Total fund cost	2
Governance, operations & support	3
Public asset classes	
- Stock	4
- Fixed Income	10
- Commodities	21
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Total fund cost

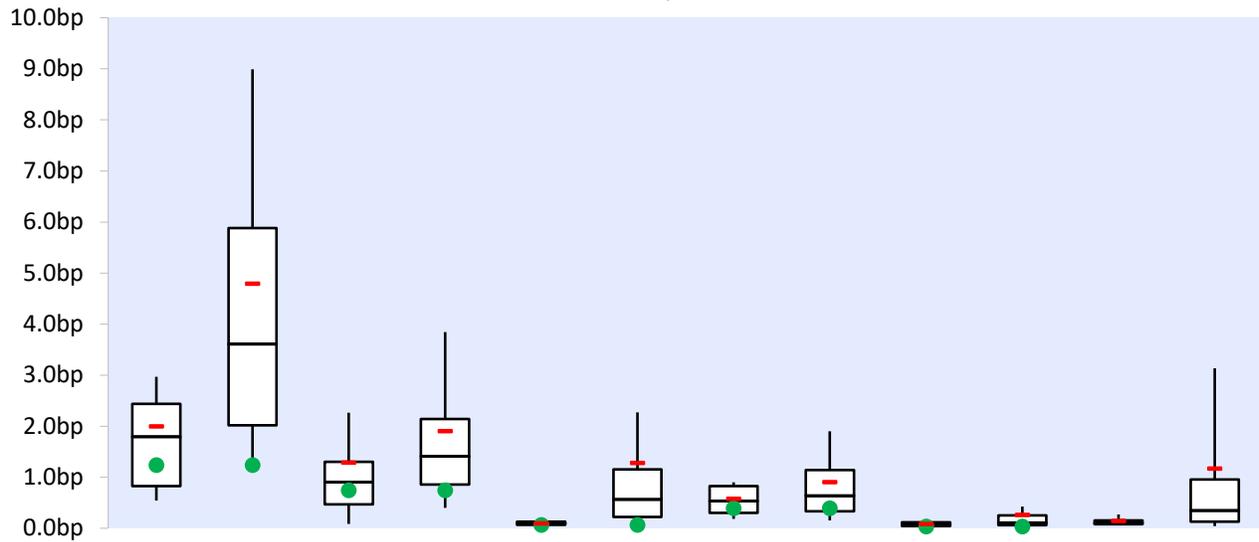
Total costs are benchmarked in the previous section. In this section, your fund's costs are compared on a line-item basis to your peers. This enables you to understand better why you may be a high or low cost fund and it also identifies and quantifies major cost differences that may warrant further investigation.

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.



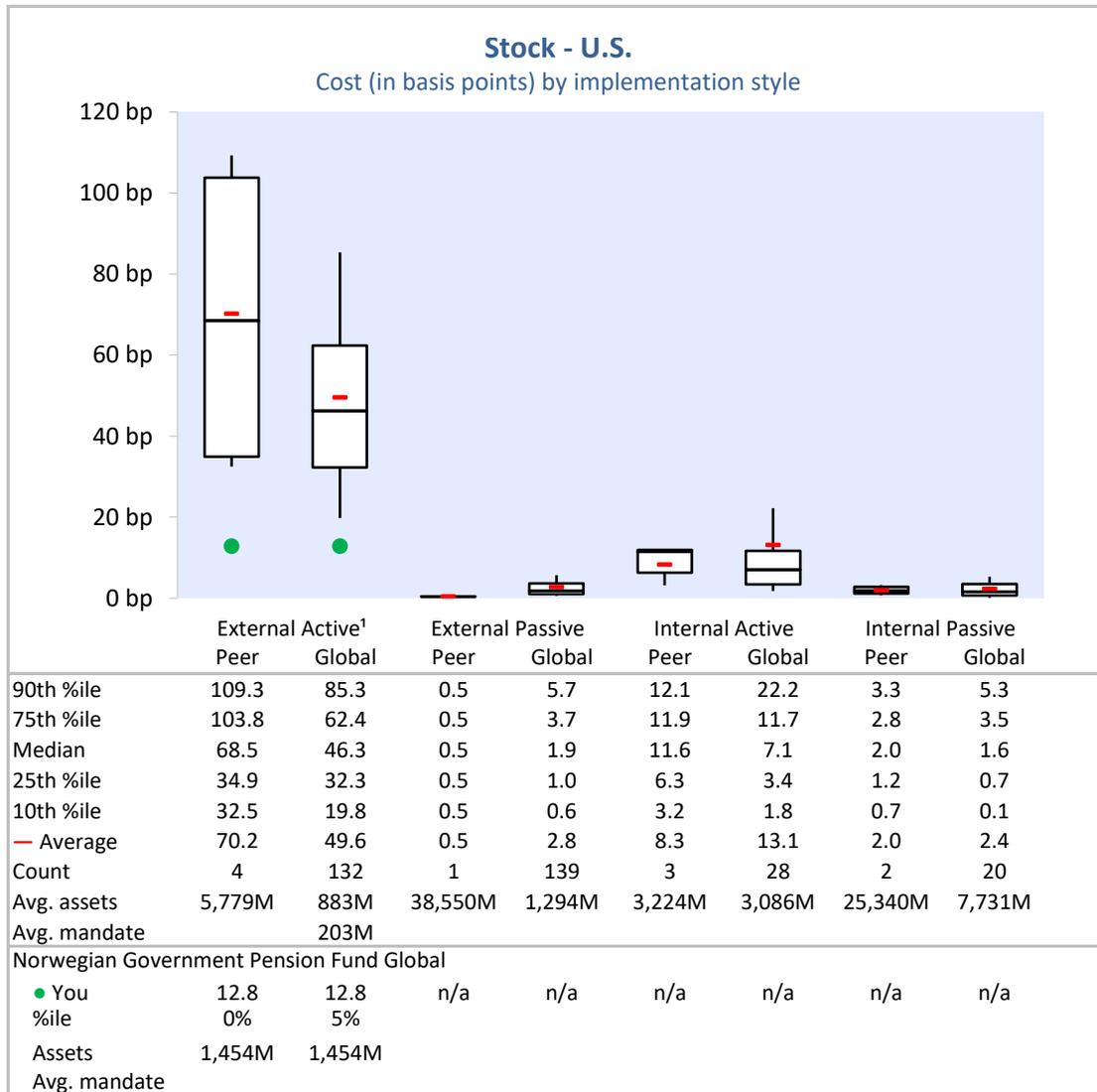
Governance, operations & support

Cost as a % of total plan assets



	Total		Oversight ¹		Consulting & Perf. Meas.		Custody		Audit		Other	
	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global
90th %ile	3.0	9.0	2.3	3.8	0.2	2.3	0.9	1.9	0.2	0.4	0.3	3.1
75th %ile	2.4	5.9	1.3	2.1	0.1	1.2	0.8	1.1	0.1	0.3	0.2	1.0
Median	1.8	3.6	0.9	1.4	0.1	0.6	0.5	0.6	0.1	0.1	0.1	0.4
25th %ile	0.8	2.0	0.5	0.9	0.1	0.2	0.3	0.3	0.0	0.1	0.1	0.1
10th %ile	0.5	1.2	0.1	0.4	0.0	0.1	0.2	0.2	0.0	0.0	0.1	0.0
— Average	2.0	4.8	1.3	1.9	0.1	1.3	0.6	0.9	0.1	0.3	0.1	1.2
Count	10	294	10	294	3	234	9	278	7	246	7	197
Avg. assets	273,929M	28,642M	273,929M	28,642M	273,929M	28,642M	273,929M	28,642M	273,929M	28,642M	273,929M	28,642M
Norwegian Government Pension Fund Global												
● You	1.2	1.2	0.7	0.7	0.1	0.1	0.4	0.4	0.0	0.0	n/a	n/a
%ile	34%	13%	38%	22%	24%	6%	34%	32%	10%	12%		
Plan assets	1,190,327M	1,190,327M	1,190,327M	1,190,327M	1,190,327M	1,190,327M	1,190,327M	1,190,327M	1,190,327M	1,190,327M	1,190,327M	1,190,327M

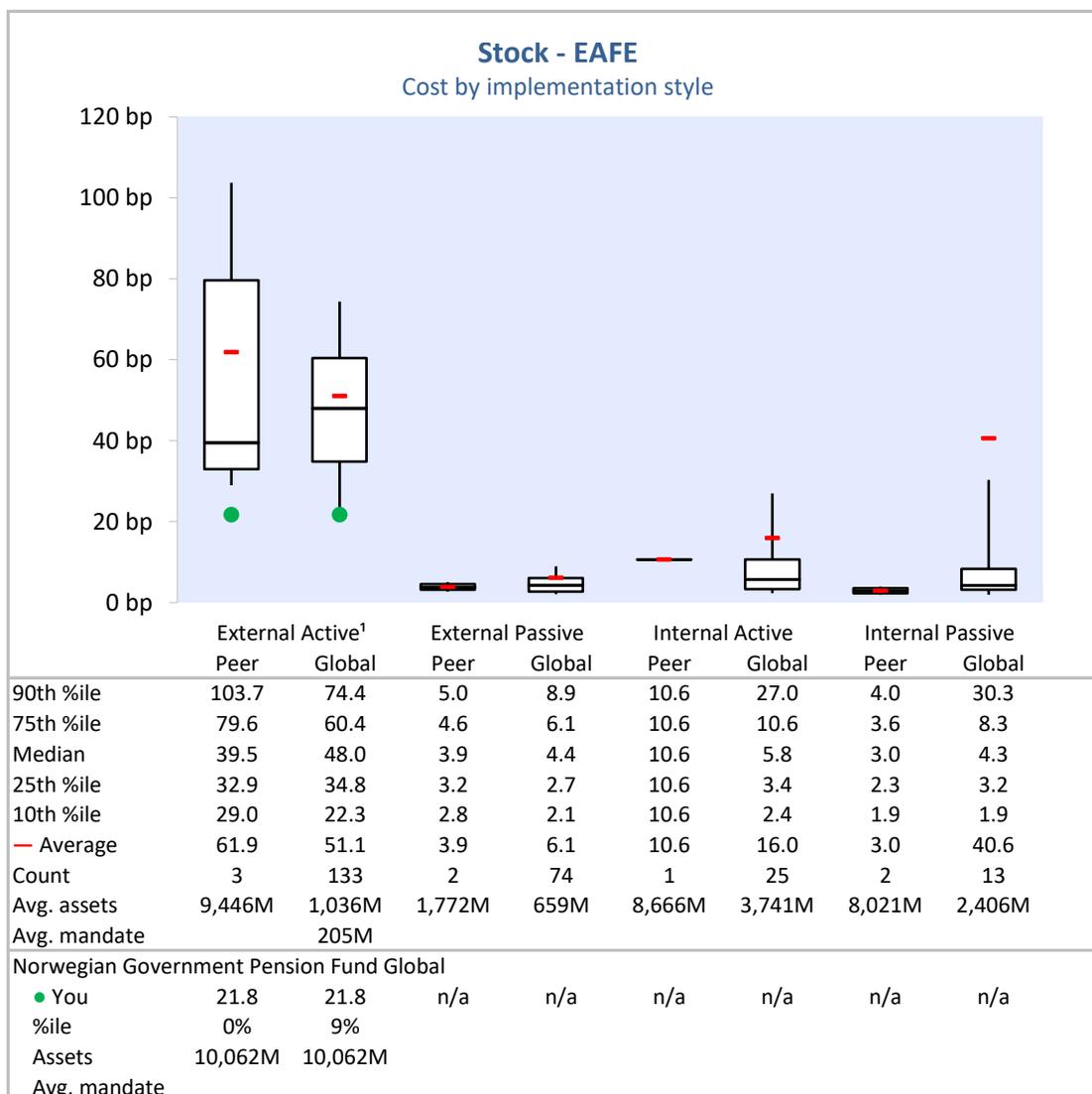
1. Oversight costs include the salaries and benefits of executives and their staff responsible for overseeing the entire fund or multiple asset classes and the fees/salaries of the Board or Investment Committee. All costs associated with the above including fees/salaries, travel, director's insurance 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	17.7	30.3	44.0
Performance fees*	-6.7	30.5	4.6
Internal and other	<u>1.8</u>	<u>9.5</u>	<u>0.9</u>
Total	12.8	70.2	49.6

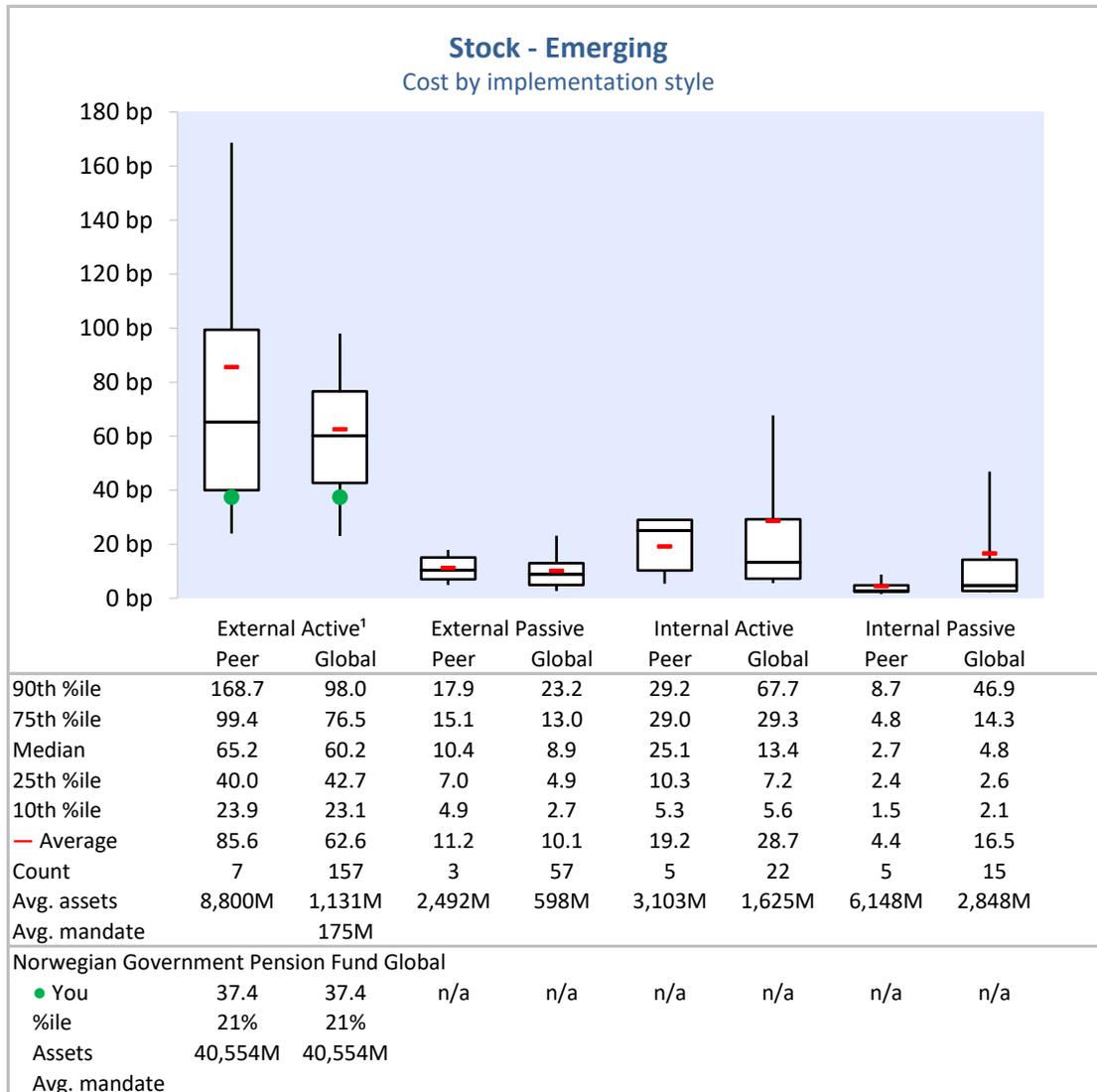
* For funds that did not report a performance fee, a value of 'zero' was used. The average performance fee for those funds that reported a performance fee is 40.6 bps for peers (3 funds) and 12.7 bps for Global participants (48 funds).



1. Breakdown of external active fees

	You	Peer Average	Global Average
Base fees	16.9	34.0	44.0
Performance fees*	3.1	26.5	6.1
Internal and other	<u>1.8</u>	<u>1.4</u>	<u>0.9</u>
Total	21.8	61.9	51.1

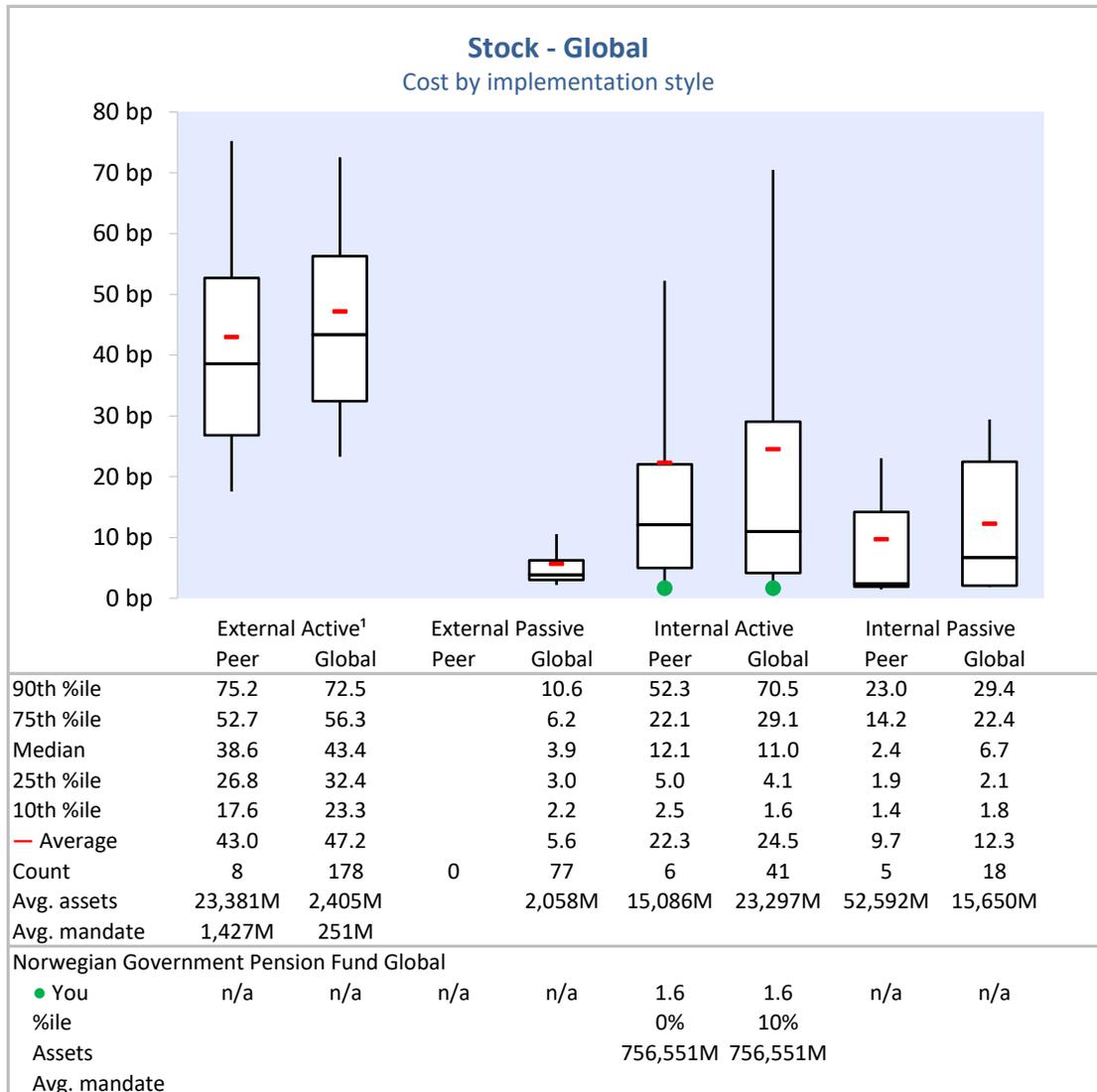
* For funds that did not report a performance fee, a value of 'zero' was used. The average performance fee for those funds that reported a performance fee is 39.8 bps for peers (2 funds) and 17.8 bps for Global participants (46 funds).



