

BenchmarkDB

2014/15 Investment Benchmarking Analysis for Harrow



Introduction

We are pleased to present the 25th edition of the annual CEM Investment Benchmarking Report for defined benefit plans. We greatly appreciate your business and continued support.

In this report you will find a comparison of your fund's investment returns, value added and costs to the Global universe.

We take pride in our data cleaning process. This ensures that the findings of the analysis are reliable, and can help our clients optimize their performance and maximize retirement income of fund participants.

This report compares your costs and performance at different dates:

- Investment performance is for the calendar year to December 2014 (consistent with the universe of funds that supply CEM with data). This report reflects just one year's performance.
- Fund values and asset mix information for LGPS funds are for LGPS financial year ending March 2015. For the wider universe of funds this information is for the year ending December 2014.
- Costs are for the LGPS financial years ending March 2013, 2014 and 2015. For the wider universe of funds, costs are for the year ending December 2014.

This is done to:

- a) Provide accurate performance comparisons against the wider universe of participating funds.
- b) Enable LGPS funds to report costs for their financial year that are:
 - Easier to collect
 - More helpful for LGPS funds to compare, and
 - Aligned with the expectation of DCLG for the purpose of reporting costs between 2013 and 2015.

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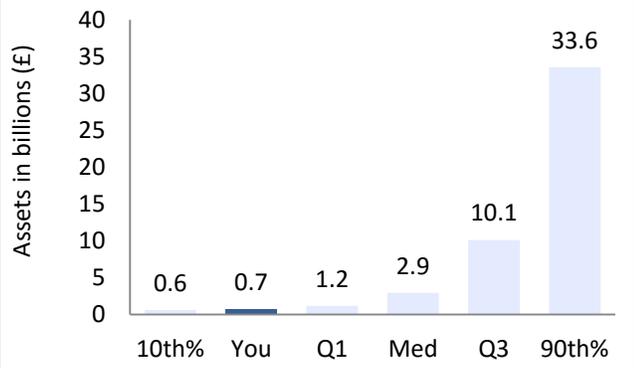
Prepared on June 6, 2016

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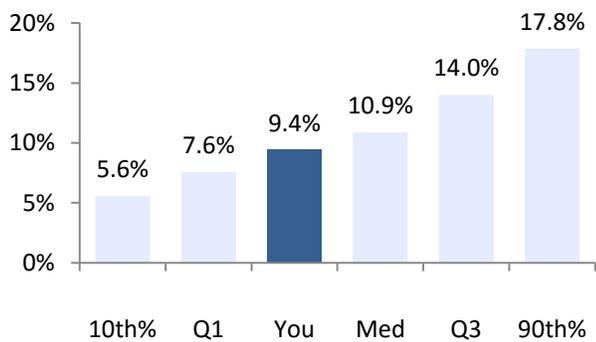
Executive summary

Participating Global funds by assets



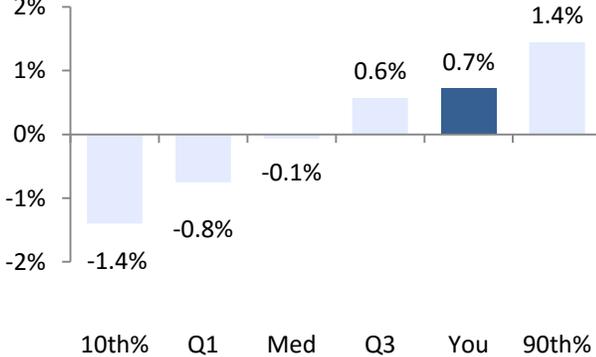
The primary comparisons in this report are to the Global universe. It is comprised of 407 funds with plan size ranging between £35 million and £591.2 billion. The median fund was £2.9 billion which compares to your fund's £667 million.

Net total return



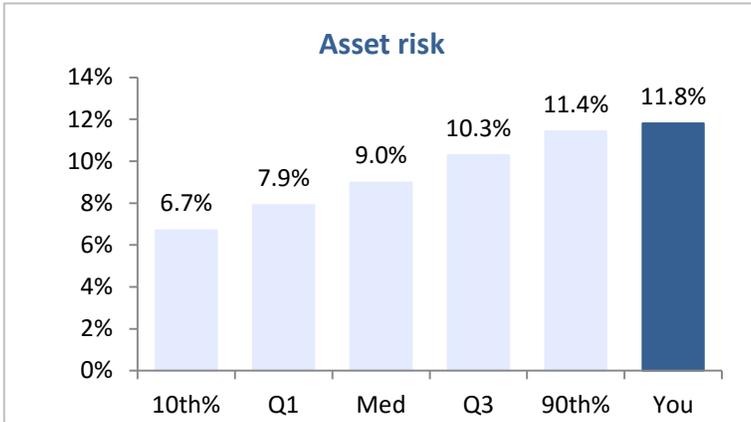
Your fund's 2014 net total return was 9.4%. This was below the Global median of 10.9%.

Net value added



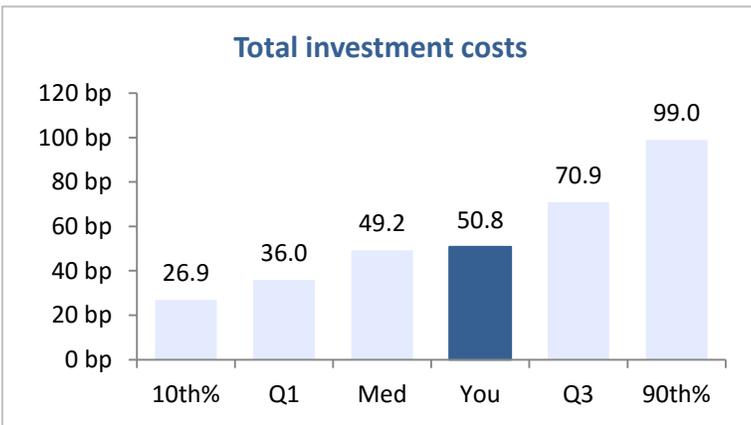
Net value added measures the value produced over what could have been earned by using passive management. It equals net total return minus policy return.

Your 2014 net value added was 0.7%. This was above the Global median of -0.1%.



Your asset risk was 11.8%. This was above the Global median of 9.0%.

Asset risk is the expected standard deviation of your policy return. It is based on the historical variance of, and covariance between, the asset classes in your policy mix.



Your fund's total investment cost in 2014/15 was 50.8 bps. This was above the Global median of 49.2 bps.

Total investment costs used in this analysis exclude transaction costs and private asset performance fees.

Benchmark cost analysis

	£000s	Basis points
Your investment cost	3,176	50.8 bp
less: Your benchmark cost	3,670	58.7 bp
equals: Your cost savings	494	7.9 bp

Differences in total cost are often due to differences in fund size and asset mix. Therefore, to help you assess whether your costs are high or low CEM calculates a benchmark cost for your fund that adjusts for differences in fund size and asset mix.

Your total investment cost of 50.8 bps was below your benchmark cost of 58.7 bps.

Changes to your costs

	£000s	Basis points
Your total investment costs in 2012/13	2,281	45.3 bp
Your total investment costs in 2014/15	3,176	50.8 bp
3-year change	895	5.4 bp

Costs can change because of:

- Changes in the values of assets
- Changes in asset mix
- Changes in how much you pay for similar assets/services

Your cost increased from 45.3 bps in 2012/13 to 50.8 bps in 2014/15.

Benefits of upgrading to peer-based benchmarking

This report is provided free of charge. It provides a limited but helpful comparison with other funds. If you would like more detailed comparisons, a full explanation of your relative cost and a multi-year view then we suggest that you upgrade to our detailed, peer based benchmarking report. The differences between this and the detailed report are explained below:

	Snapshot report	Peer-based benchmarking report
Report size	Approx. 30 pages	Approx. 160 pages
Which funds will we be compared with?	The universe of funds providing CEM with data.	<i>For cost: A peer group of approximately 20 funds similar to you in terms of size.</i> <i>For performance: The universe of funds providing CEM with data.</i>
How does CEM compare us in terms of cost?	We run a regression across the universe of clients giving us data to calculate a benchmark cost – an ‘average cost for a fund of your size and asset mix’. This is designed to be indicative – it isn’t a perfect benchmark comparison.	We calculate a benchmark cost based on the median costs for each asset class amongst your custom peer group applied to your asset mix. This provides a precise basis for comparison.
Does the report explain why we are high or low cost?	No – though some data in the report helps you to form a picture.	Yes – we fully explain, in £ and bps, at an asset class and aggregate level, why you are high or low cost relative to the benchmark.
How does CEM compare us in terms of performance?	One-year analysis comparing you with the universe for: · Total Returns. · Policy Returns. · Value added.	Consistent with the Snapshot report but with multi-year analysis and more detail.
What does the report contain in terms of cost effectiveness?	Cost effectiveness ranking based on the benchmark cost comparison described above and one-year value added.	Cost effectiveness ranking based on the benchmark cost comparison described above and multi-year value added.

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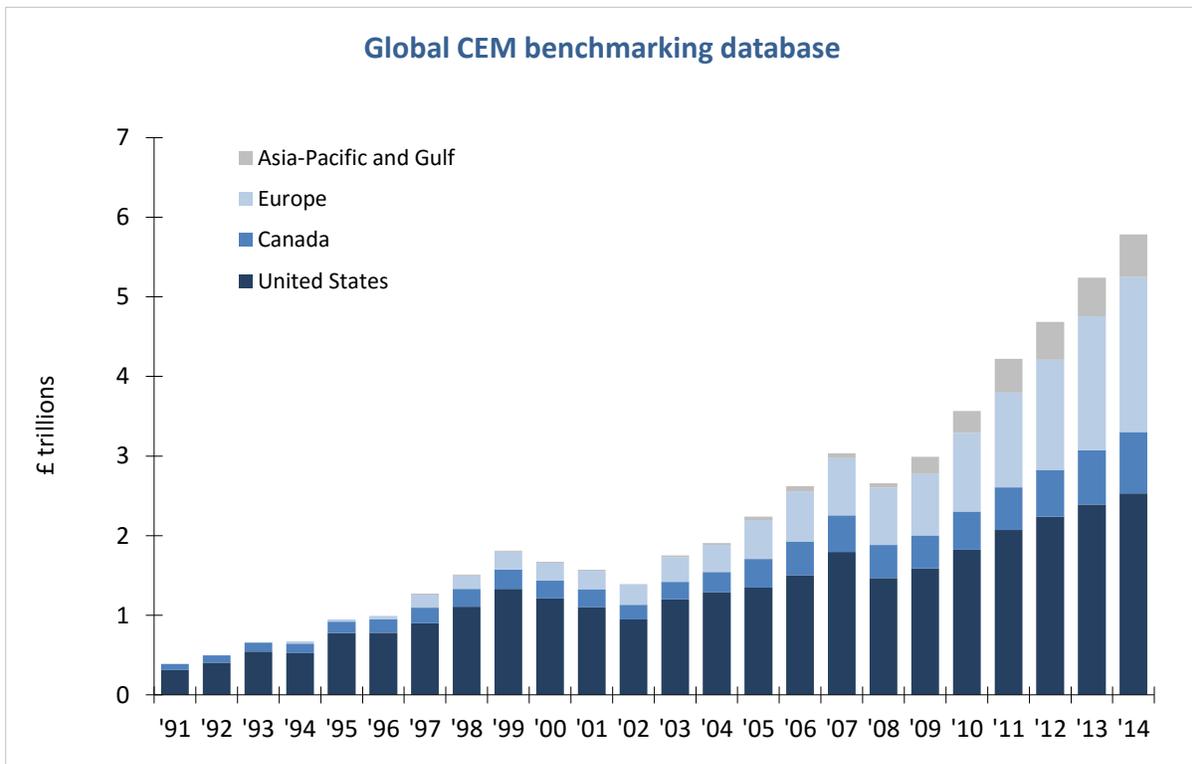
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The benchmarking database

CEM's global benchmarking database

CEM has been providing cost benchmarking solutions since 1991. The 2014 survey universe is comprised of 407 funds representing £5.8 trillion in assets. The breakdown by region is as follows:

- 173 U.S. pension funds with aggregate assets of £2.5 trillion.
- 87 Canadian pension funds with aggregate assets of £771.8 billion.
- 99 UK pension funds with aggregate assets of £306 billion.
- 40 European pension funds with aggregate assets of £1.6 trillion. Included are funds from the Netherlands, Norway, Sweden, Finland, Denmark and Ireland.
- 8 Asia-Pacific and Gulf region pension funds with aggregate assets of £535 billion.

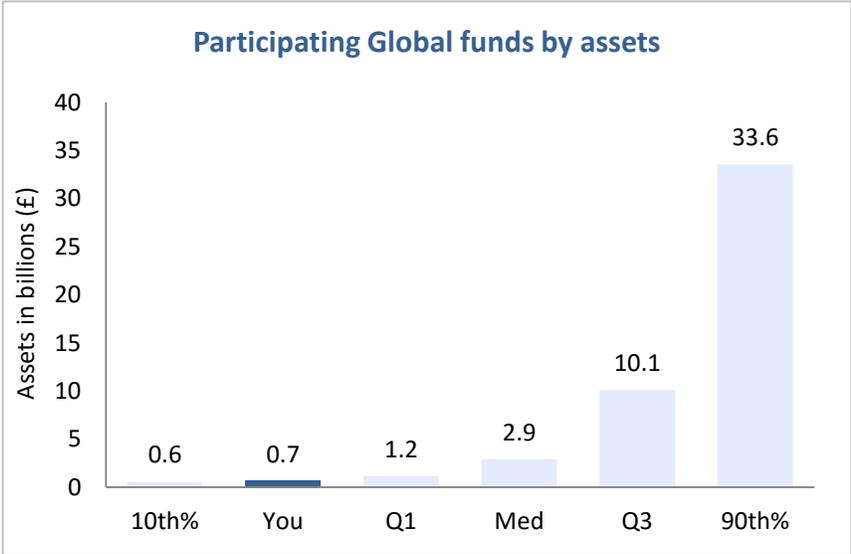


Characteristics of the Global survey universe

In this report, your fund's results are compared to the 2014 Global survey universe.