1. Breakdown of external active fees

	You	Peer Average	Global Average
Base fees	18.7	50.3	56.2
Performance fees*	17.0	28.1	4.8
Internal and other	<u>1.8</u>	<u>7.2</u>	<u>1.6</u>
Total	37.4	85.6	62.6

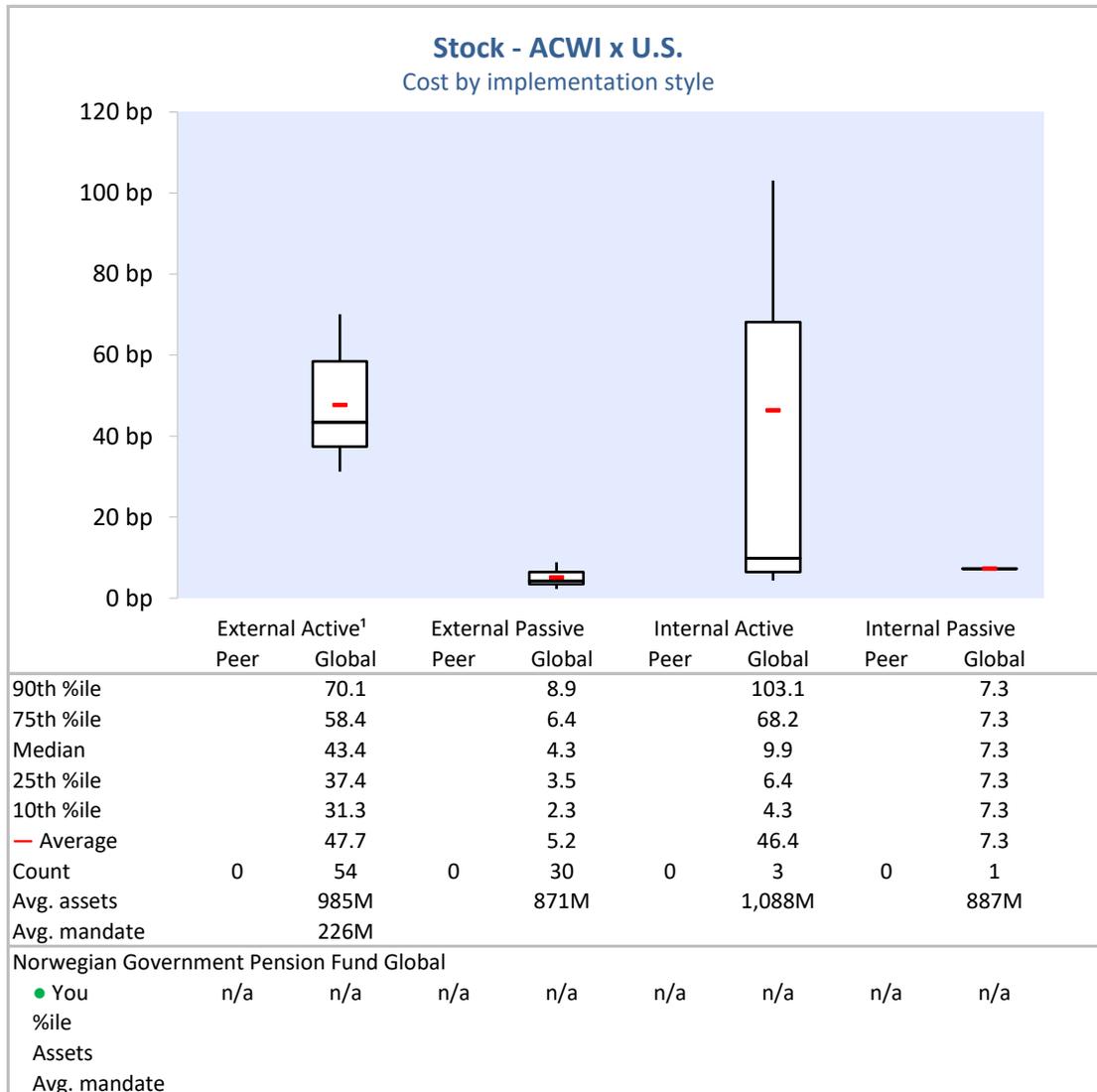
* For funds that did not report a performance fee, a value of 'zero' was used. The average performance fee for those funds that reported a performance fee is 32.8 bps for peers (6 funds) and 12.6 bps for Global participants (60 funds).



1. Breakdown of external active fees

	You	Peer Average	Global Average
Base fees	n/a	32.2	39.0
Performance fees*	n/a	7.9	6.7
Internal and other	<u>n/a</u>	<u>2.9</u>	<u>1.5</u>
Total	n/a	43.0	47.2

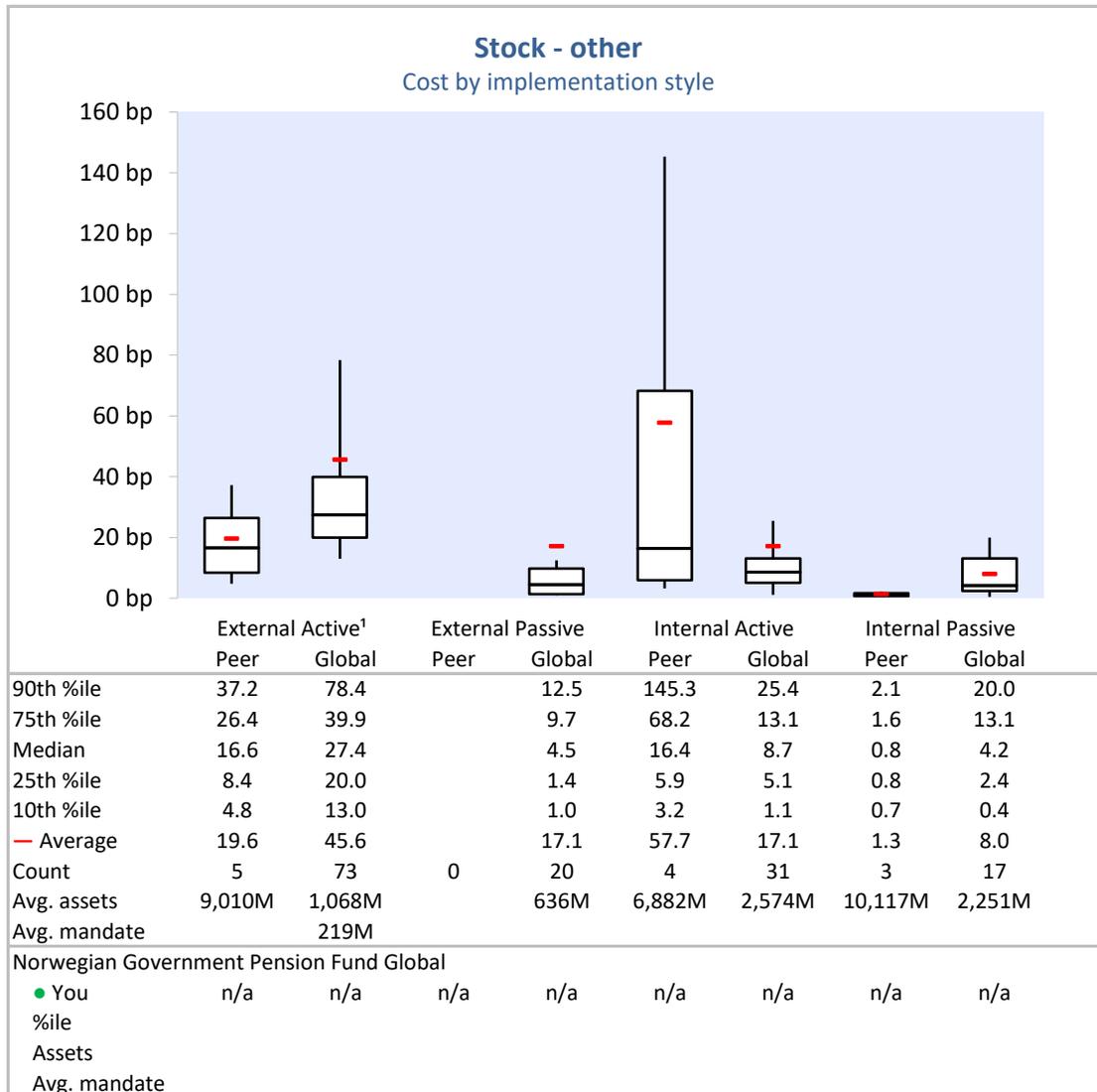
* For funds that did not report a performance fee, a value of 'zero' was used. The average performance fee for those funds that reported a performance fee is 9.0 bps for peers (7 funds) and 17.0 bps for Global participants (70 funds).



1. Breakdown of external active fees

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

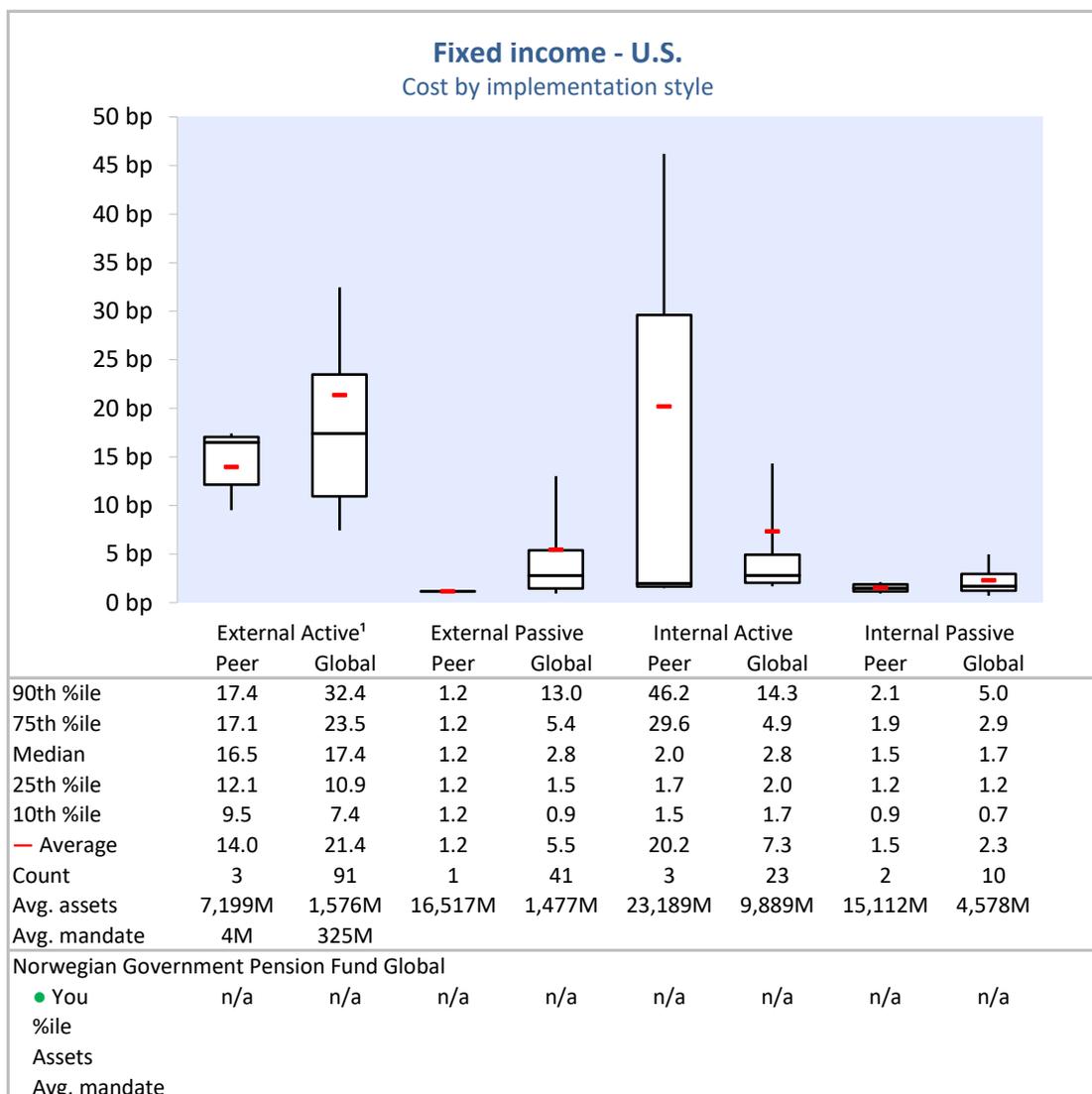
* For funds that did not report a performance fee, a value of 'zero' was used. The average performance fee for those funds that reported a performance fee is 6.2 bps for Global participants (15 funds).



1. Breakdown of external active fees

	You	Peer Average	Global Average
Base fees	n/a	16.8	43.3
Performance fees*	n/a	0.5	0.5
Internal and other	<u>n/a</u>	<u>2.4</u>	<u>1.8</u>
Total	n/a	19.6	45.6

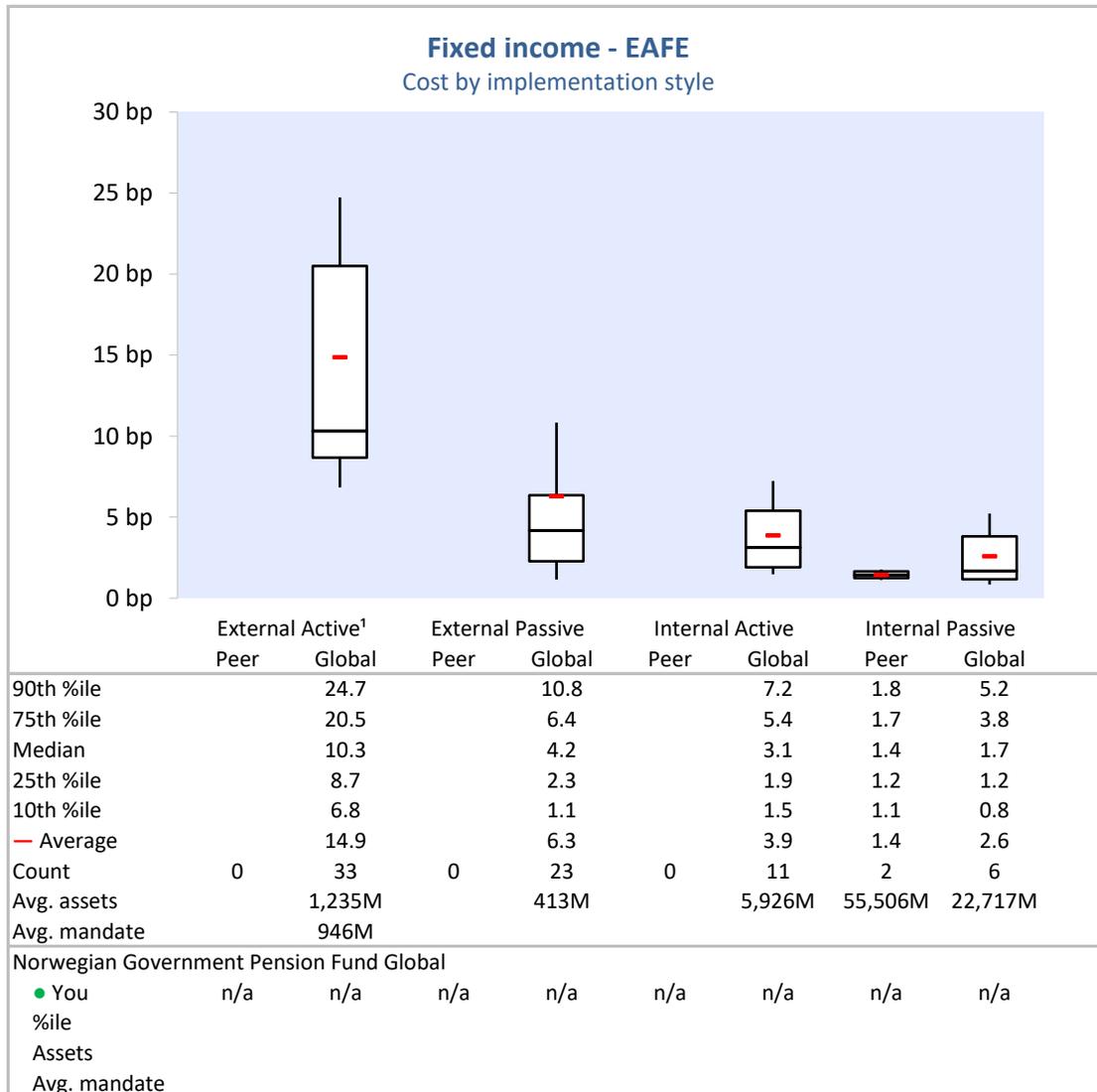
* For funds that did not report a performance fee, a value of 'zero' was used. The average performance fee for those funds that reported a performance fee is 1.3 bps for peers (2 funds) and 1.6 bps for Global participants (22 funds).