The Global universe is comprised of 407 pension funds:

- Combined the funds had aggregate assets of £5.8 trillion.
- The funds range in size between £35 million and £591 billion.
- The median size was £2.9 billion (versus your £667 million).
- 52 are other, 161 are corporate and 194 are public funds.
- The median membership was 43,618 members (versus your 17,143 members). The median assets per member was £104,941 (versus your £38,894).



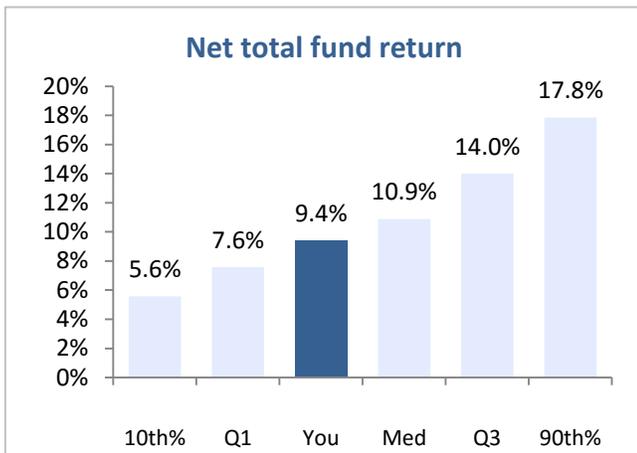
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Returns, value added and risk

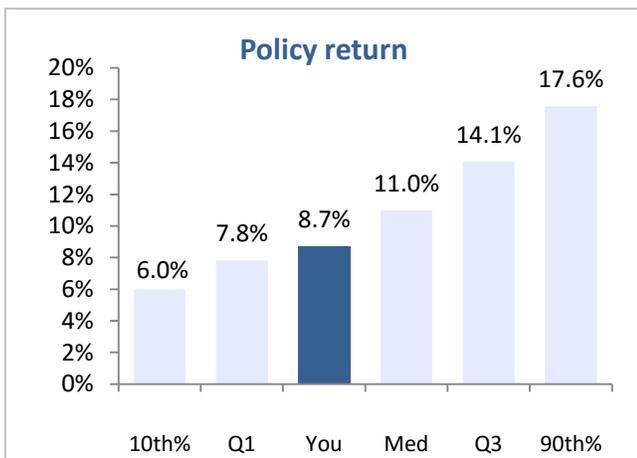
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The returns highlighted in this section for you and the universe of participants are for the calendar year to December 2014.

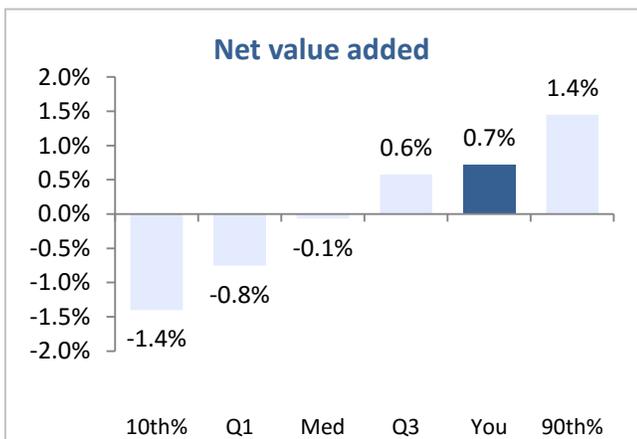
Net returns, policy returns and net value added



Your 2014 net total fund return was 9.4%. This was below the Global median of 10.9%.



Policy return is the return you could have earned passively by indexing your investments according to your policy mix. Your 2014 policy return was 8.7%. This is below the Global median of 11.0%.



Your 2014 net value added was 0.7%. This was above the Global median of -0.1%.

Policy asset mix

Differences in policy return are caused by differences in policy asset mix. Policy asset mix is a fund's long-term asset mix policy or target asset weights. Policy weights are usually established by an investment committee or board and are determined by long-term considerations, such as liability structure, risk tolerance and long-term capital market expectations.

2014 policy asset mix by asset class			
Asset Class	Your Fund ¹	Global Average	LGPS Average ^{1 2}
Stock			
Europe	0.0%	0.7%	0.0%
Europe Small Cap	0.0%	0.0%	0.0%
Japan	0.0%	0.2%	0.7%
Asia-Pacific	0.0%	0.3%	0.4%
Asia-Pacific ex-Japan	0.0%	0.1%	0.6%
UK	0.0%	3.5%	15.8%
EAFE ex-UK	0.0%	0.6%	2.1%
U.S.	0.0%	11.7%	2.8%
EAFE	0.0%	3.6%	0.0%
ACWixU.S.	0.0%	2.7%	0.0%
Emerging	10.0%	2.6%	2.4%
Global	52.0%	14.8%	30.7%
Global Small Cap	0.0%	0.0%	0.0%
Other	0.0%	4.2%	0.4%
Stock - Total	62.0%	45.1%	56.0%
Fixed Income			
Euro	0.0%	0.7%	0.0%
Euro Gov't	0.0%	1.8%	0.0%
Euro Credit	0.0%	0.4%	0.0%
UK	10.0%	1.0%	4.6%
UK Gov't	3.0%	0.4%	1.8%
UK Credit	0.0%	0.4%	1.8%
EAFE ex-UK	0.0%	0.0%	0.1%
US	0.0%	5.8%	0.0%
Long Bonds	0.0%	9.5%	0.0%
Emerging	0.0%	1.0%	0.2%
Global	0.0%	2.2%	5.0%
Global Gov't	0.0%	0.4%	0.2%
Global Credit	0.0%	1.0%	2.1%
Inflation Indexed	0.0%	2.1%	2.5%
High Yield	0.0%	1.2%	0.1%
Mortgages	0.0%	0.2%	0.0%
Private Debt	0.0%	0.4%	0.5%
Other	0.0%	6.4%	1.3%
Cash	0.0%	0.7%	0.5%
Fixed Income - Total	13.0%	35.5%	20.8%
Commodities	0.0%	0.5%	0.3%
Infrastructure	0.0%	1.3%	1.8%
Natural Resources	0.0%	0.3%	0.1%
REITs	0.0%	0.5%	0.5%
Real Estate ex-REITs	10.0%	5.8%	8.2%
Other Real Assets	0.0%	0.3%	0.3%
Hedge Funds	0.0%	3.5%	2.3%
Global TAA	10.0%	2.8%	6.5%
Diversified Private Equity	5.0%	3.6%	2.9%
Venture Capital	0.0%	0.2%	0.3%
LBO	0.0%	0.2%	0.0%
Other Private Equity	0.0%	0.2%	0.1%
Total	100%	100%	100%

1. Your asset mix, and that of the LGPS universe, are as at March 2015.

2. Based on the universe of LGPS funds that provided data at the point the report was produced.

Calculation of your policy return and net value added

Calculation of 2014 policy return and value added for Harrow					
Asset class	Policy weight	Net return ¹	Benchmark description	Benchmark return	Net value added
Stock					
UK		1.2%	Your Stock: UK benchmark	1.2%	0.0%
Emerging	10.0%	-0.7%	MSCI Emerging Market Index	3.9%	-4.6%
Global	52.0%	9.2%	MSCI All World Index (59%) / MSCI World NDR (20%) / MSCI World (Local) TR Net (21%) -(No BM as not full year in Fund)	10.0%	-0.8%
Fixed Income					
UK	10.0%	17.1%	iBoxx Sterling Non Gilt Only 10+ Yr Index	18.0%	-0.9%
UK Gov't	3.0%	21.1%	Your Bonds:UK Gov't benchmark	21.4%	-0.3%
Real Estate ex-REITs	10.0%	16.6%	IPD UK PPF All Balanced Funds	17.2%	-0.6%
Global TAA	10.0%	5.0%	3 Month LIBOR + 4%	4.5%	0.5%
Diversified Private Equity	5.0%	21.7%	Your Diversified or All benchmark	10.8%	10.9%
Total	100.0%				
Net total fund return					9.4%
Policy return					<u>8.7%</u>
Net value added (Net return - policy return)					0.7%

1. If you were unable to provide full year net returns the default is to set the unavailable return equal to the benchmark return.

Your 2014 net value added was 0.7%. This was determined by subtracting your policy return of 8.7% from your net return of 9.4%.

- Policy return is the return a fund would have earned if it had passively implemented its policy mix through its benchmark indices. Your policy return equals the sum of your policy weights multiplied by your benchmarks for each asset class.
- Net value added equals your net return minus your policy return. It primarily reflects the contribution of active management.

Returns and value added by asset class

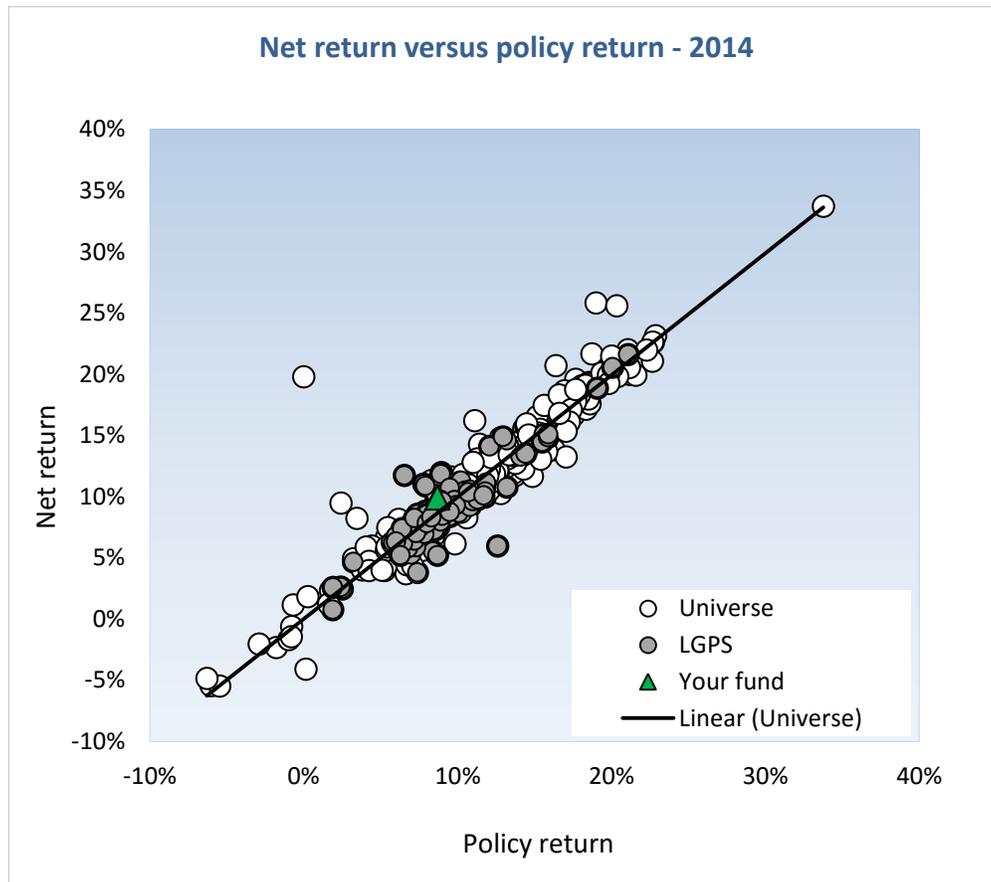
The table below compares your fund's net returns, benchmark returns and net value added by asset class to the Global median and LGPS median.

2014 Returns and net value added by asset class									
Asset class	Your fund			Global median			LGPS Median		
	Net return ¹	Bench- mark return	Net value added ²	Net return	Bench- mark return	Net value added	Net Return	Bench- mark Return	Net Value Added
Stock									
UK	1.2	1.2	0.0	1.3	1.2	0.1	1.3	1.2	0.0
Emerging	-0.7	3.9	-4.6	3.5	3.5	-0.2	4.3	4.3	-0.5
Global	9.2	10.0	-0.8	9.8	10.3	-0.2	10.3	10.7	-0.3
Fixed Income									
UK	17.1	18.0	-0.9	13.9	13.9	-0.1	13.2	13.8	-0.1
UK Gov't	21.1	21.4	-0.3	19.8	19.1	-0.5	19.8	19.1	-0.5
Real Estate ex-REITs	16.6	17.2	-0.6	15.3	17.2	-0.4	14.6	17.2	-2.0
Global TAA	5.0	4.5	0.5	7.6	5.9	0.6	4.6	4.0	0.7
Diversified Private Equity	21.7	10.8	10.9	18.4	14.2	0.5	15.3	8.4	5.7

1. Net return shown on this page equals the asset-weighted average of your internal passive, internal active, external passive and external active actual returns for each asset class.
2. Net value added equals net return minus benchmark return. Net returns are calculated as your reported gross return minus management fees, internal costs and performance fees for public assets.