1. Breakdown of external active fees

	You	Peer Average	Global Average
Base fees	n/a	12.7	19.8
Performance fees*	n/a	0.2	0.9
Internal and other	<u>n/a</u>	<u>1.1</u>	<u>0.6</u>
Total	n/a	14.0	21.4

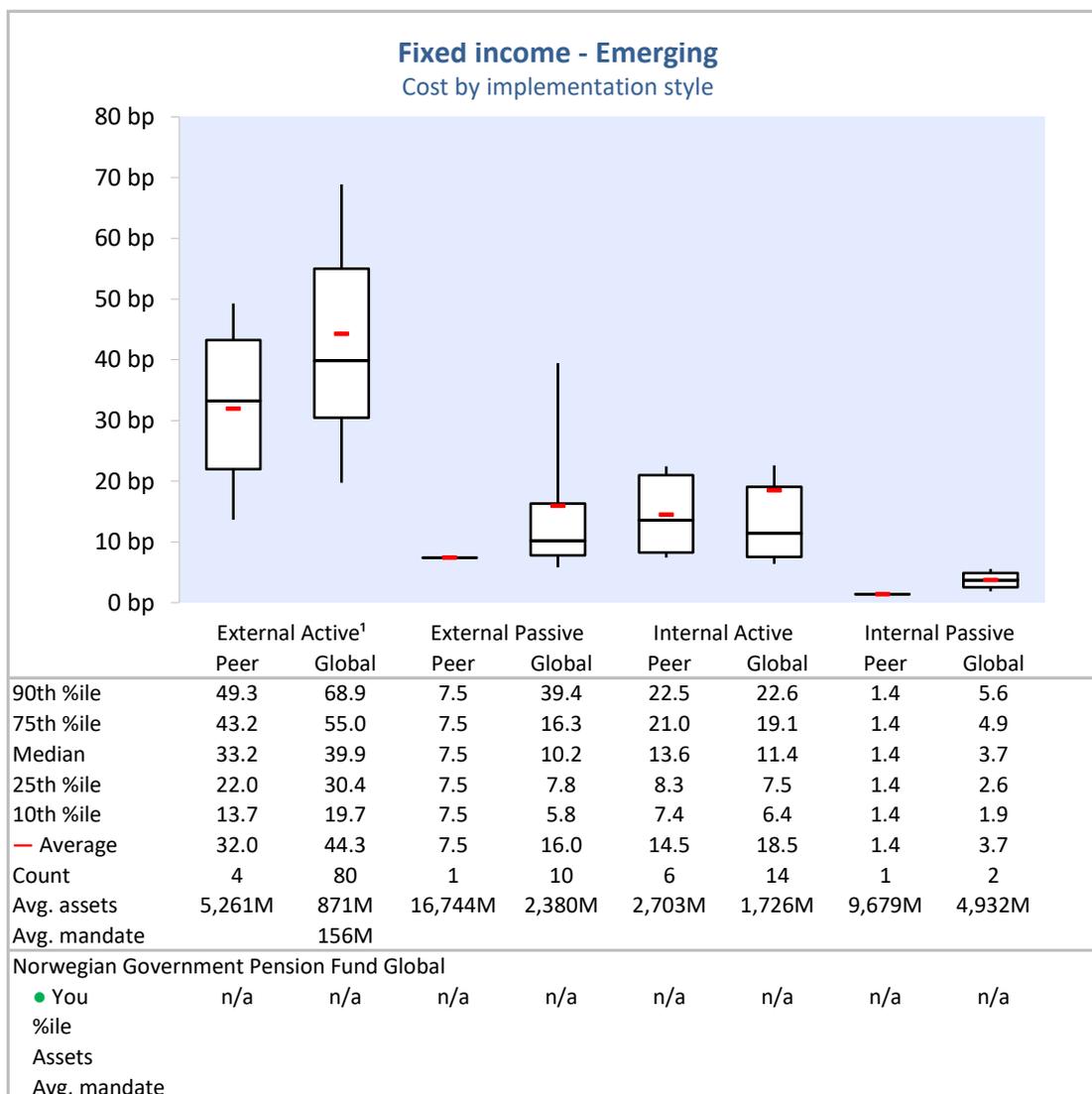
* For funds that did not report a performance fee, a value of 'zero' was used. The average performance fee for those funds that reported a performance fee is 0.5 bps for peers (1 fund) and 3.5 bps for Global participants (25 funds).



1. Breakdown of external active fees

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

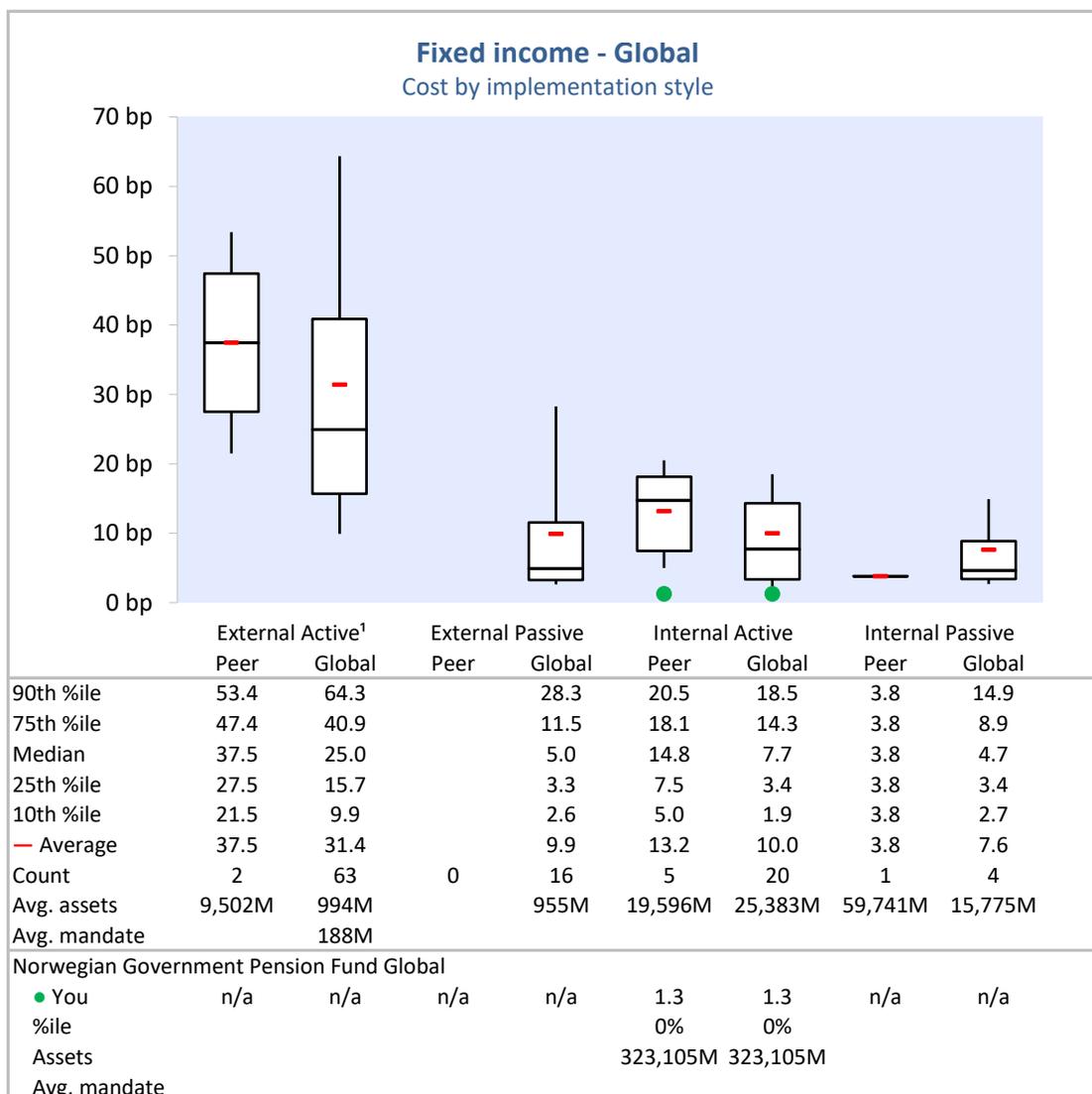
* For funds that did not report a performance fee, a value of 'zero' was used. The average performance fee for those funds that reported a performance fee is 1.2 bps for Global participants (21 funds).



1. Breakdown of external active fees

	You	Peer Average	Global Average
Base fees	n/a	24.0	40.5
Performance fees*	n/a	1.0	0.5
Internal and other	<u>n/a</u>	<u>6.9</u>	<u>3.3</u>
Total	n/a	32.0	44.3

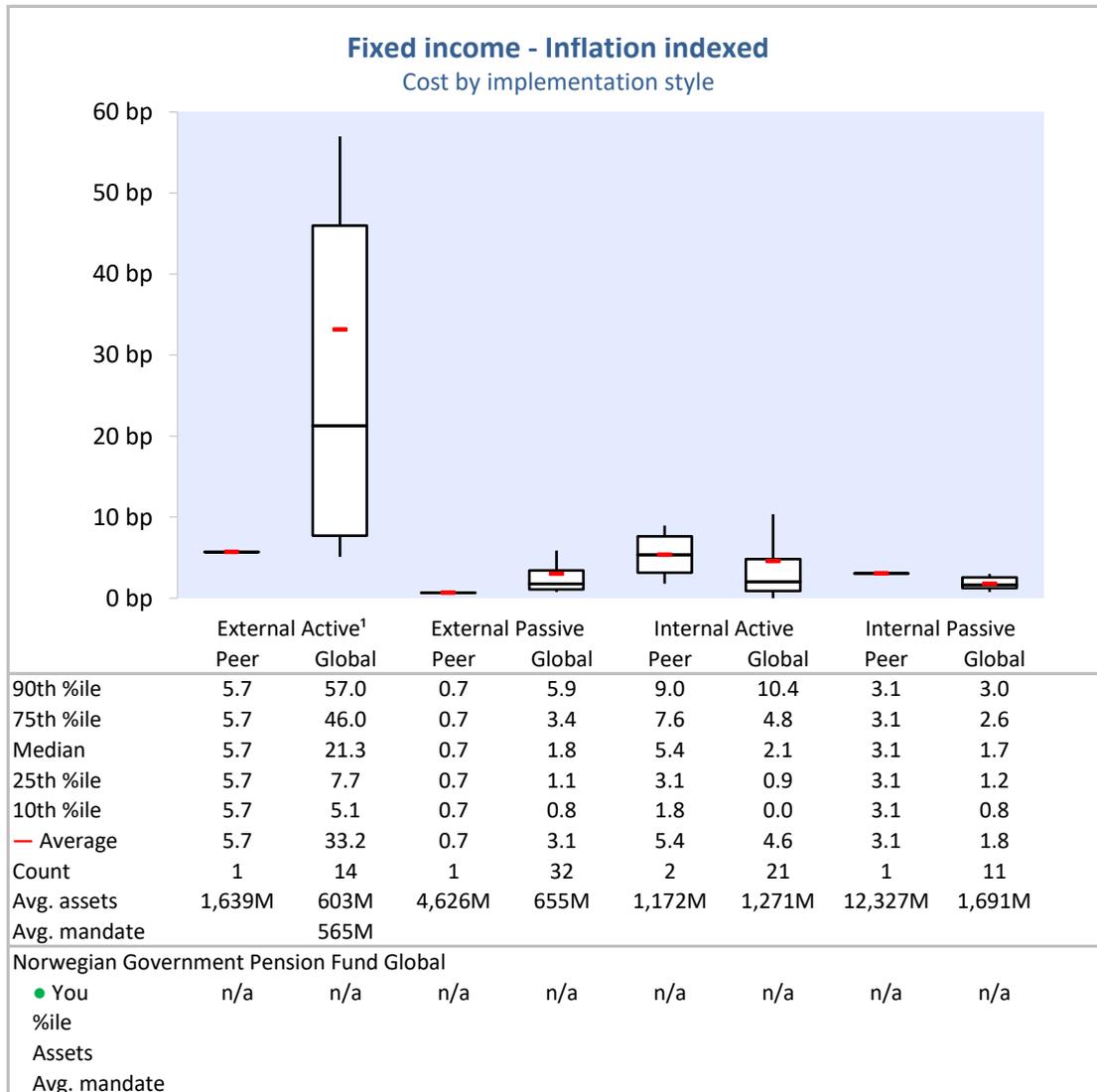
* For funds that did not report a performance fee, a value of 'zero' was used. The average performance fee for those funds that reported a performance fee is 1.0 bps for peers (4 funds) and 1.1 bps for Global participants (33 funds).



1. Breakdown of external active fees

	You	Peer Average	Global Average
Base fees	n/a	15.3	27.8
Performance fees*	n/a	-5.0	0.2
Internal and other	<u>n/a</u>	<u>27.2</u>	<u>3.4</u>
Total	n/a	37.5	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 -5.0 bps for peers (2 funds) and 0.7 bps for Global participants (19 funds).

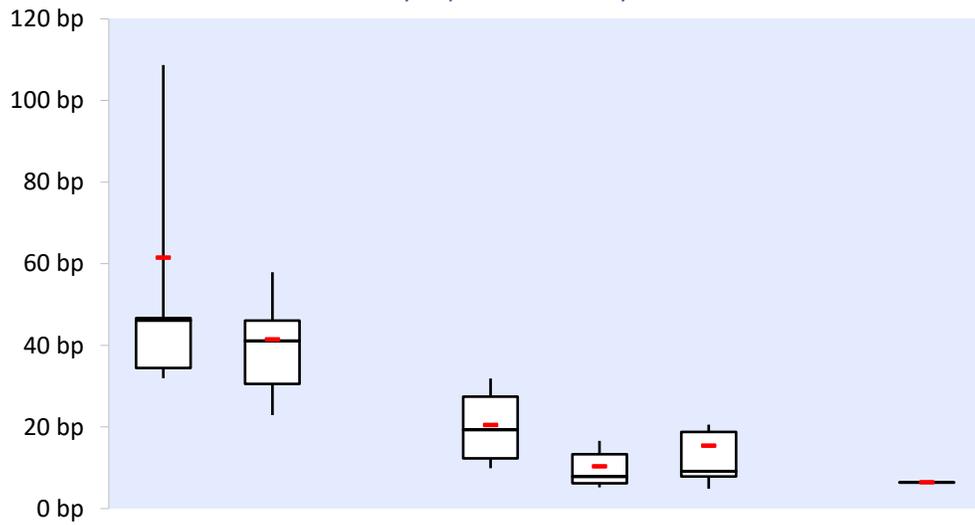


1. Breakdown of external active fees

	You	Peer Average	Global Average
Base fees	n/a	5.5	24.8
Performance fees*	n/a	n/a	8.0
Internal and other	<u>n/a</u>	<u>0.2</u>	<u>0.4</u>
Total	n/a	5.7	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



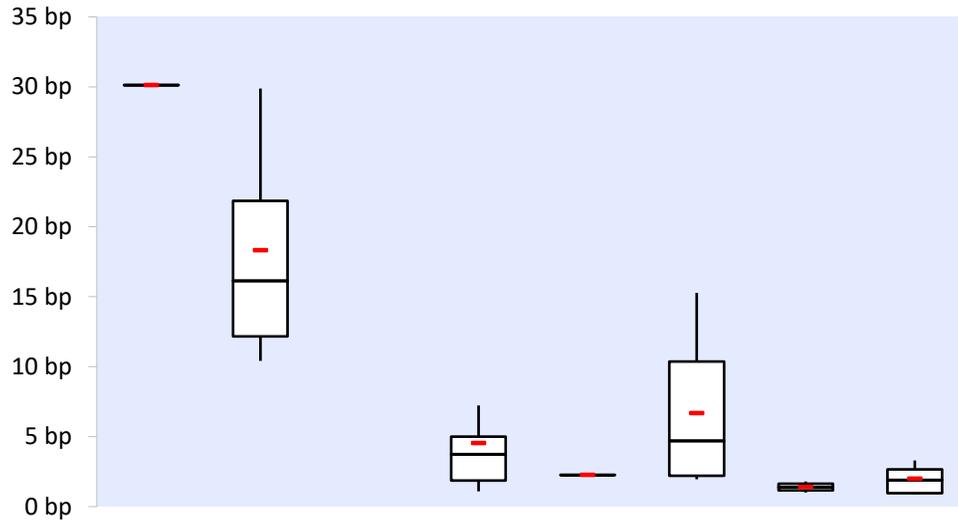
	External Active ¹		External Passive		Internal Active		Internal Passive	
	Peer	Global	Peer	Global	Peer	Global	Peer	Global
90th %ile	108.7	57.9		31.9	16.6	20.6		6.4
75th %ile	46.7	46.0		27.5	13.3	18.8		6.4
Median	46.1	41.1		19.3	7.9	9.2		6.4
25th %ile	34.4	30.6		12.3	6.2	7.9		6.4
10th %ile	32.0	22.9		9.9	5.2	4.9		6.4
— Average	61.5	41.5		20.5	10.4	15.5		6.4
Count	5	85	0	4	3	13	0	1
Avg. assets	3,477M	732M		595M	4,765M	1,928M		766M
Avg. mandate	639M	193M						
Norwegian Government Pension Fund Global								
● 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	54.7	37.2
Performance fees*	n/a	3.6	2.1
Internal and other	<u>n/a</u>	<u>3.2</u>	<u>2.1</u>
Total	n/a	61.5	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 9.1 bps for peers (2 funds) and 5.7 bps for Global participants (31 funds).

Fixed income - Long bonds Cost by implementation style



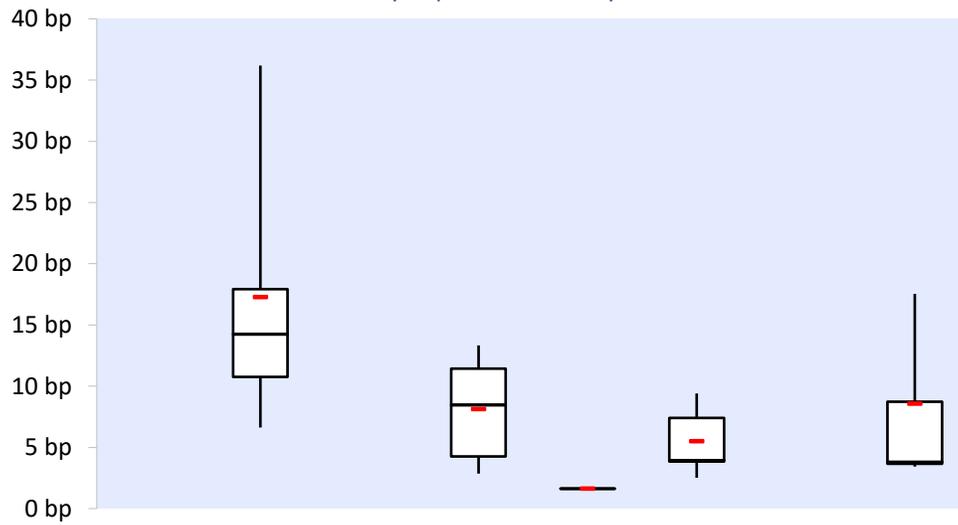
	External Active ¹		External Passive		Internal Active		Internal Passive	
	Peer	Global	Peer	Global	Peer	Global	Peer	Global
90th %ile	30.1	29.9		7.2	2.3	15.3	1.8	3.3
75th %ile	30.1	21.9		5.0	2.3	10.4	1.6	2.7
Median	30.1	16.1		3.7	2.3	4.7	1.4	1.9
25th %ile	30.1	12.2		1.9	2.3	2.2	1.2	1.0
10th %ile	30.1	10.4		1.1	2.3	1.9	1.0	0.9
— Average	30.1	18.3		4.5	2.3	6.7	1.4	2.0
Count	1	92	0	34	1	15	2	9
Avg. assets	963M	2,756M		238M	6,186M	2,482M	13,498M	4,924M
Avg. mandate		401M						
Norwegian Government Pension Fund Global								
● 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	13.1	16.1
Performance fees*	n/a	16.4	1.6
Internal and other	<u>n/a</u>	<u>0.7</u>	<u>0.7</u>
Total	n/a	30.1	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 16.4 bps for peers (1 fund) and 6.9 bps for Global participants (21 funds).

Fixed income - Bundled LDI Cost by implementation style



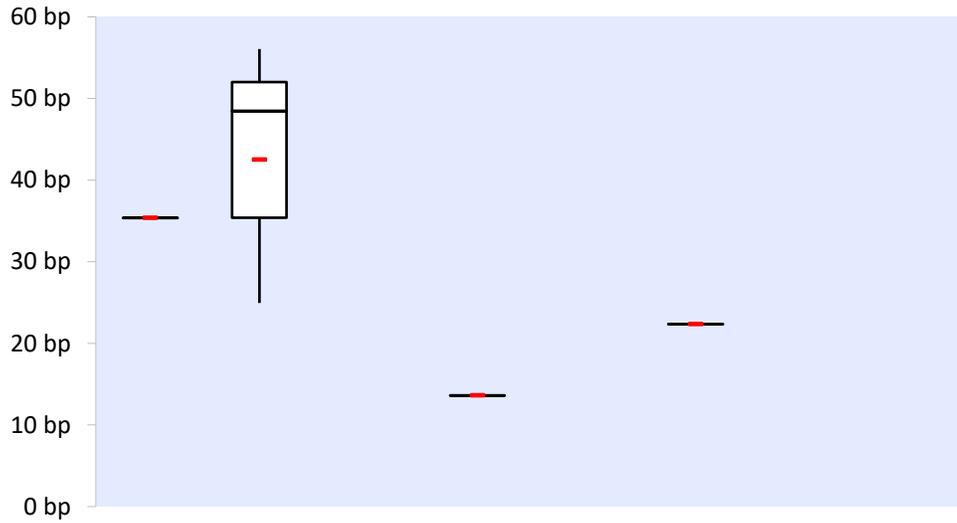
	External Active ¹		External Passive		Internal Active		Internal Passive	
	Peer	Global	Peer	Global	Peer	Global	Peer	Global
90th %ile		36.2		13.3	1.6	9.4		17.6
75th %ile		17.9		11.4	1.6	7.4		8.7
Median		14.2		8.5	1.6	4.0		3.8
25th %ile		10.8		4.3	1.6	3.9		3.7
10th %ile		6.6		2.8	1.6	2.5		3.4
— Average		17.3		8.1	1.6	5.5		8.6
Count	0	20	0	8	1	5	0	4
Avg. assets		3,136M		3,664M	60,106M	16,244M		6,975M
Avg. mandate		454M						
Norwegian Government Pension Fund Global								
● 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	n/a	15.7
Performance fees*	n/a	n/a	0.0
Internal and other	<u>n/a</u>	<u>n/a</u>	<u>1.6</u>
Total	n/a	n/a	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 Global participants (4 funds).

Fixed income - Convertibles Cost by implementation style



	External Active ¹		External Passive		Internal Active		Internal Passive	
	Peer	Global	Peer	Global	Peer	Global	Peer	Global
90th %ile	35.4	56.1		13.6		22.4		
75th %ile	35.4	52.0		13.6		22.4		
Median	35.4	48.5		13.6		22.4		
25th %ile	35.4	35.4		13.6		22.4		
10th %ile	35.4	24.9		13.6		22.4		
— Average	35.4	42.5		13.6		22.4		
Count	1	5	0	1	0	1	0	0
Avg. assets	1,670M	447M		0M		656M		
Avg. mandate		66M						
Norwegian Government Pension Fund Global								
● 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	35.0	42.3
Performance fees*	n/a	n/a	n/a
Internal and other	<u>n/a</u>	<u>0.4</u>	<u>0.2</u>
Total	n/a	35.4	42.5

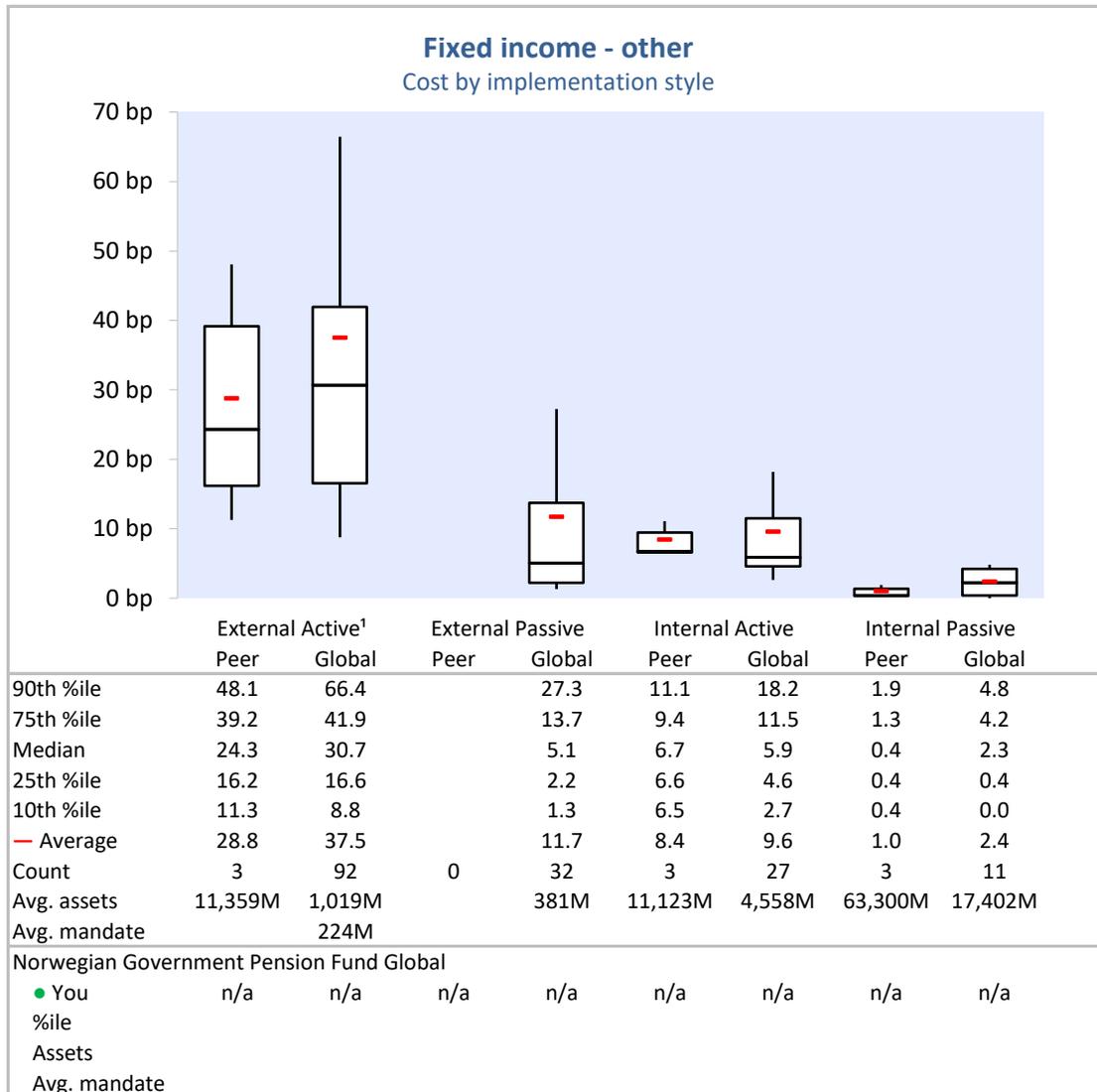
No funds reported a performance fee.



1. Breakdown of external active fees

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

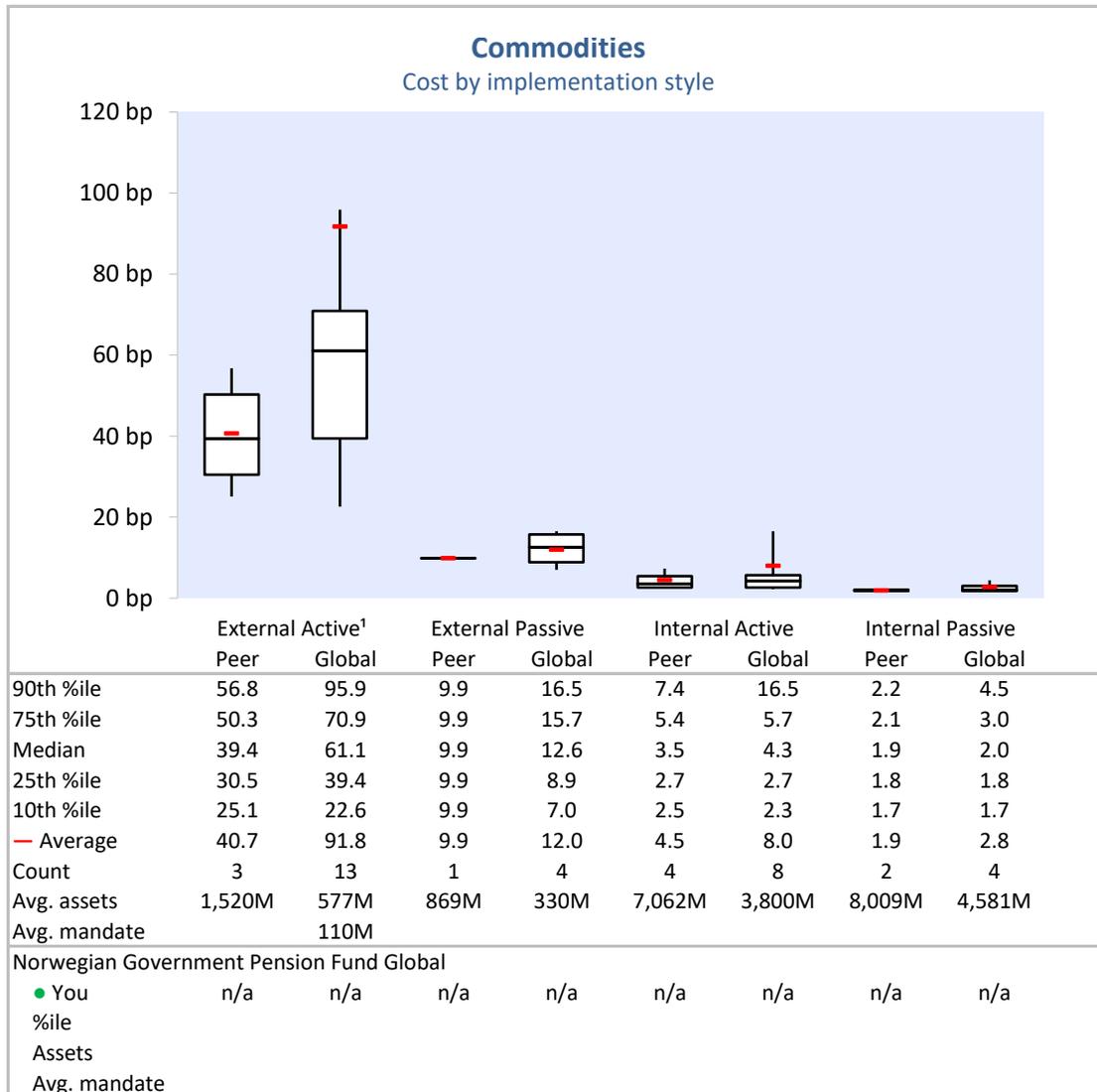
No funds reported a performance fee.



1. Breakdown of external active fees

	You	Peer Average	Global Average
Base fees	n/a	26.3	32.7
Performance fees*	n/a	0.0	3.9
Internal and other	<u>n/a</u>	<u>2.5</u>	<u>0.9</u>
Total	n/a	28.8	37.5

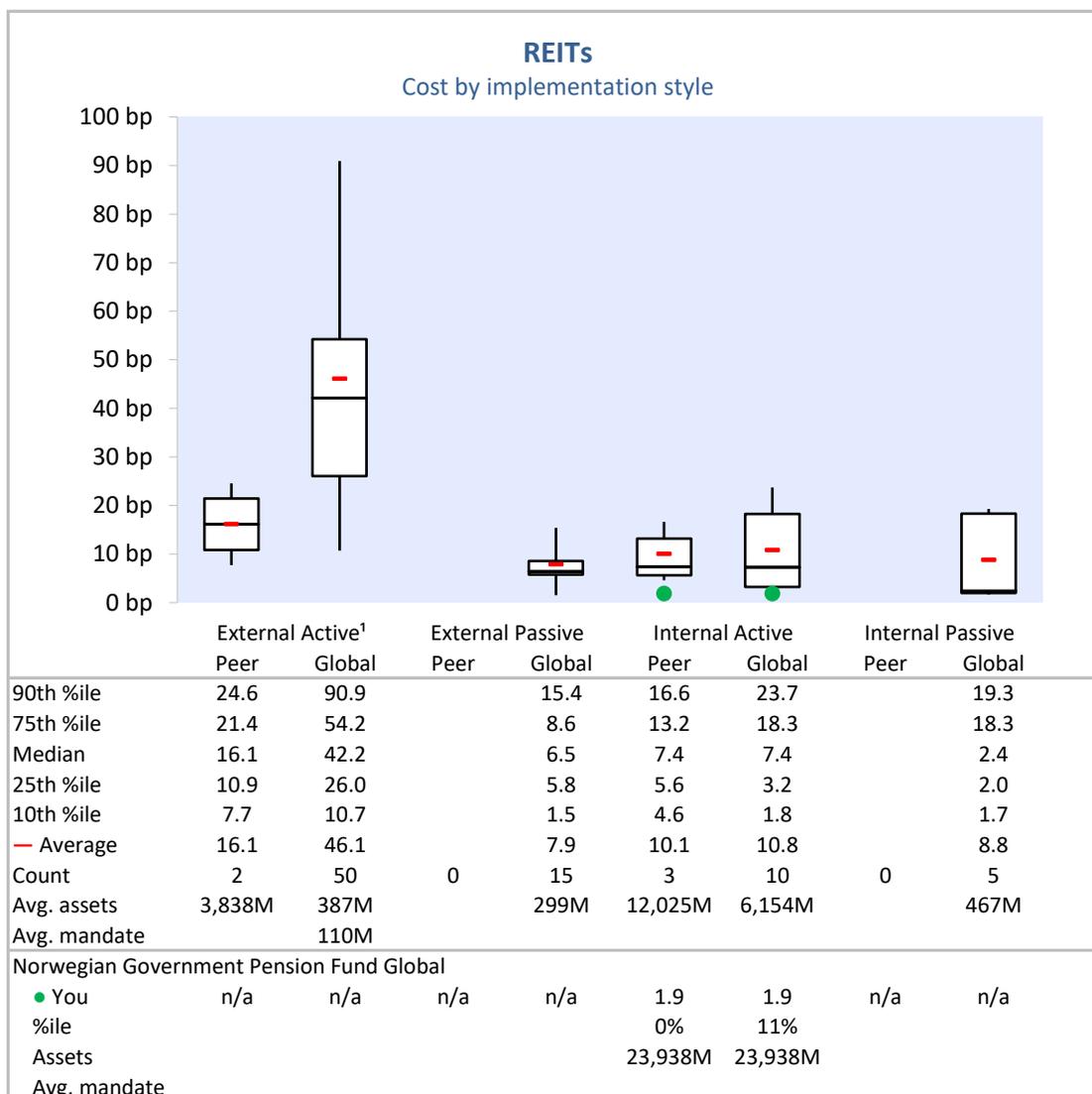
* For funds that did not report a performance fee, a value of 'zero' was used. The average performance fee for those funds that reported a performance fee is 0.0 bps for peers (1 fund) and 16.2 bps for Global participants (22 funds).



1. Breakdown of external active fees

	You	Peer Average	Global Average
Base fees	n/a	25.4	60.3
Performance fees*	n/a	10.7	29.9
Internal and other	<u>n/a</u>	<u>4.6</u>	<u>1.6</u>
Total	n/a	40.7	91.8

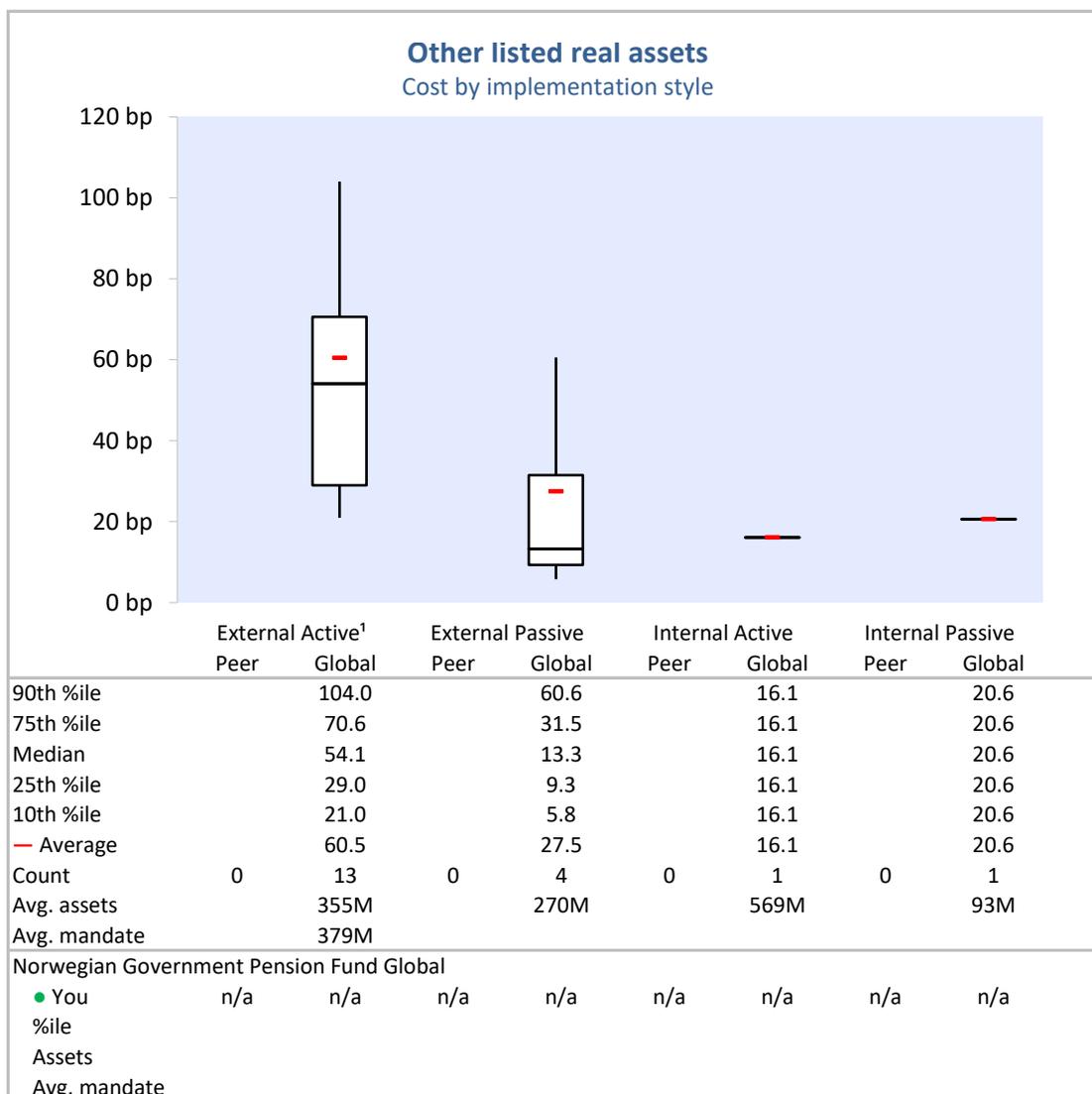
* For funds that did not report a performance fee, a value of 'zero' was used. The average performance fee for those funds that reported a performance fee is 16.0 bps for peers (2 funds) and 48.6 bps for Global participants (8 funds).