The correlation between net returns and policy returns

The primary reason for differences in total fund return is usually differences in asset mix policy. But asset mix policy matters more in some years than others. This plot of net return versus policy return demonstrates the extent to which investment policy explained differences in investment returns in 2014.

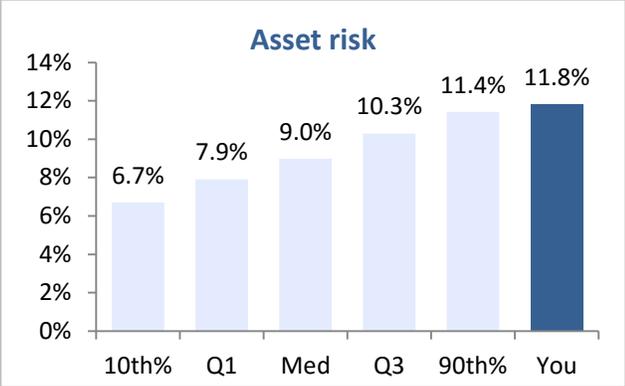


The R^2 of the regression of policy returns versus net returns in 2014 was 89%. This means that, on average, 89% of differences in net return for 2014 can be explained by differences in investment policy.

Generally, in any given year, the greater the difference between stock and bond returns, the more differences in net return can be explained by differences in policy return.

Risk analysis

When assessing returns and value added it is important to also consider investment asset risk.



Asset risk is the expected volatility of your plan's policy returns. Your asset risk was 11.8%, which was above the Global median of 9.0%.

In calculating risk levels, CEM does not use your specific policy benchmarks. Standard asset class proxies are used for each given asset class.

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Cost and cost effectiveness

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The costs highlighted in this section for you and for other LGPS funds are for the LGPS financial year (i.e., to March 31). The wider universe of funds provides costs for the calendar year to December 2014.

Your 2012/13 investment costs

Your 2012/13 total investment cost was 45.3 basis points. It is comprised of asset management fees and costs plus oversight, custodial and other costs. It excludes transaction costs, private asset performance fees and non-investment pension costs such as actuarial costs and benefit administration.

Your 2012/13 investment management costs in £000s									
Asset Category	<u>Internal & Co-Inv.</u>		<u>External Passive</u>		<u>External Active</u>			Total	
	Passive	Active	Fees	Monitoring & Other	Base Fees	Under-lying	Perf. Fees ¹ & Other		
Stock									
UK			61						61
Global					774		13		787
Fixed Income									
UK					99				99
UK Gov't					25				25
Real Estate ex-REITs - Fund of Funds					87	306			393
Diversified Priv. Equity - Fund of Funds					299	250			549
Overlay Programs					20				20
Total asset management cost excluding private asset performance fees									1,934
Your 2012/13 oversight, custodial & other asset related costs* (£000s)									
Oversight of the fund									163
Custodial									9
Consulting and Performance Measurement									134
Audit									21
Other									20
Total oversight, custodial & other asset related costs									347
Total investment cost (excluding private asset performance fees and transaction costs)									2,281
									45.3 bp

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

* Excludes non-investment costs, such as pension administration.

Your 2013/14 investment costs

Your 2013/14 total investment cost was 49.8 basis points. It is comprised of asset management fees and costs plus oversight, custodial and other costs. It excludes transaction costs, private asset performance fees and non-investment pension costs such as actuarial costs and benefit administration.

Your 2013/14 investment management costs in £000s									
Asset Category	Internal & Co-Inv.		External Passive		Base Fees	External Active			Total
	Passive	Active	Fees	Monitoring & Other		Under-lying	Perf. Fees ¹	Monitoring & Other	
Stock									
UK			70						70
Global					769		43		812
Fixed Income									
UK					101				101
UK Gov't					25				25
Real Estate ex-REITs - Fund of Funds					93	326			419
Global TAA					378				378
Diversified Priv. Equity - Fund of Funds					299	250			549
Overlay Programs					20				20
Total asset management cost excluding private asset performance fees									2,374
Your 2013/14 oversight, custodial & other asset related costs* (£000s)									
Oversight of the fund									160
Custodial									9
Consulting and Performance Measurement									187
Audit									21
Other									23
Total oversight, custodial & other asset related costs									400
Total investment cost (excluding private asset performance fees and transaction costs)									2,774
									49.8 bp

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

* Excludes non-investment costs, such as pension administration.

Your 2014/15 investment costs

Your 2014/15 total investment cost was 50.8 basis points. It is comprised of asset management fees and costs plus oversight, custodial and other costs. It excludes transaction costs, private asset performance fees and non-investment pension costs such as actuarial costs and benefit administration.

Your 2014/15 investment management costs in £000s								
Asset Category	Internal & Co-Inv.		External Passive		External Active			Total
	Passive	Active	Fees	Monitoring & Other	Base Fees	Under-lying	Perf. Fees ¹ & Other	
Stock								
UK			45					45
Emerging					224			224
Global			48		637		166	851
Fixed Income								
UK					112			112
UK Gov't					28			28
Real Estate ex-REITs - Fund of Funds					92	341	0 ¹	433
Global TAA					428		0	428
Diversified Priv. Equity - Fund of Funds					299	227		526
Overlay Programs					21			21
Total asset management cost excluding private asset performance fees								2,668
Your 2014/15 oversight, custodial & other asset related costs* (£000s)								
Oversight of the fund								238
Custodial								10
Consulting and Performance Measurement								175
Audit								19
Other								66
Total oversight, custodial & other asset related costs								508
Total investment cost (excluding private asset performance fees and transaction costs)								3,176
								50.8 bp

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

* Excludes non-investment costs, such as pension administration.

Your cost increased from 45.3 bps in 2012/13 to 50.8 bps in 2014/15.

	£ k	Bps	Notes
Investment cost in 2012/13	2,280.7	45.3	
Impact of change in scale	555.9		1
Impact of change in asset mix	474.9	7.6	2
Impact of change in overlays	-3.9	-0.1	
Impact of other changes:			
<i>Implementation Style:</i>			
Less active management	-319.5	-5.1	
<i>What you pay for similar assets / services:</i>			
Public equity			
Lower base fees	-6.7	-0.1	
Higher performance fees	155.7	2.5	
Fixed income			
Lower base fees	-3.3	-0.1	
Real Assets*			
Lower base fees	-38.1	-0.6	
Private Equity			
Higher base fees	4.0	0.1	
Higher oversight costs	76.4	1.2	3
Total	895.3	5.4	
Investment cost in 2014/15	3,176.0	50.8	

* Real assets includes commodities, natural resources, infrastructure, real estate and other real assets.