1. Breakdown of external active fees

	You	Peer Average	Global Average
Base fees	n/a	15.3	39.4
Performance fees*	n/a	0.0	5.3
Internal and other	<u>n/a</u>	<u>0.8</u>	<u>1.4</u>
Total	n/a	16.1	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 0.0 bps for peers (1 fund) and 13.9 bps for Global participants (19 funds).



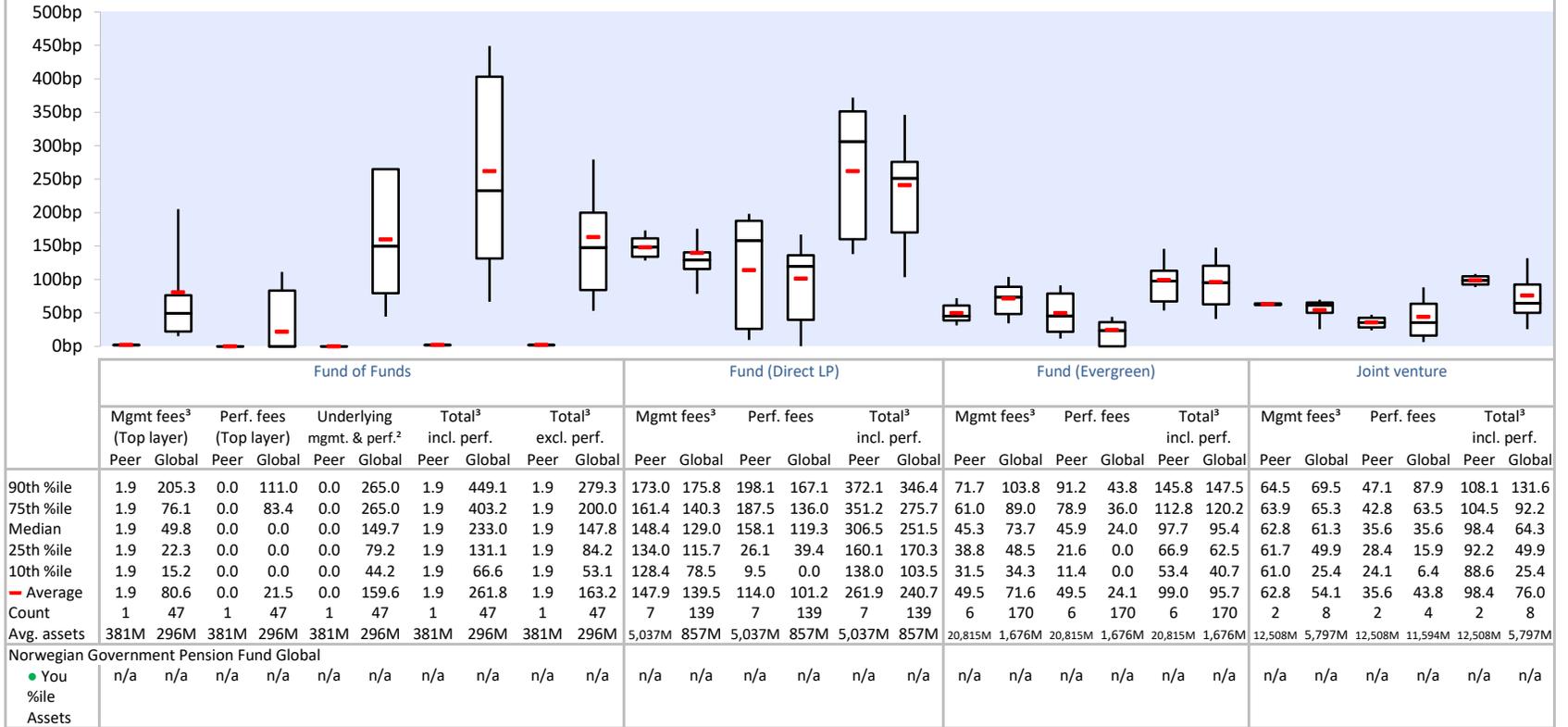
1. Breakdown of external active fees

	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

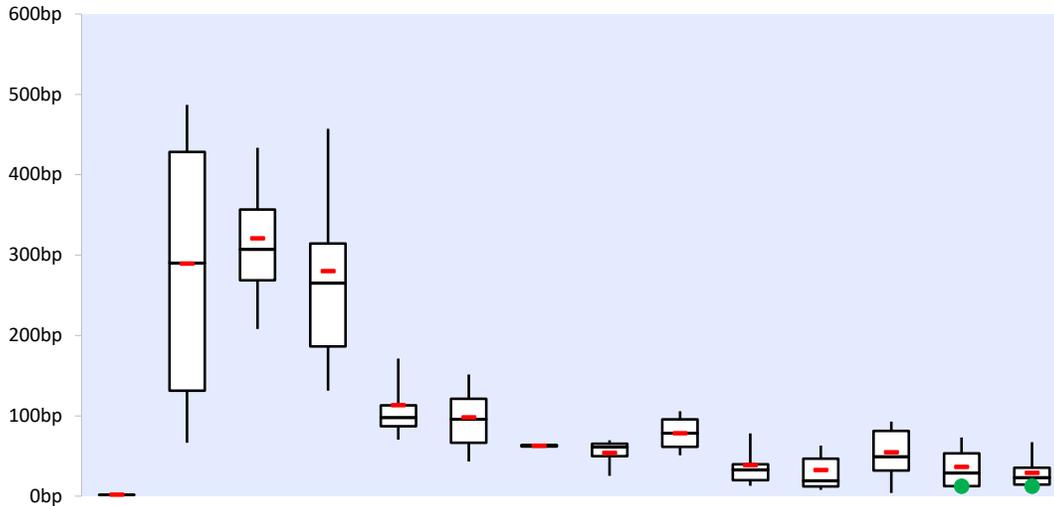
Cost as a % of the amount fees are based on¹



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 0 bps (on amount fees are based on) for underlying management fees and 0 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 1.9 bps for fund of funds, 7.3

Real estate - contd.

Cost as a % of NAV



	Fund of Funds		Fund (Direct LP)		Fund (Evergreen)		Joint venture		Oper. Sub.		Co-Inv.		Internal	
	Total ¹ incl. perf.		Total ¹ incl. perf.		Total ¹ incl. perf.		Total ¹ incl. perf.		Total ¹ incl. perf.		Total ¹ incl. perf.		Total	
	Peer	Global	Peer	Global										
90th %ile	1.9	486.9	433.3	457.2	171.3	151.5	64.5	69.5	105.7	78.1	63.0	92.8	73.0	67.2
75th %ile	1.9	428.3	356.8	314.4	112.8	121.3	63.9	65.3	95.5	39.7	46.6	81.2	53.2	35.4
Median	1.9	290.4	307.1	265.0	98.0	96.1	62.8	61.3	78.4	33.0	19.4	49.2	28.8	23.2
25th %ile	1.9	131.1	268.7	186.3	87.2	66.3	61.7	49.9	61.2	19.8	12.2	31.9	12.4	14.4
10th %ile	1.9	66.6	207.9	131.2	70.5	43.1	61.0	25.4	51.0	12.7	7.8	3.9	6.8	4.7
— Average	1.9	289.5	320.9	280.3	113.3	98.1	62.8	54.1	78.4	39.0	32.7	54.6	36.7	29.2
Count	1	47	7	139	6	170	2	8	2	11	3	32	4	40
Avg. assets	381M	288M	4,042M	721M	17,113M	1,531M	12,508M	5,797M	19,849M	7,699M	3,832M	642M	3,524M	2,908M
Norwegian Government Pension Fund Global														
● You	n/a	n/a	n/a	n/a										
%ile													12.5	12.5
Assets													25%	23%
													33,361M	33,361M

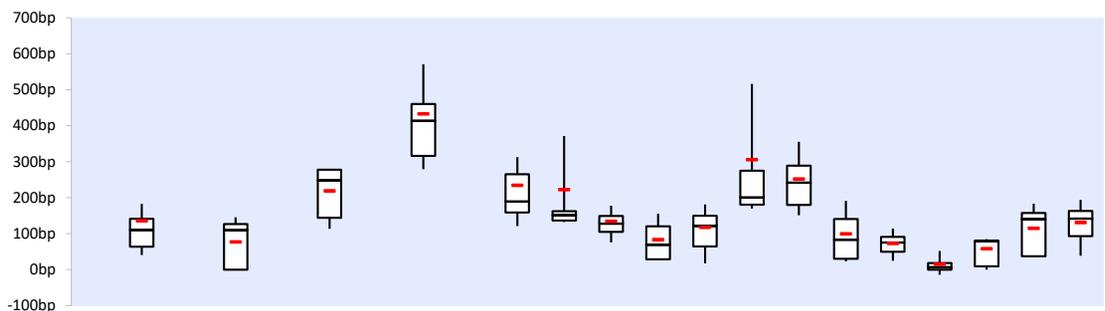
1. The total cost also includes the internal cost of monitoring and selecting real estate investments.

2. Co-investment is included with direct LPs because it can only be done alongside direct LPs. Co-investment is done by 3 of your peers and 26 of the Global funds.

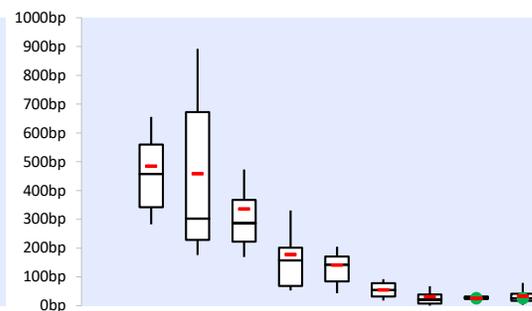
3. The total cost also includes the internal cost of monitoring and selecting real estate investments. Internal and other - FoFs The peer

Infrastructure

Cost as a % of the amount fees are based on¹



Cost as a % of NAV

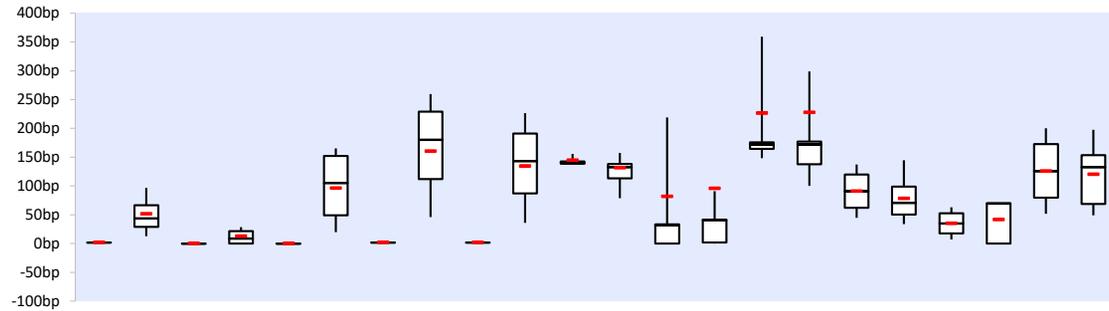


	Fund of Funds								Fund (Direct LP)						Fund (Evergreen)						Co-Inv.		Internal					
	Mgmt fees ³ (Top layer)		Perf. fees (Top layer)		Underlying mgmt. & perf. ²		Total ³ incl. perf.		Total ³ excl. perf.		Mgmt fees ³		Perf. fees		Total ³ incl. perf.		Mgmt fees ³		Perf. fees		Total ³ incl. perf.		Total		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	183.0	145.5	278.0	571.0	312.4	371.4	178.1	155.2	181.5	515.8	355.1	191.0	114.4	51.7	84.6	183.7	194.1	655.5	892.0	473.3	331.0	204.5	92.1	67.6	36.9	79.1		
75th %ile	141.2	126.6	278.0	460.4	264.9	162.7	149.5	120.6	150.0	275.0	289.2	140.5	91.2	18.4	80.0	157.3	163.4	559.9	672.2	367.7	201.2	171.1	78.1	38.8	31.7	41.8		
Median	110.5	110.0	248.1	413.9	189.6	152.0	128.0	69.6	122.1	200.8	241.8	83.3	76.0	7.1	79.7	140.5	142.4	457.8	302.3	286.9	157.3	142.4	54.9	21.3	28.0	25.7		
25th %ile	63.7	0.0	144.3	316.2	158.9	136.2	105.0	29.1	64.8	180.8	179.6	30.4	49.6	0.0	9.6	37.6	93.2	341.7	228.5	222.2	68.8	84.4	31.7	7.4	22.8	16.6		
10th %ile	40.6	0.0	113.3	279.0	121.2	132.4	75.9	26.4	17.4	170.0	151.3	23.5	24.8	-14.1	0.0	37.4	38.8	282.6	175.8	168.7	53.0	43.1	17.7	0.0	12.8	3.4		
Average	136.2	77.2	219.2	432.6	234.1	222.2	134.3	83.7	117.6	305.9	251.9	99.6	72.7	15.2	58.4	114.8	131.1	484.0	458.3	335.9	177.5	141.0	54.9	31.0	25.7	32.9		
Count	0	26	0	26	0	26	0	26	0	26	0	26	7	126	7	126	7	126	5	77	5	77	5	77	2	38	7	35
Avg. assets	133M	133M	133M	133M	133M	3,188M	635M	3,188M	635M	3,188M	635M	3,531M	622M	3,531M	622M	3,531M	622M	121M	2,574M	508M	2,721M	569M	820M	388M	15,267M	4,869M		
Norwegian Government Pension Fund Global	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	25.9	25.9		
%ile																												
Assets																												

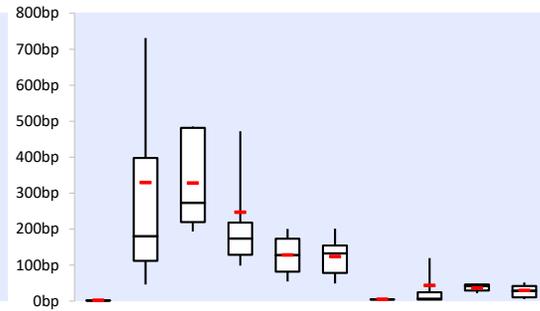
- The base for fees is usually the committed amount during the commitment period, and unreturned invested capital afterwards.
 - The fees of fund of funds include both the top layer fees paid to the fund of funds manager and the underlying fees paid to the 'underlying partnerships' held by the fund of 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 infrastructure investments. The peer average cost of monitoring and selecting was 12.1 bps for LPs and 2.3 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 on¹

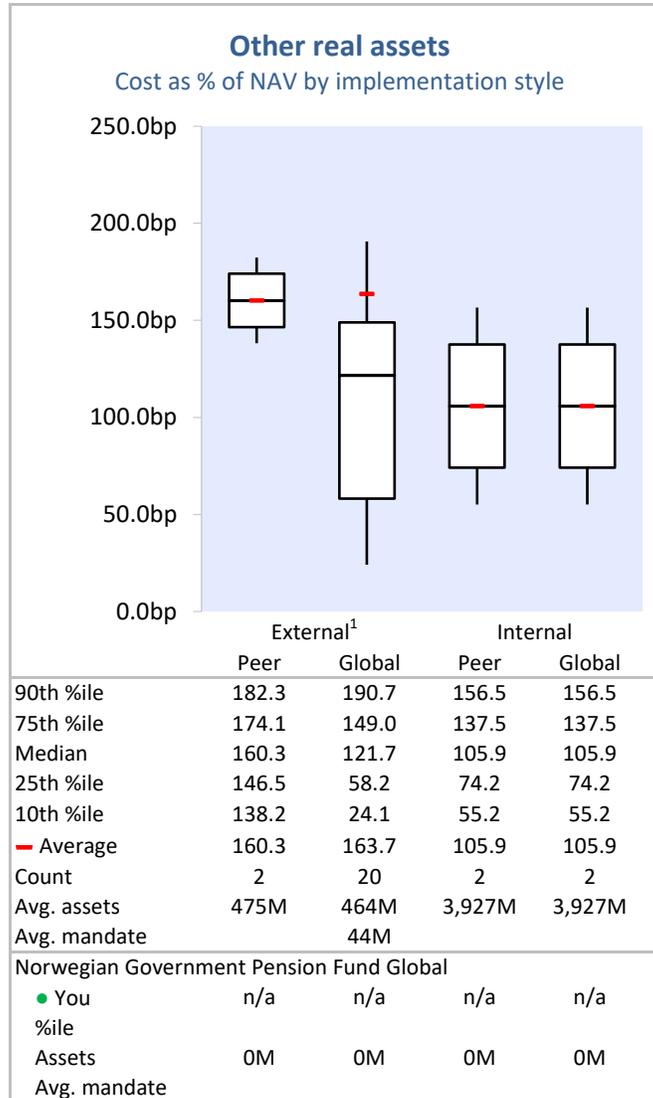


Cost as a % of NAV



	Fund of Funds										Fund (Direct LP)						Fund (Evergreen)						Co-Inv.		Internal									
	Mgmt fees (Top layer)		Perf. fees (Top layer)		Underlying mgmt. & perf. ²		Total ³ incl. perf.		Total ³ excl. perf.		Mgmt fees		Perf. fees		Total ³ incl. perf.		Mgmt fees		Perf. fees		Total ³ incl. perf.		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	2.0	96.9	0.0	28.4	0.0	165.3	2.0	259.4	2.0	226.4	155.7	157.5	219.1	91.0	359.2	299.1	137.4	144.7	63.0	70.0	200.4	197.5	2.0	731.1	485.4	472.0	200.8	201.2	5.3	119.6	48.0	51.5		
75th %ile	2.0	66.6	0.0	21.5	0.0	152.3	2.0	229.0	2.0	190.9	142.4	138.1	33.5	41.3	175.9	176.9	120.0	99.0	52.5	70.0	172.5	153.3	2.0	397.5	481.4	218.3	173.4	154.6	5.3	24.4	46.0	42.3		
Median	2.0	44.0	0.0	8.8	0.0	105.3	2.0	180.3	2.0	143.3	140.3	133.0	32.1	41.0	172.4	172.4	91.0	70.7	35.0	69.6	126.0	132.8	2.0	180.3	273.5	174.0	127.8	132.8	5.3	6.2	42.5	29.0		
25th %ile	2.0	29.1	0.0	0.0	0.0	49.2	2.0	111.9	2.0	87.1	138.6	113.1	0.0	1.7	164.6	137.5	61.9	50.3	17.5	0.0	79.4	68.8	2.0	111.9	219.9	128.9	82.2	78.2	5.3	4.6	29.7	10.9		
10th %ile	2.0	12.8	0.0	0.0	0.0	19.7	2.0	45.9	2.0	36.0	138.0	78.7	0.0	0.0	148.4	100.3	44.5	34.0	7.0	0.0	51.5	49.2	2.0	45.9	193.5	98.5	54.9	49.2	5.3	3.7	22.0	6.0		
Average	2.0	51.7	0.0	12.7	0.0	96.2	2.0	160.6	2.0	134.6	144.7	131.7	81.7	95.9	226.4	227.5	91.0	78.4	35.0	41.8	126.0	120.2	2.0	329.0	327.8	246.6	127.8	124.0	5.3	43.2	36.3	29.7		
Count	1	4	1	4	1	4	1	4	1	4	5	40	5	40	5	40	2	26	2	26	2	26	1	4	1	4	5	40	2	26	1	6	3	10
Avg. assets	46M	120M	46M	120M	46M	120M	46M	120M	46M	120M	1,764M	499M	1,764M	499M	1,764M	499M	189M	197M	189M	197M	189M	197M	46M	117M	1,602M	459M	179M	187M	2,916M	931M	4,469M	2,498M		
Norwegian Government Pension Fund Global																																		
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	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	
Assets																																		