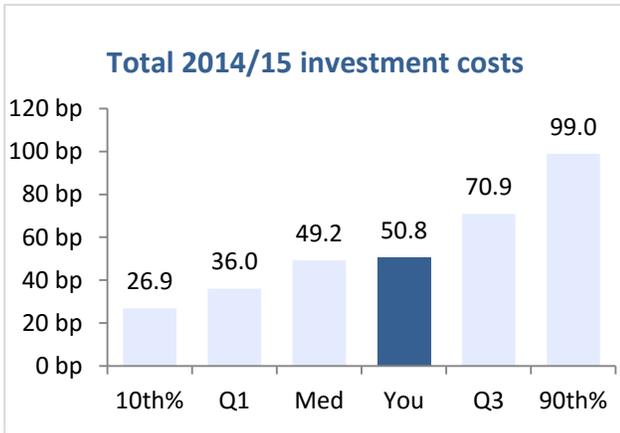
1. Assuming your asset mix, implementation style and how much you pay in bps for similar assets and services remained constant, your costs in £ would have risen in line with assets (by 18%).

2. An increasing allocation towards higher cost assets will push your total cost up (and vice versa).

3. Oversight includes custody, performance measurement, legal and other professional fees and internal oversight costs (e.g., any CIO) that cannot be attributed at an asset class level.

Total 2014/15 investment costs

Your plan's total investment cost, excluding transaction costs and private asset performance fees, was £3,176,000 or 50.8 bps. This was above the Global median of 49.2 bps.



Your total investment cost consists of asset management costs and oversight, custodial and other costs. A breakdown of these costs can be found on page 19.

Total investment cost excludes transaction costs, private asset performance fees and actuarial costs.

Pension administration costs are also excluded.

Comparisons of total investment cost must be interpreted with caution because differences are often due to differences in size and asset mix. Therefore, CEM calculates a benchmark cost for each fund to help them understand whether they are high or low cost after adjusting for differences in size and asset mix. The benchmark cost is determined using regression analysis on all participating funds in the CEM database.

Benchmark cost analysis

Your fund's benchmark cost was 58.7 bps in 2014/15. Your benchmark cost can be thought of as the average cost for a fund with your size, asset mix and country of origin. Your actual total cost of 50.8 bps was below your benchmark cost.

Benchmark cost analysis		(£000)	basis points
	Your fund's benchmark cost	3,670	58.7 bps
<i>less</i>	Your investment cost	3,176	50.8 bps
<i>equals</i>	Your fund's cost savings	494	7.9 bps

The primary reasons why a fund's costs might be high (or low) compared to their benchmark cost are:

- Using a higher (or lower) cost implementation style - For example, passively indexing tends to be lower cost than active management. Similarly, internal management tends to be lower cost than using external managers, which in turn is lower cost than using fund of funds. See page 24 for style comparisons. Differences in implementation style are not taken into account in the benchmark equation, because they are considered to be within the control of sponsors.
- Paying more (or less) than similar size funds for same-style, same-asset-class investment management.
- Paying more (or less) than similar size funds for oversight, custodial and other costs.

CEM determines a benchmark cost using regression analysis on its entire database. The R^2 for the benchmark cost equation was 67%. This means that fund size, asset mix and country of origin explain more than 67% of the differences in investment cost (excluding transaction costs and private asset performance fees) between funds. This is good explanatory power, but not perfect. Your benchmark cost is intended to be used only as an indicator and should not be interpreted too precisely.

The benchmark cost equation

2014/15 Benchmark cost regression		
Variables	Co-efficients	t statistic
Constant	84.4	19.2
Size in US\$ millions (Log 10)	-15.7	-14.6
Stocks (incl. REITs) as % of assets	14.3	3.3
Real estate as % of assets	56.7	3.7
Hedge funds & private equity as % of assets	205.2	27.4
Country variable	-6.9	-4.0
Standard Error	14.5	
R ²	67%	
F statistic	186	
Sample size	449	

CEM determines a benchmark cost for all funds using regression analysis. The 2014/15 regression equation is:

$$\text{Benchmark Cost} = 84.4\text{bp} + (-15.7\text{bp} \times \log \text{ of size}) + (14.3\text{bp} \times \% \text{ stocks}) + (56.7\text{bp} \times \% \text{ real estate}) + (205.2\text{bp} \times \% \text{ hedge funds \& private equity}) + (-6.9\text{bp} \times \text{country variable}) + ((\text{hedge fund assets} \times \text{universe average hedge fund performance fees in bps}) / \text{total average holdings})$$

Using your fund's data:

$$\text{Your } 58.7 \text{ bp Benchmark Cost} = 84.4\text{bp} + (-15.7\text{bp} \times 2.98 \text{ log of size}) + (14.3\text{bp} \times 67.5\% \text{ stocks}) + (56.7\text{bp} \times 7.6\% \text{ real estate}) + (205.2\text{bp} \times 3.4\% \text{ hedge funds \& private equity}) + (-6.9\text{bp} \times 0 \text{ country variable}) + ((0.0 \text{ million hedge funds} \times 100.0 \text{ bps average hedge fund performance fees}) / \text{total average holdings of } 625.7 \text{ million})$$

where:

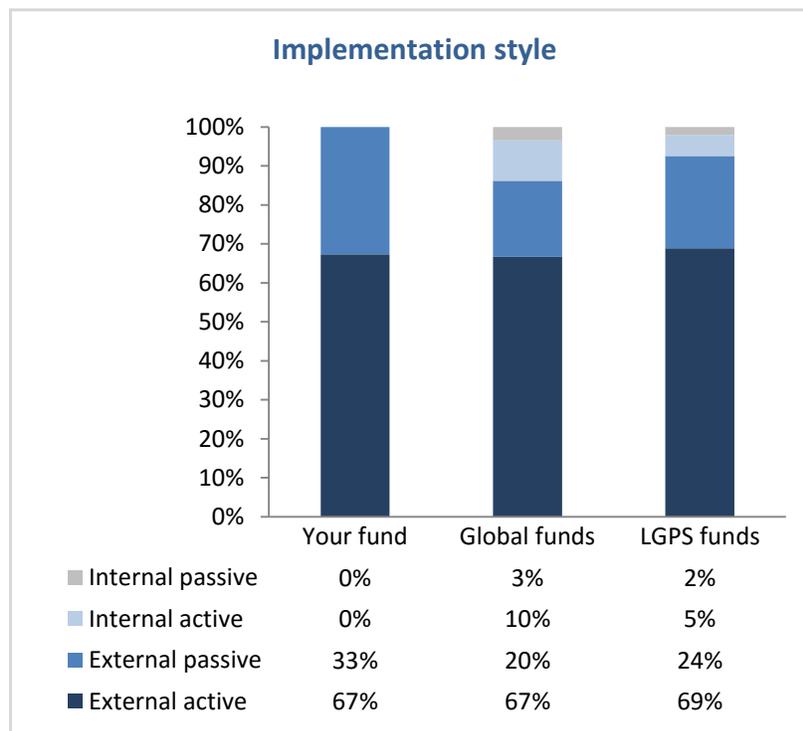
- Size in US\$ millions = Log10 (fund size in US\$ millions).
- % Stocks (incl. REITs) = proportion of actual holdings in stocks plus REITs.
- % Real estate = proportion of actual holdings in direct/pooled real estate (REITs are excluded) and infrastructure.
- % Hedge funds & private equity = proportion of actual holdings in hedge funds, venture capital, LBO and other private equity.
- Country variable = 1 if your fund is Canadian, otherwise 0. (Canadian funds are on average lower cost)

The R² for the benchmark cost equation was 67%. This means that fund size, asset mix and country of origin explain more than 67% of the differences in investment cost (excluding transaction costs and private asset performance fees) between funds. This is good explanatory power, but not perfect. Your benchmark cost is intended to be used only as an indicator and should not be interpreted too precisely.

Implementation style

One reason why funds are high (or low) cost compared to their benchmark cost is differences in implementation style. Implementation style is defined as the way in which you implement your asset allocation. It includes internal, external, active, passive and fund-of-funds styles.

- Internal: managed by in-house investment managers.
- External: managed by outside or external investment managers.
- Passive: managed with the aim of replicating an index, immunising liabilities, etc.
- Active: managed with the intention of outperforming an index.



The greatest cost impact is usually caused by differences in the use of either:

- External active management – External active management tends to be much more expensive than either passive or internal management. Your fund was 67% externally actively managed. This was below the Global average of 67%.
- Fund of funds usage – Fund of funds tend to be the most expensive type of external active management because costs include the management fee of the fund of fund manager plus the management fees to the managers of each of the underlying funds invested in by the fund of fund manager. Your fund used fund of funds for 100% of its hedge funds, real estate and private equity investments. This was more than the Global universe average of 31%.

The benchmark cost analysis does not adjust for the cost impact of implementation style because this is considered to be a choice within your control.

Comparison of asset management costs by asset class

Comparisons of your costs to the universe must be interpreted with caution, given the breadth of the universe, which encompasses funds with widely varying size and asset mix. Peer-based analysis is needed to truly understand where you are paying more and where you are paying less on a comparable basis. See page 6.

2014/15 Asset management costs in basis points																	
Asset class	Your fund 2014/15					Global median 2014					LGPS Median 2014/15						
	Internal		External		LP	FoF ¹	Internal		External		LP	FoF ¹	Internal		External		
	Passive	Active	Passive	Active			Passive	Active	Passive	Active			Passive	Active	Passive	Active	
Stock																	
Europe						5.6	6.2	11.8	37.9								
Europe Small Cap							9.5	25.5	60.3								
Japan							2.1	8.6	36.0					2.1	8.6	36.0	
Asia-Pacific						7.6	12.5	11.8	48.2					2.6	7.5	43.6	
Asia-Pacific ex-Japan							1.9	10.8	40.8					1.9	11.5	40.8	
UK			3.5			2.6	3.0	4.5	42.6					2.5	2.5	4.5	38.4
EAFE ex-UK						2.7	5.1	9.9	25.1					2.5	2.1	9.7	24.4
U.S.						1.1	8.6	3.2	46.5					2.4	1.6	7.9	22.0
EAFE						4.7	7.7	5.0	50.2								
ACWixU.S.						10.8	1.5	6.1	48.8								
Emerging				73.4		4.6	11.1	15.8	72.4					1.9	20.6	72.2	
Global			4.4	41.8		6.5	10.3	7.9	47.4					0.8	9.3	42.8	
Global Small Cap									31.1							17.8	
Other						2.1	10.7	4.3	28.9					3.2	7.7	64.6	
Fixed Income																	
Euro						2.1	3.9	3.6	23.9								
Euro Gov't						5.9	3.7	14.0	7.2								
Euro Credit							5.7	9.9	24.4								
Asia-Pacific						0.7	6.4										
UK				17.7		1.2	3.6	6.0	19.5					2.0	5.5	19.4	
UK Gov't				17.7			2.9	5.5	17.5					2.9	5.5	17.5	
UK Credit							3.8	8.4	14.5					3.8	8.4	14.5	
EAFE ex-UK									30.6							30.6	
Long Bonds						0.6	3.9	4.1	18.8								
EAFE							3.7		28.3								
Emerging						11.0	6.3	16.1	53.1					29.1	14.4	42.1	
Global						6.6	1.9	5.8	31.3					4.0	7.0	33.6	
Global Gov't						6.3	2.7	6.8	18.0						6.8	19.6	
Global Credit							3.2	6.5	31.9						6.5	30.0	
Inflation Indexed						1.2	2.7	4.3	16.7					2.3	3.7	29.3	
High Yield						17.2	6.8	27.5	50.0					13.1		211.1	
Mortgages						4.8	11.6	8.4	39.9								
Private Debt							29.2		80.9					3.2		64.0	
Other						0.9	3.7	5.0	20.2					1.6	19.9	28.8	
Commodities						3.8	4.9	35.1	65.1							97.9	
Infrastructure ²							25.5		95.0	133.5	213.3				103.7	122.0	223.6
Natural Resources ²							22.6		95.7	116.0	167.4					98.3	149.2
REITs						1.8	5.4	12.0	51.6							65.2	
Real Estate ex-REITs ²					90.6		22.4		74.8	119.1	132.9			20.0	63.7	120.0	119.1
Other Real Assets ²							50.0		95.4					1.8		136.1	
Hedge Funds Total*									255.0		318.1				215.7		336.1
• Base fees top layer									155.0		71.9				134.5		93.1
• Perf. fees top layer									81.3		20.0				43.4		20.0
• Underlying base & perf				n/a					n/a		225.0				n/a		225.0
Global TAA				75.1			19.5		59.5							59.1	
Diversified Private Equity ²					221.0		20.4		165.0		247.9			3.1	165.7		248.8
Venture Capital ²							127.5		200.0		267.7				218.1		283.8
LBO ²							69.2		165.0		241.7				174.1		
Other Private Equity ²							3.7		138.2							147.4	
Total before overlays						42.3					44.5						47.2
Overlay management costs (as a % of total assets)						0.3					0.0						0.0
Total direct investment management cost						42.6					44.5						47.2

1. FoF stands for Fund-of-Funds. Fund of funds costs include management fees paid to the fund of funds manager plus fees paid to the managers of each of the underlying funds selected by the fund of funds manager.

2. External performance fees are excluded from private asset costs. Costs are as a percentage of the amount fees are based on; usually the committed amount during the commitment period, and unreturned invested capital afterwards.