1. The base for fees is usually the committed amount during the commitment period, and unreturned invested capital afterwards.
2. The fees of fund of funds include both the top layer fees paid to the fund of funds manager and the underlying fees paid to the 'underlying partnerships' held by the fund of funds. Most funds were unable to provide the underlying fees so defaults of 0 bps (on amount fees are based on) for underlying management fees and 0 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 2.0 bps for fund of funds and 5.8 bps for LPs and 2.2 bps for external (not



1. Breakdown of external fees

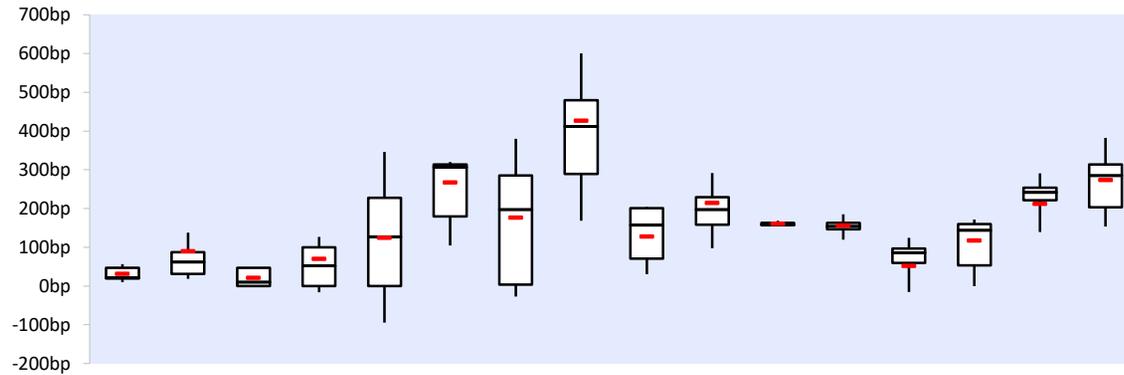
	Your Plan	Peer Average	Global Average
Base fees	n/a	127.6	147.6
Internal and other	<u>n/a</u>	<u>32.7</u>	<u>16.1</u>
Total*	n/a	160.3	163.7
Performance fees**	n/a	20.2	25.3

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

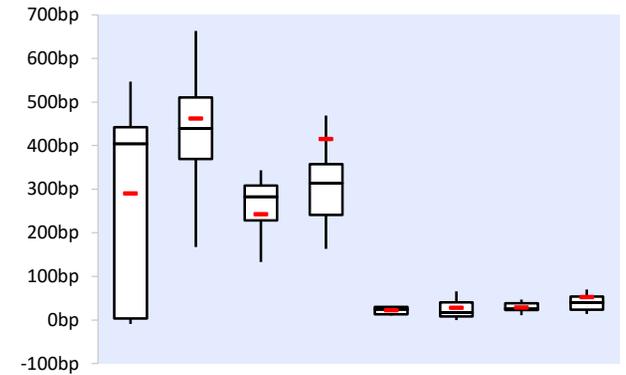
** For funds that did not report a performance fee, a default value of 32 bps was applied. The average performance fee for only those funds that reported a performance fee is 20.2 bps for peers (2 funds) and 22.4 bps for Global participants (14 funds).

Private equity - Diversified

Cost as a % of the amount fees are based on¹



Cost as a % of NAV



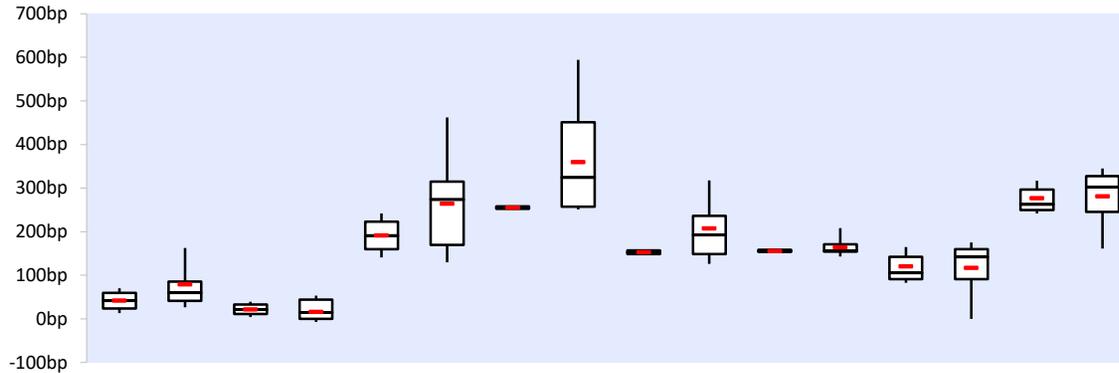
	Fund of Funds										Direct LP							
	Mgmt fees ³ (Top layer)		Perf. fees (Top layer)		Underlying mgmt. & perf. ²		Total ³ incl. perf.		Total ³ excl. perf.		Mgmt fees ³		Perf. fees		Total ³ incl. perf.			
	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global
90th %ile	56.5	137.4	48.2	126.5	345.8	319.7	379.6	600.4	204.1	291.4	168.7	185.2	124.0	172.0	291.1	382.1		
75th %ile	47.0	86.9	47.3	100.0	228.1	314.0	285.4	479.5	201.0	229.6	163.1	163.1	96.4	160.0	253.8	314.0		
Median	21.5	62.1	10.4	52.7	127.2	306.6	197.6	412.3	157.6	197.5	157.9	154.0	86.8	143.9	242.0	285.4		
25th %ile	19.6	31.5	0.0	0.0	0.0	179.9	3.4	288.9	70.5	158.3	157.4	146.4	59.4	53.2	221.2	203.2		
10th %ile	9.9	18.7	-0.9	-16.1	-94.4	104.3	-27.0	168.2	30.2	97.9	155.0	119.3	-15.6	0.0	139.3	153.3		
— Average	30.9	89.5	21.0	69.6	124.4	267.1	176.3	426.3	127.7	214.6	160.3	156.1	52.1	117.3	212.3	273.4		
Count	5	110	5	110	5	110	5	110	5	110	9	161	9	161	9	161		
Avg. assets	2,931M	584M	2,931M	584M	2,931M	584M	2,931M	584M	2,931M	584M	16,660M	2,546M	16,660M	2,546M	16,660M	2,546M		
Norwegian Government Pension Fund Global																		
● 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	n/a	n/a
Assets	0M	0M	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 ³ incl. perf.		Total ³ incl. perf.		Total incl. perf.		Total	
	Peer	Global	Peer	Global	Peer	Global	Peer	Global
90th %ile	546.8	663.0	343.3	468.6	32.0	65.7	46.9	69.7
75th %ile	442.4	510.4	308.4	357.1	29.7	40.5	37.9	53.6
Median	404.4	439.7	282.8	314.0	24.7	17.4	25.5	40.5
25th %ile	3.4	368.9	228.1	241.0	13.2	8.0	22.5	23.2
10th %ile	-9.2	167.3	133.0	163.3	10.4	0.0	10.9	13.7
— Average	289.8	462.1	242.5	414.6	21.8	27.7	28.4	52.3
Count	5	109	9	161	7	43	5	22
Avg. assets	4,324M	604M	15,354M	2,330M	4,064M	1,429M	13,835M	4,135M
● 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

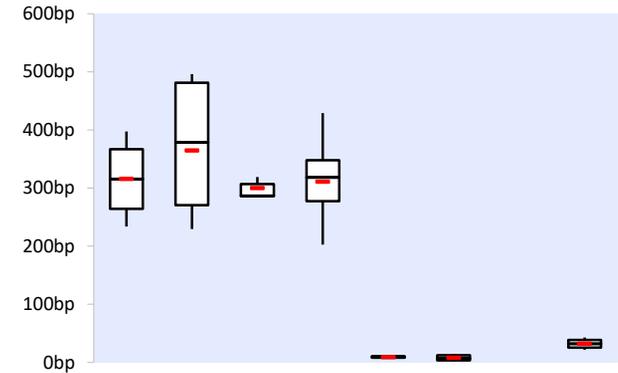
1. The base for fees is usually the committed amount during the commitment period, and unreturned invested capital afterwards.
2. The fees of fund of funds include both the top layer fees paid to the fund of funds manager and the underlying fees paid to the 'underlying partnerships' held by the fund of funds. Most funds were unable to provide the underlying fees so defaults of 138 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 4.5 bps for fund of funds, 6.1 bps for LPs and 6.0

LBO

Cost as a % of the amount fees are based on¹



Cost as a % of NAV

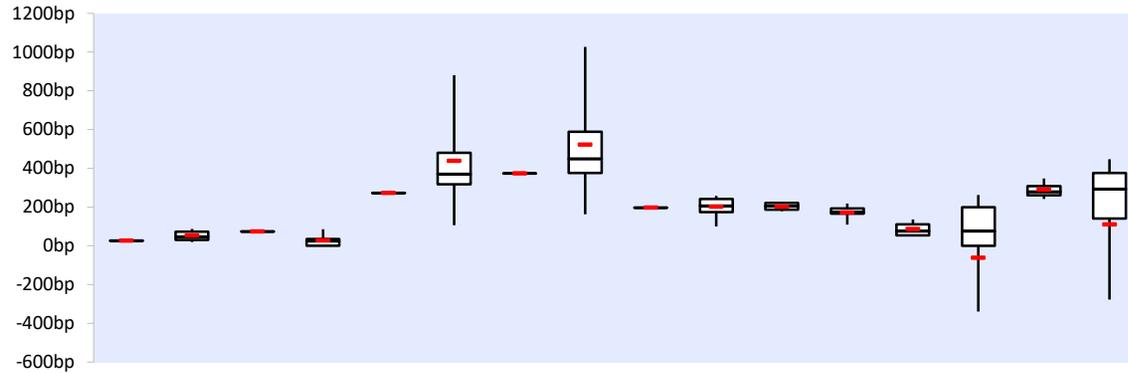


	Fund of Funds										Direct LP						Fund of Funds		Direct LP		Co-Investment		Internal	
	Mgmt fees ³ (Top layer)		Perf. fees (Top layer)		Underlying mgmt. & perf. ²		Total ³ incl. perf.		Total ³ excl. perf.		Mgmt fees ³		Perf. fees		Total ³ incl. perf.		Total ³ incl. perf.		Total		Total			
	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global
90th %ile	70.2	162.4	39.3	53.2	242.2	461.9	259.7	594.1	159.4	317.4	159.4	208.2	164.6	175.2	316.6	345.0	397.6	496.0	319.2	428.7	11.4	13.7		42.8
75th %ile	59.5	85.5	32.8	44.0	223.3	315.0	258.0	451.1	156.9	236.3	158.4	171.1	142.6	160.0	296.4	327.1	366.9	481.2	307.0	347.8	10.6	12.4		38.9
Median	41.7	60.6	21.9	14.9	191.7	274.2	255.2	324.6	152.8	192.5	156.6	156.6	106.0	142.3	262.6	303.1	315.7	378.8	286.8	318.5	9.4	7.0		32.3
25th %ile	23.8	41.6	10.9	0.0	160.1	169.4	252.4	257.4	148.7	148.7	153.8	154.2	91.4	91.4	249.8	245.6	264.5	270.7	286.3	277.6	8.2	3.6		25.7
10th %ile	13.1	26.4	4.4	-7.2	141.2	129.8	250.7	250.9	146.2	126.0	152.0	142.7	82.7	0.0	242.1	161.2	233.8	229.5	286.1	202.6	7.5	1.8		21.8
Average	41.7	79.1	21.9	16.4	191.7	264.2	255.2	359.7	152.8	207.2	155.9	163.9	120.7	117.0	276.6	280.9	315.7	364.5	300.0	311.1	9.4	8.3		32.3
Count	2	14	2	14	2	14	2	14	2	14	3	35	3	35	3	35	2	14	3	35	2	11	0	2
Avg. assets	1,170M	445M	1,170M	445M	1,170M	445M	1,170M	445M	1,170M	445M	20,875M	3,483M	20,875M	3,483M	20,875M	3,483M	1,140M	367M	18,057M	3,159M	3,583M	1,143M		357M
Norwegian Government Pension Fund Global																								
● 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
%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

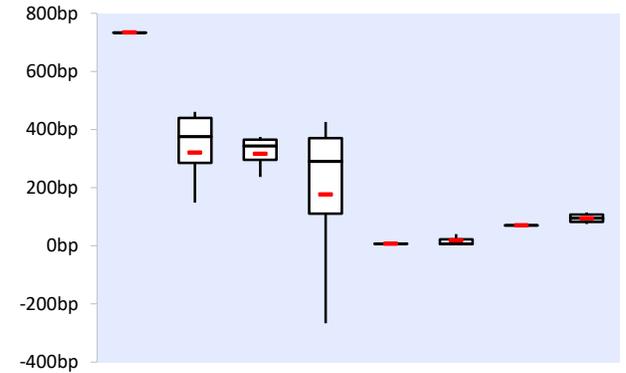
1. The base for fees is usually the committed amount during the commitment period, and unreturned invested capital afterwards.
2. The fees of fund of funds include both the top layer fees paid to the fund of funds manager and the underlying fees paid to the 'underlying partnerships' held by the fund of funds. Most funds were unable to provide the underlying fees so defaults of 111 bps (on amount fees are based on) for underlying management fees and 106 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 3.8 bps for fund of funds , 3.8 bps for LPs and 2.0

Venture capital

Cost as a % of the amount fees are based on¹



Cost as a % of NAV



	Fund of Funds										Direct LP					
	Mgmt fees ³ (Top layer)		Perf. fees (Top layer)		Underlying mgmt. & perf. ²		Total ³ incl. perf.		Total ³ excl. perf.		Mgmt fees ³		Perf. fees		Total ³ incl. perf.	
	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global
90th %ile	26.9	87.0	74.6	85.8	273.0	880.3	374.5	1026.7	197.9	258.0	224.8	217.4	135.9	262.1	346.9	446.9
75th %ile	26.9	72.4	74.6	34.8	273.0	479.9	374.5	588.8	197.9	241.1	221.4	192.5	110.2	200.0	308.5	376.1
Median	26.9	47.4	74.6	25.0	273.0	371.0	374.5	449.7	197.9	207.2	205.4	174.2	76.4	76.4	279.7	293.2
25th %ile	26.9	30.2	74.6	0.9	273.0	316.8	374.5	375.8	197.9	174.6	186.6	166.3	53.9	0.0	261.5	141.6
10th %ile	26.9	19.4	74.6	0.0	273.0	106.2	374.5	163.4	197.9	100.5	178.3	109.9	48.7	-339.2	242.3	-276.9
— Average	26.9	54.4	74.6	28.6	273.0	439.4	374.5	522.4	197.9	201.9	202.6	172.6	87.7	-61.8	290.3	110.8
Count	1	22	1	22	1	22	1	22	1	22	4	34	4	34	4	34
Avg. assets	143M	271M	143M	271M	143M	271M	143M	271M	143M	271M	2,662M	702M	2,662M	702M	2,662M	702M
Norwegian Government Pension Fund Global																
● 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
%ile																
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 ³ incl. perf.		Total ³ incl. perf.		Total incl. perf.		Total	
Peer	Global	Peer	Global	Peer	Global	Peer	Global
734.0	460.5	374.8	426.7	7.7	40.2	70.6	114.5
734.0	439.5	364.9	371.0	7.7	22.6	70.6	107.2
734.0	375.4	344.2	290.2	7.7	7.3	70.6	95.0
734.0	285.0	296.2	111.1	7.7	6.0	70.6	82.8
734.0	148.1	237.2	-266.4	7.7	4.7	70.6	75.5
734.0	321.2	316.9	177.3	7.7	18.7	70.6	95.0
1	22	4	34	1	8	1	2
143M	271M	2,409M	726M	34M	106M	3,061M	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

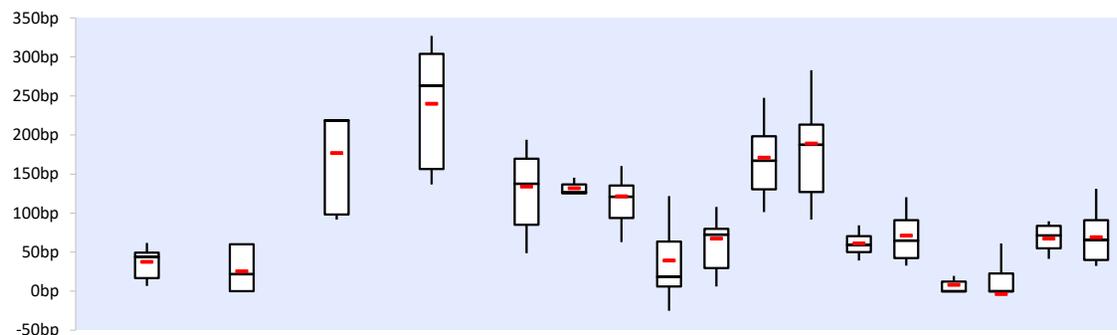
1. The base for fees is usually the committed amount during the commitment period, and unreturned invested capital afterwards.

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 171 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 1.1 bps for fund of funds, 20.8 bps for LPs and 1.0

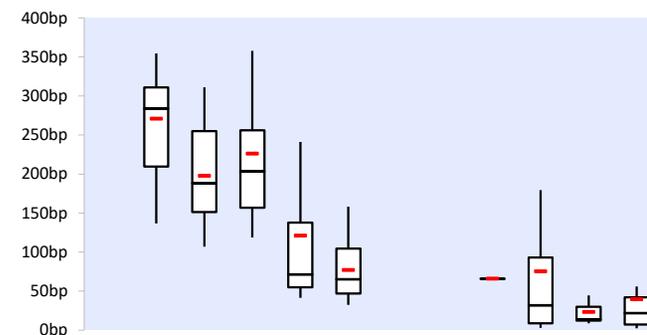
Private credit

Cost as a % of the amount fees are based on¹



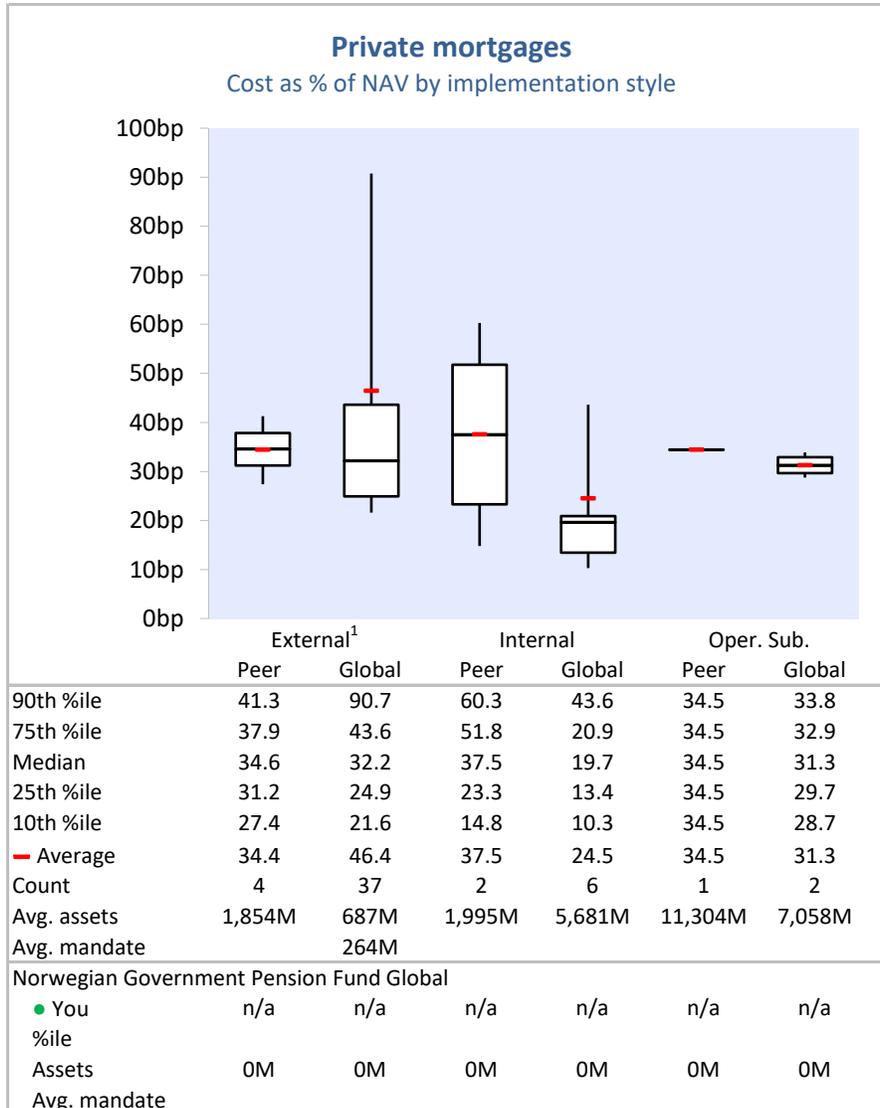
	Fund of Funds						Direct LP						Evergreen									
	Mgmt fees ³		Perf. fees		Underlying		Total ³		Total ³		Mgmt fees ³		Perf. fees		Total ³		Mgmt fees ³		Perf. fees		Total ³	
	(Top layer)		(Top layer)		mgmt. & perf. ²		incl. perf.		excl. perf.		Peer		Global		Peer		Global		Peer		Global	
	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global
90th %ile	61.7	60.0	219.0	327.0	194.0	145.3	160.1	121.8	107.9	247.7	283.0	84.4	120.4	19.4	61.2	89.7	131.1					
75th %ile	49.3	60.0	219.0	304.0	169.5	136.7	135.4	63.6	80.0	198.5	213.4	70.4	91.1	12.1	22.7	83.7	91.1					
Median	44.0	22.1	219.0	263.5	137.8	126.5	121.0	18.8	72.4	167.1	187.6	59.3	65.0	0.0	0.0	71.4	65.6					
25th %ile	16.8	0.0	98.2	156.4	85.0	125.3	93.7	6.0	29.7	130.6	127.1	50.1	42.6	0.0	0.0	55.0	39.8					
10th %ile	6.8	0.0	91.8	136.7	48.8	124.7	63.0	-25.1	6.2	101.3	91.6	39.3	32.7	0.0	-0.1	41.3	32.5					
Average	37.7	25.6	176.9	240.1	133.9	131.8	121.5	39.2	67.4	170.9	189.0	61.1	71.1	8.1	-3.8	67.2	69.2					
Count	0	17	0	17	0	17	120	7	120	7	120	4	60	3	29	4	60					
Avg. assets	137M	137M	137M	137M	137M	2,709M	684M	2,709M	684M	2,709M	684M	2,217M	682M	2,956M	1,412M	2,217M	682M					
Norwegian Government Pension Fund Global																						
● 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					
%ile																						
Assets																						

Cost as a % of NAV



	Fund of Funds		Direct LP		Evergreen		Oper. Sub.		Co-Inv.		Internal	
	Total ³		Total ³		Total ³		Total		Total		Total	
	incl. perf.		incl. perf.		incl. perf.		Peer		Global		Peer	
	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global
90th %ile	354.4	311.1	357.8	241.3	158.4	66.0	179.4	44.5	56.1			
75th %ile	311.0	255.1	256.1	137.8	104.5	66.0	93.1	29.8	42.0			
Median	284.0	188.6	203.6	71.4	65.4	66.0	32.0	13.6	21.9			
25th %ile	209.6	151.3	157.0	55.0	47.1	66.0	8.9	12.2	7.3			
10th %ile	136.7	107.1	118.8	41.3	32.5	66.0	2.9	8.9	2.4			
Average	271.0	197.7	226.3	121.3	77.3	66.0	75.5	23.3	39.8			
Count	0	17	7	120	4	60	0	0	1	15	5	24
Avg. assets	126M	2,575M	608M	2,136M	654M	1,122M	317M	6,007M	3,483M			
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 7.8 bps for LPs and 4.3 bps for external (not LPs).

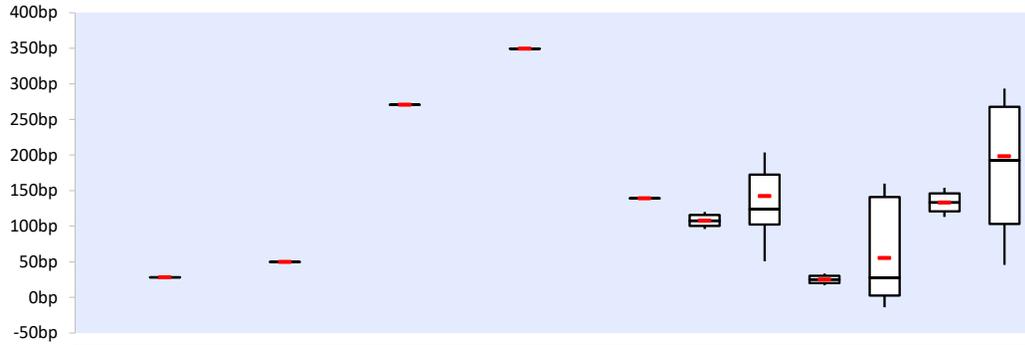


1. Breakdown of external fees

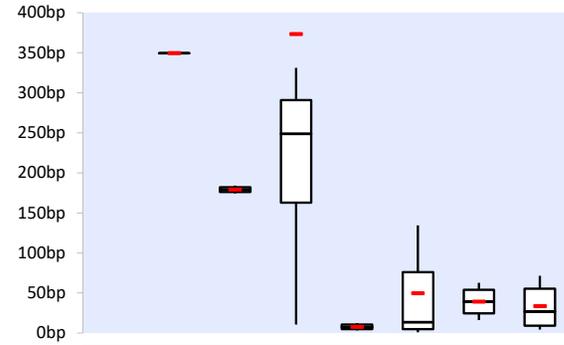
	Your Plan	Peer Average	Global Average
Base fees	n/a	31.1	44.5
Internal and other	<u>n/a</u>	<u>3.3</u>	<u>1.9</u>
Total	n/a	34.4	46.4
Performance fees	n/a	0.0	7.7

Private equity - Other

Cost as a % of the amount fees are based on¹



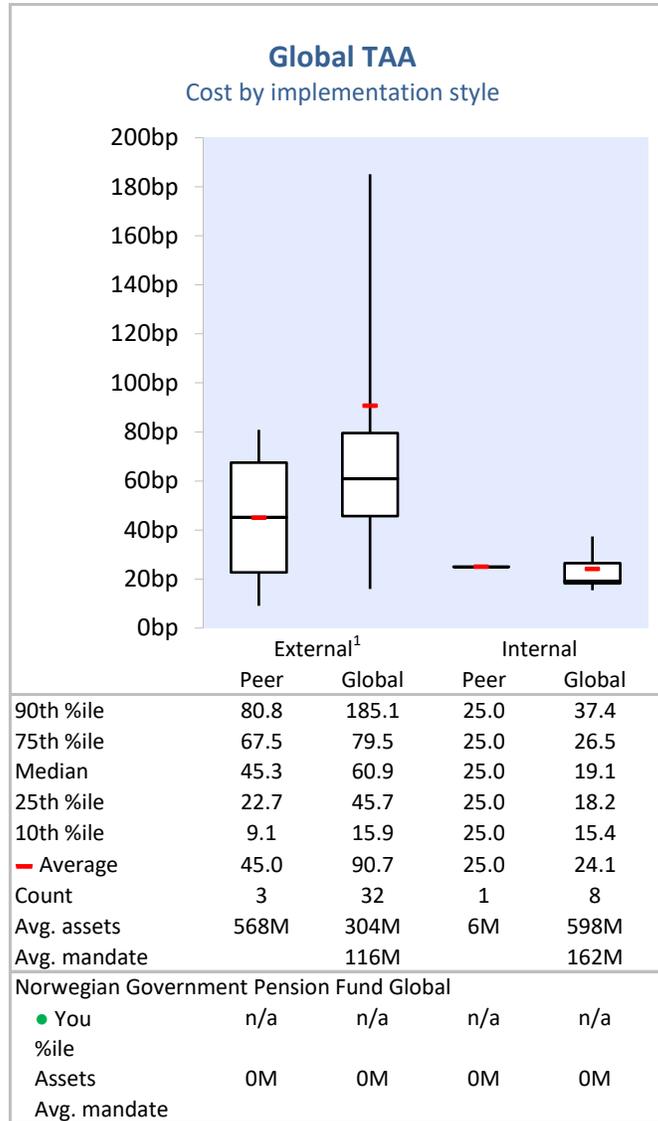
Cost as a % of NAV



	Fund of Funds										Direct LP						Fund of Funds		Direct LP		Co-Investment		Internal		
	Mgmt fees ³ (Top layer)		Perf. fees (Top layer)		Underlying mgmt. & perf. ²		Total ³ incl. perf.		Total ³ excl. perf.		Mgmt fees ³		Perf. fees		Total ³ incl. perf.		Total ³ incl. perf.		Total 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		Peer		Global		Peer
90th %ile		28.6		50.0		271.0		349.6		139.6	120.3	203.6	33.6	160.0	153.9	293.5		349.6	184.0	331.1	12.3	134.5	62.6	71.4	
75th %ile		28.6		50.0		271.0		349.6		139.6	115.7	172.4	30.6	141.1	146.3	267.7		349.6	182.2	291.0	10.6	75.9	53.9	55.6	
Median		28.6		50.0		271.0		349.6		139.6	108.1	124.2	25.4	28.2	133.6	193.0		349.6	179.2	249.0	7.8	13.7	39.3	27.1	
25th %ile		28.6		50.0		271.0		349.6		139.6	100.6	102.6	20.3	2.7	120.9	103.4		349.6	176.1	162.7	4.9	4.9	24.8	9.1	
10th %ile		28.6		50.0		271.0		349.6		139.6	96.0	51.0	17.2	-13.7	113.3	45.8		349.6	174.3	10.6	3.2	1.0	16.1	4.3	
Average		28.6		50.0		271.0		349.6		139.6	108.1	142.7	25.4	55.7	133.6	198.3		349.6	179.2	373.5	7.8	49.7	39.3	33.6	
Count	0	1	0	1	0	1	0	1	0	1	2	20	2	20	2	20		0	1	2.0	20	2	6	2	8
Avg. assets		24M		24M		24M		24M		24M	8,353M	1,410M	8,353M	1,410M	8,353M	1,410M		24M	5,404M	1,029M	379M	431M	3,494M	1,585M	
Norwegian Government Pension Fund Global																									
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	
	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.

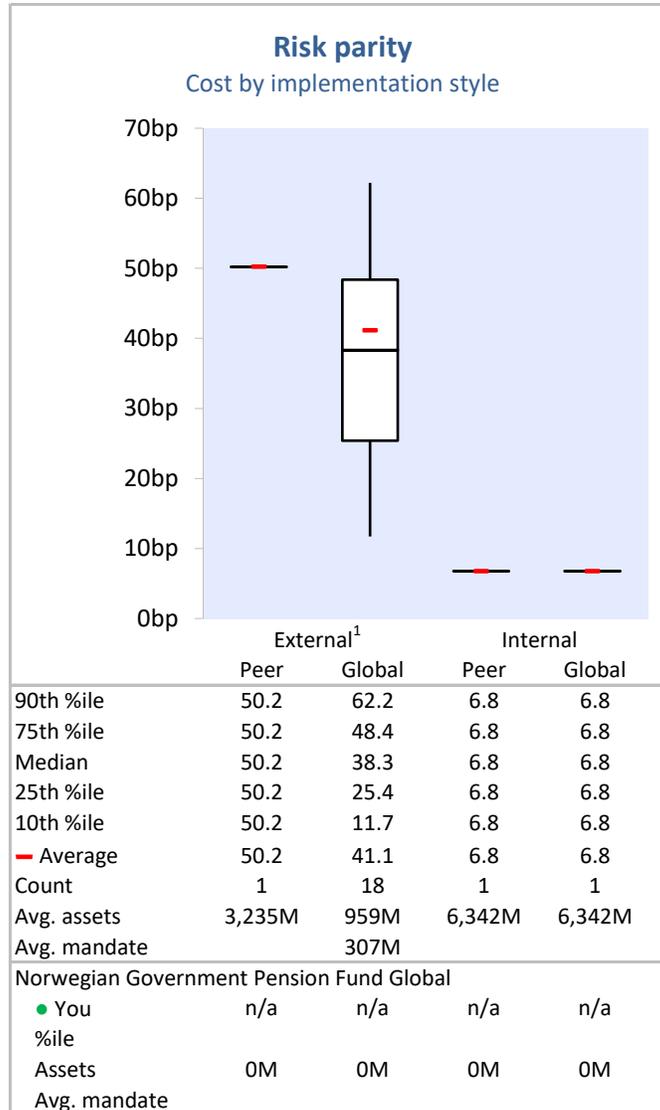
2. The fees of fund of funds include both the top layer fees paid to the fund of funds manager and the underlying fees paid to the 'underlying partnerships' held by the fund of funds. Most funds were unable to provide the underlying fees so defaults of n/a bps (on amount fees are based on) for underlying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



1. Breakdown of external fees

	Your Plan	Peer Average	Global Average
Base fees	n/a	34.3	66.8
Internal and other	n/a	15.7	5.8
Performance fees	<u>n/a</u>	<u>0.4</u>	<u>41.6</u>
Total*	n/a	45.0	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 0.4 bps for peers (2 funds) and 41.6 bps for Global participants (17 funds).



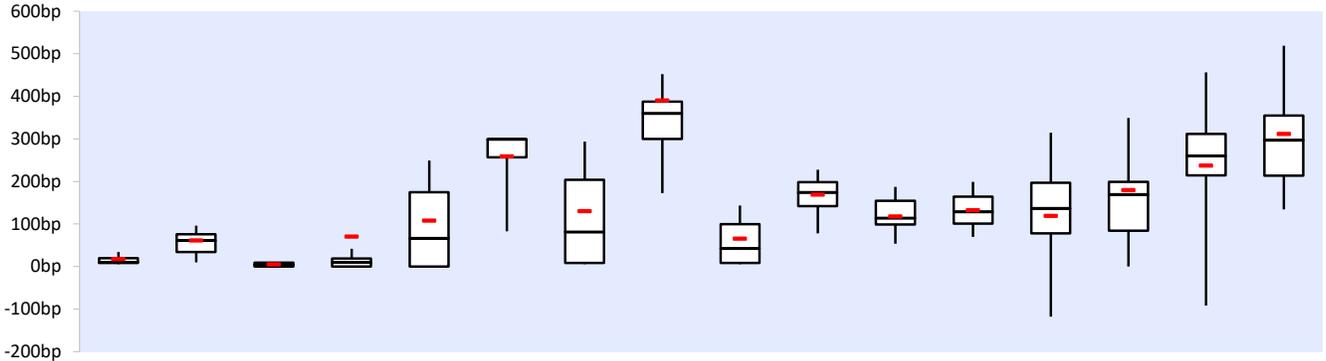
1. Breakdown of external fees

	Your Plan	Peer Average	Global Average
Base fees	n/a	48.1	37.8
Internal and other	n/a	1.9	3.9
Performance fees	<u>n/a</u>	<u>0.2</u>	<u>4.3</u>
Total*	n/a	50.2	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 0.2 bps for peers (1 fund) and 4.3 bps for Global participants (6 funds).

Hedge funds

Cost by implementation style

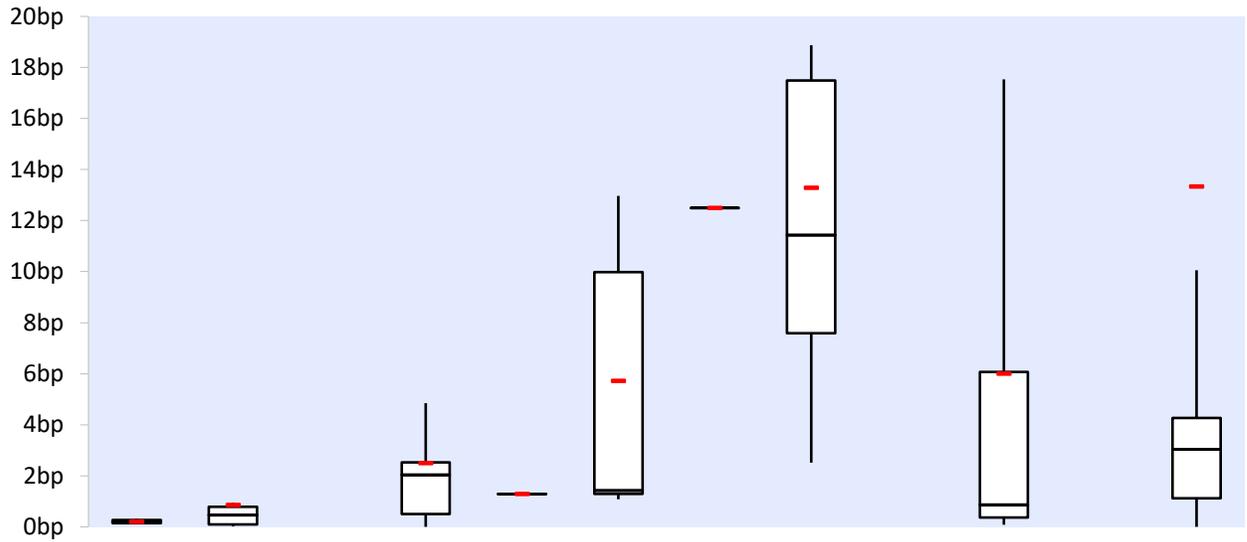


	Fund of Funds										External Direct					
	Mgmt fees (Top layer)		Perf. fees (Top layer)		Underlying mgmt. and perf. ¹		Total ² incl. perf.		Total ² excl. perf.		Mgmt fees		Perf. fees		Total ² incl. perf.	
	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global	Peer	Global
90th %ile	34.2	95.9	9.8	42.1	249.4	299.0	293.4	452.4	143.7	227.7	187.0	199.1	314.2	349.3	456.1	519.0
75th %ile	19.4	76.1	9.3	19.0	174.9	299.0	203.7	387.5	99.8	198.6	154.5	164.1	197.2	199.0	311.7	355.0
Median	10.4	61.0	4.5	10.0	66.8	299.0	81.7	360.0	42.5	175.0	114.4	128.8	137.2	170.0	260.4	297.2
25th %ile	8.2	33.9	0.0	0.0	0.0	256.7	8.2	299.8	8.2	142.2	99.1	101.1	78.1	84.4	214.0	213.6
10th %ile	5.6	9.8	0.0	0.0	0.0	83.0	5.6	172.5	5.6	78.0	53.6	69.8	-117.8	0.3	-91.6	134.6
— Average	17.2	61.3	4.8	70.6	108.1	258.5	130.1	390.4	65.5	169.3	117.8	132.5	119.2	179.3	237.1	311.8
Count	4	62	4	62	4	62	4	62	4	62	9	106	9	106	9	106
Avg. assets	3,071M	610M	3,071M	610M	3,071M	610M	3,071M	610M	3,071M	610M	7,734M	1,787M	7,734M	1,787M	7,734M	1,787M
Norwegian Government Pension Fund Global																
● 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
%ile																
Assets	0M	0M	0M	0M	0M	0M	0M	0M	0M	0M	0M	0M	0M	0M	0M	0M

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 32 bps (on NAV) for underlying management fees and 35 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 2.7 bps for fund of

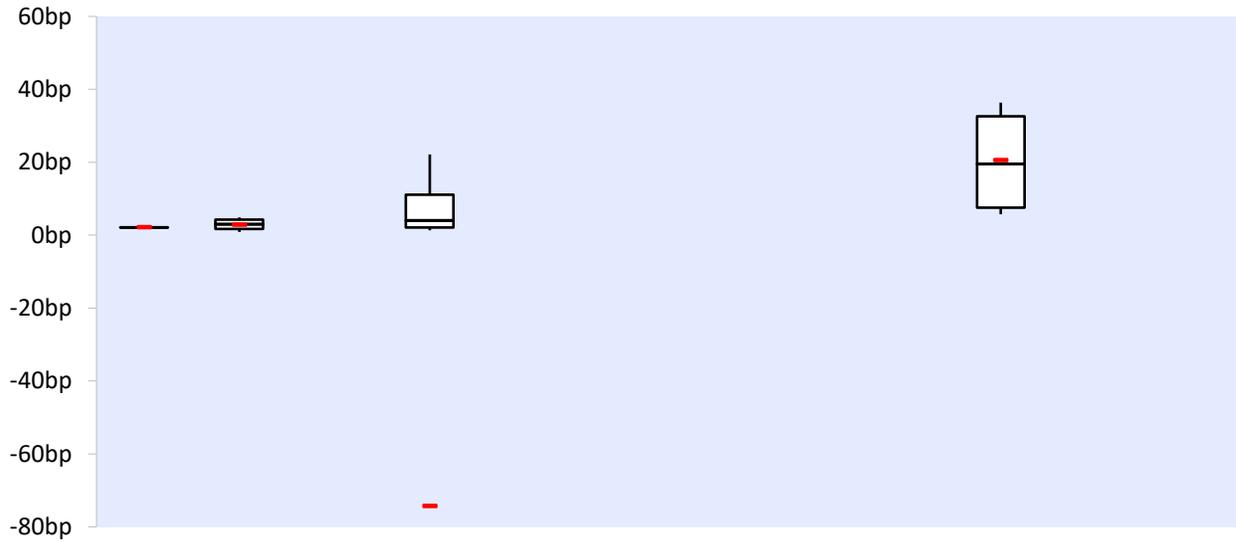
Overlays: currency, duration Cost by implementation style



	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	0.3	0.9		4.8	1.3	13.0	12.5	18.9		17.5		10.1
75th %ile	0.3	0.8		2.5	1.3	10.0	12.5	17.5		6.1		4.3
Median	0.2	0.5		2.0	1.3	1.4	12.5	11.4		0.9		3.0
25th %ile	0.1	0.1		0.5	1.3	1.3	12.5	7.6		0.4		1.1
10th %ile	0.1	0.0		0.0	1.3	1.1	12.5	2.5		0.1		0.0
— Average	0.2	0.9		2.5	1.3	5.7	12.5	13.3		6.0		13.3
Count	2	14	0	27	1	5	1	16	0	7	0	28
Avg. notional	57,911M	19,061M		1,438M	21,272M	5,821M	2,736M	935M		3,581M		1,876M
Norwegian Government Pension Fund Global												
● 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												

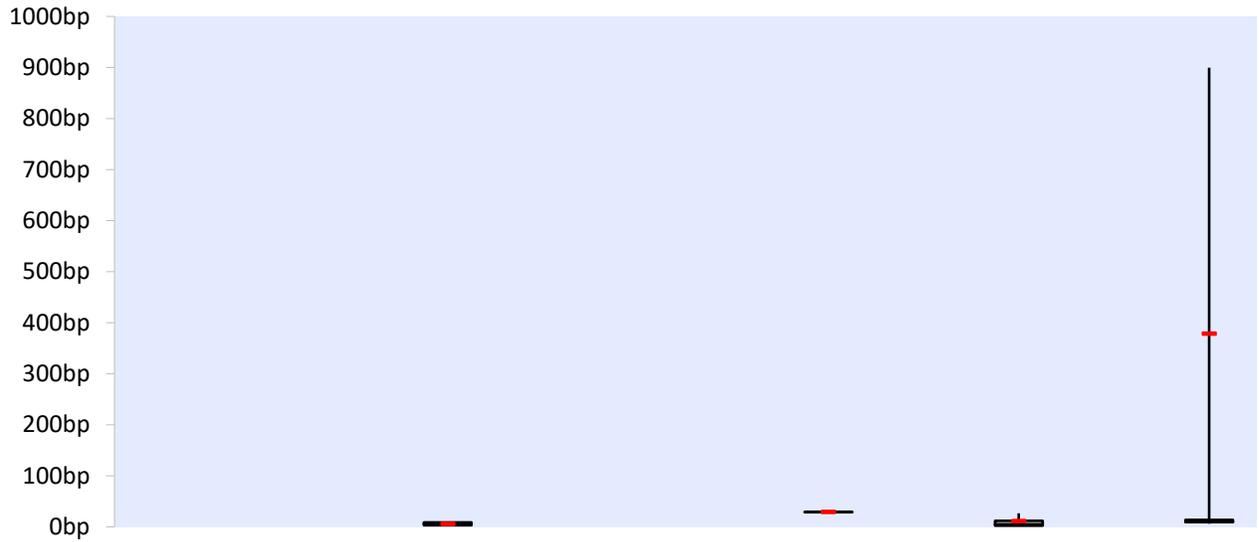
Overlays: passive beta/rebalancing, global TAA, policy tilt TAA

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	2.2	4.9		22.2						36.4		
75th %ile	2.2	4.2		11.1						32.6		
Median	2.2	3.0		4.1						19.6		
25th %ile	2.2	1.7		2.1						7.6		
10th %ile	2.2	0.9		1.3						5.7		
— Average	2.2	2.9		-74.3						20.6		
Count	1	4	0	28	0	0	0	0	0	4	0	0
Avg. notional	11,937M	5,982M		1,651M						547M		
Norwegian Government Pension Fund Global												
● 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										
90th %ile			9.6				29.3		26.3		899.5	
75th %ile			8.6				29.3		11.8		13.3	
Median			6.8				29.3		5.0		10.5	
25th %ile			3.3				29.3		2.4		9.1	
10th %ile			1.2				29.3		1.4		5.9	
— Average			5.9				29.3		10.9		378.4	
Count	0	0	0	6	0	0	0	1	0	8	0	8
Avg. notional			808M				476M		3,604M		1,725M	
Norwegian Government Pension Fund Global												
● You	n/a	n/a										
%ile												
Avg. notional												

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Appendices

Appendix A - Data Summary

Appendix B - Currency conversion

Appendix C - Data quality

Appendix D - Glossary of terms

Appendix A - Data Summary

Norwegian Government Pension Fund Global

Plan Info	2022	2021	2020	2019	2018
Survey Preparer	Julie Elizabeth Belck-Olsen	Peter Christian Reppe Moe			
Additional Contact	Trond Hansen	Julie Belck-Olsen	Julie Belck-Olsen	Julie Belck-Olsen	Julie Belck-Olsen
Type of fund (corporate, public, other)	Public	Public	Public	Public	Public
Total fund size (€mils) as at December 31	1,182,202.3	1,230,488.6	1,041,789.7	1,022,743.8	834,042.8
Asset-class level holdings provided on survey are: year end or average?	Average	Average	Average	Average	Average
Total return for year ended Is the return net or gross?	-14.11% Gross	14.51% Gross	10.86% Gross	19.95% Gross	-6.12% Gross
Total fund policy or benchmark return	-14.98%	13.76%	10.60%	19.72%	-5.82%

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?				0	
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

Norwegian Government Pension Fund Global

Asset Class	Year	Policy Weight	Benchmark	
			Description	Return
Stock - U.S. broad/all	2022		Custom	-24.2
	2021		Custom	13.3
	2020		Custom	47.1
	2018		Custom	3.6
	2017		Custom	18.9
	2016		Your Stock: U.S. broad/all benchmark	16.1
Stock - Europe	2022		Custom	-15.9
	2021		Custom	18.0
	2020		Custom	5.4
	2019		Custom	22.7
	2018		Custom	-13.7
	2017		Custom	25.6
2016		Your Stock: Europe benchmark	3.8	
Stock - Emerging	2022		Custom	-11.3
	2021		Custom	8.9
	2020		Custom	3.4
	2019		Custom	15.0
	2018		Custom	-14.7
	2017		Custom	20.5
2016		Your Stock: Emerging benchmark	10.7	
Stock - Global	2022	70.9	Your Stock: Global benchmark	-15.6
	2021	73.2	Your Stock: Global benchmark	20.4
	2020	73.0	Your Stock: Global benchmark	12.2
	2019	71.1	Your Stock: Global benchmark	26.1
	2018	67.3	Your Stock: Global benchmark	-8.4
	2017	67.1	Your Stock: Global benchmark	18.5
	2016	62.2	Your Stock: Global benchmark	8.6
	2015	61.6	Your Stock: Global benchmark	3.0
	2014	61.1	Your Stock: Global benchmark	8.7
2013	60.9	Your Stock: Global benchmark	25.0	
Fixed income - Global	2022	29.1	Barclays Global Aggregate + Barclays Global Inflation Linked	-13.8
	2021	26.8	Barclays Global Aggregate + Barclays Global Inflation Linked	-1.9
	2020	27.0	Barclays Global Aggregate + Barclays Global Inflation Linked	6.7
	2019	28.9	Barclays Global Aggregate + Barclays Global Inflation Linked	7.4
	2018	32.7	Barclays Global Aggregate + Barclays Global Inflation Linked	0.6
	2017	33.0	Barclays Global Aggregate + Barclays Global Inflation Linked	2.9
	2016	35.3	Barclays Global Aggregate + Barclays Global Inflation Linked	4.2
	2015	35.3	Barclays Global Aggregate + Barclays Global Inflation Linked	0.6
	2014	36.7	Barclays Global Aggregate + Barclays Global Inflation Linked	7.6
2013	38.1	Barclays Global Aggregate + Barclays Global Inflation Linked	-0.2	
REITs	2022		Custom	-13.7
	2021		Custom	17.1
	2020		Custom	10.1
	2019		Custom	17.1
	2018		Custom	-4.6
Real estate ex-REITs	2022		Custom	-14.5
	2021		Custom	7.3
	2020		Custom	8.7
	2019		Custom	13.0
	2018		Custom	-2.1
	2017		Custom	8.3
	2016	2.5	Custom (Actual)	0.8
	2015	3.1	Custom (Actual)	10.0
	2014	2.2	Custom (Actual)	10.4
2013	1.0	Custom (Actual)	11.8	
Infrastructure	2022		Custom	-20.0
	2021		Custom	-3.9

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

Norwegian Government Pension Fund Global

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 - U.S. broad/all External active	2022	1,453.7	-33.20	255.2	2,579.7	(969.7)	1,865.2	1.8	17.7	(6.7)	12.8	
	2021	1,571.0	3.19	212.1	3,376.6	(1,162.9)	2,425.8	1.4	21.5	(7.4)	15.4	
	2020	580.0	51.00	99.8	801.9	5,818.6	6,720.3	1.7	13.8	100.3	115.9	
	2019											
	2018	283.1	0.30	38.9	815.8		854.7	1.4	28.8		30.2	
Stock - Europe External active	2022	10,061.8	-18.90	1,766.5	17,047.4	3,073.4	21,887.3	1.8	16.9	3.1	21.8	
	2021	9,288.0	17.00	1,254.4	16,281.5	6,177.5	23,713.3	1.4	17.5	6.7	25.5	
	2020	7,357.2	9.80	1,265.8	12,744.1	15,818.0	29,827.9	1.7	17.3	21.5	40.5	
	2019	6,303.0	21.40	1,025.0	10,989.0	(2,372.0)	9,642.0	1.6	17.4	(3.8)	15.3	
	2018	8,758.3	-14.90	1,202.7	18,306.9	8,043.5	27,553.1	1.4	20.9	9.2	31.5	
Stock - Emerging External active	2022	40,553.6	-9.40	7,119.9	75,693.2	68,913.8	151,726.9	1.8	18.7	17.0	37.4	
	2021	38,571.0	11.50	5,209.2	68,469.4	77,560.3	151,238.9	1.4	17.8	20.1	39.2	
	2020	30,725.5	8.62	5,286.2	54,323.7	97,933.3	157,543.3	1.7	17.7	31.9	51.3	
	2019	27,759.0	16.30	4,515.0	50,999.0	31,936.0	87,450.0	1.6	18.4	11.5	31.5	
	2018	29,349.0	-13.50	4,030.2	56,219.5	62,007.7	122,257.4	1.4	19.2	21.1	41.7	
Stock - Global Internal active	2022	756,551.3	-15.10	124,816.1			124,816.1	1.6			1.6	
	2021	742,890.3	21.17	87,800.0			87,800.0	1.2			1.2	
	2020	622,049.2	12.90	104,565.8			104,565.8	1.7			1.7	
	2019	602,785.0	26.64	115,092.0			115,092.0	1.9			1.9	
	2018	538,129.1	-9.19	104,260.3			104,260.3	1.9			1.9	
Fixed income - Global Internal active	2022	323,105.4	-12.10	41,040.2			41,040.2	1.3			1.3	
	2021	282,627.1	-1.94	31,769.0			31,769.0	1.1			1.1	
	2020	265,813.1	7.46	40,877.4			40,877.4	1.5			1.5	
	2019	264,597.4	7.56	44,434.0			44,434.0	1.7			1.7	
	2018	264,501.5	0.56	42,087.3			42,087.3	1.6			1.6	
REITs Internal active	2022	23,937.6	-30.80	4,490.0			4,490.0	1.9			1.9	
	2021	19,606.5	26.84	2,951.0			2,951.0	1.5			1.5	
	2020	12,872.2	-14.92	2,681.3			2,681.3	2.1			2.1	
	2019	10,402.4	20.88	1,620.0			1,620.0	1.6			1.6	
	2018	7,937.4	-10.34	2,013.0			2,013.0	2.5			2.5	

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

Norwegian Government Pension Fund Global

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

Norwegian Government Pension Fund Global

Oversight, Custodial and Other Costs			
		000s	bps
Oversight of the fund assets ¹	2022	88,565.1	0.7bp
	2021	78,246.1	0.7bp
	2020	71,920.7	0.7bp
	2019	89,676.9	1.0bp
	2018	76,722.7	0.9bp
Custodial total	2022	46,810.7	0.4bp
	2021	45,995.4	0.4bp
	2020	44,144.1	0.5bp
	2019	42,621.5	0.5bp
	2018	39,045.2	0.4bp
Consulting / performance measurement	2022	7,692.3	0.1bp
	2021	7,681.4	0.1bp
	2020	7,035.2	0.1bp
	2019	10,715.4	0.1bp
	2018	14,930.4	0.2bp
Audit	2022	4,133.5	0.0bp
	2021	3,799.5	0.0bp
	2020	3,892.2	0.0bp
	2019	3,792.3	0.0bp
	2018	4,357.9	0.0bp
Total	2022	147,201.6	1.2bp
	2021	135,722.4	1.2bp
	2020	126,992.2	1.3bp
	2019	146,806.1	1.6bp
	2018	135,056.2	1.5bp

Summary of All Asset Management Costs			
		000s	bps
Investment Management Costs	2022	391,003.0	3.3bp
	2021	340,032.9	3.0bp
	2020	377,275.7	3.9bp
	2019	302,245.4	3.2bp
	2018	349,385.8	4.0bp
Oversight, Custodial & Other Costs	2022	147,201.6	1.2bp
	2021	135,722.4	1.2bp
	2020	126,992.2	1.3bp
	2019	146,806.1	1.6bp
	2018	135,056.2	1.5bp
Total	2022	538,204.6	4.5bp
	2021	475,755.3	4.2bp
	2020	504,267.9	5.2bp
	2019	449,051.5	4.8bp
	2018	484,442.0	5.6bp

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

Norwegian Government Pension Fund Global

All currency amounts have been converted to your currency basket¹. 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.