* Medians will not add to the total because the median fund is not the same for each part, and the internal cost of oversight and selection is not shown.

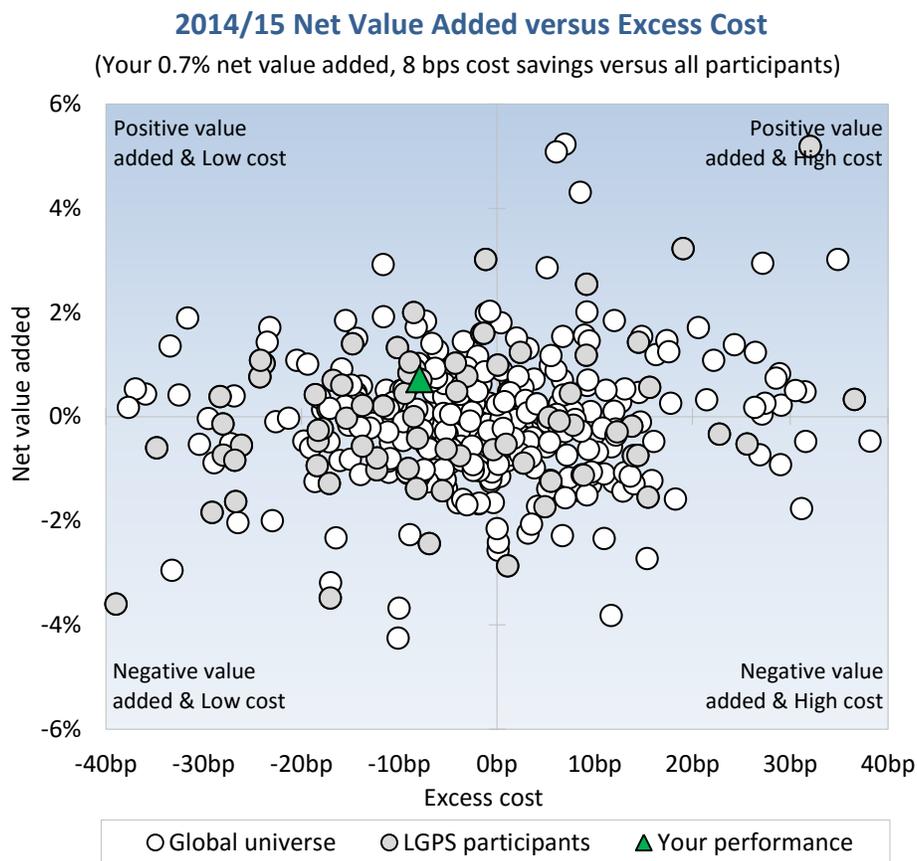
Comparison of oversight, custodial and other investment costs

Oversight, custodial and other costs	You	Global median	LGPS Median
Oversight	3.8 bps	1.6 bps	1.3 bps
Custodial	0.2 bps	0.8 bps	0.5 bps
Consulting, performance measurement	2.8 bps	0.5 bps	0.6 bps
Audit	0.3 bps	0.1 bps	0.2 bps
Other	1.1 bps	0.2 bps	0.2 bps
Total	8.1 bps	4.0 bps	3.3 bps

Cost effectiveness ranking

Being high or low cost is neither good nor bad. The more important question is, are you receiving sufficient value for your excess cost? At the total fund level, we provide insight into this question by combining your value added and your excess cost to create a snapshot of your 2014/15 cost effectiveness performance relative to that of the survey universe.

In an ideal world, the more you pay (i.e., the higher your excess cost) the more you would get (i.e., the higher your value added). If this were true, you would see an upward sloping trend in the scatter chart below. Clearly, this is not the case. Our research over the past 25 years shows no consistent relationship between excess costs and the net value added they achieve.



5

Plan data

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Investment and plan structures

Performance-based fees

Were any of your stock, bond or TAA external managers subject to performance-based fee arrangements in 2014?

	# of funds with data	% Yes	% No
Your fund	1	-	No
Global	407	47%	53%

Type of plans

What type of plan(s) do you have?

	# funds with data	Types of plans			Other (or multiple)
		Flat benefit	Career average	Final average	
Your fund	1	-	Yes	-	-
Global	367	3%	17%	72%	7%

Plan liabilities

Indexation of retired members' benefits

To what extent are your retired members' benefits indexed to inflation?

	Average contractual ¹ indexation as % of CPI	% of Funds with contr. indexation > 0 where indexation is subject to a cap
Your fund	100%	-
Global	43%	55%

1. Several funds had contractual inflation protection subject to caps (ranging from 2% to 8%). Most of these funds have had close to 100% inflation protection during the last 5 years of low inflation and this is how we have recorded their inflation protection. However, in high inflation environments, we will have grossly overestimated their true inflation protection.

Plan membership

How many plan members/beneficiaries do you have?

	# of Funds with data	Average # members	% Active	% Retired	% Other	Avg Assets per Member
Your fund	1	17,143	32%	31%	37%	38,894
Global	362	148,266	38%	39%	24%	148,569

Actuarial fees

What were your 2014 actuarial fees in £000s?

	# of Funds with data	Average Fees (£000s)	% of Total assets
Your fund	0		
Global	358	467	1.4bp

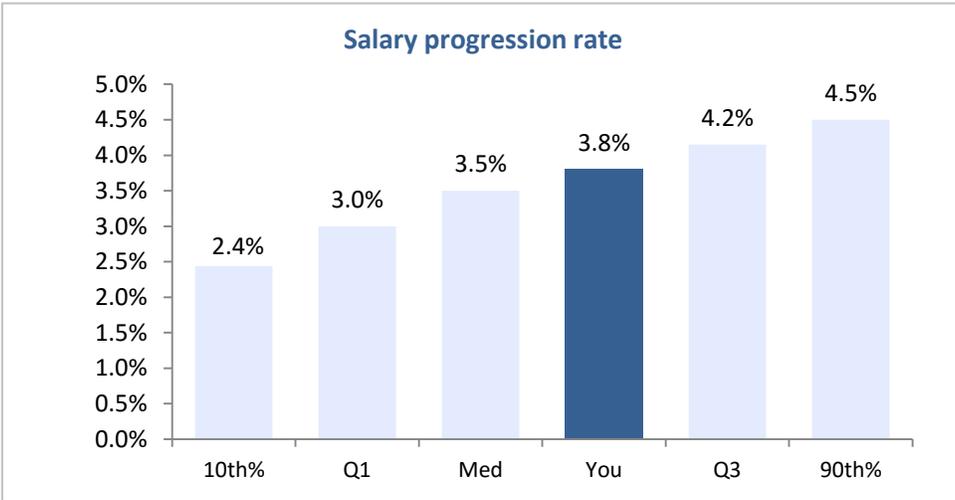
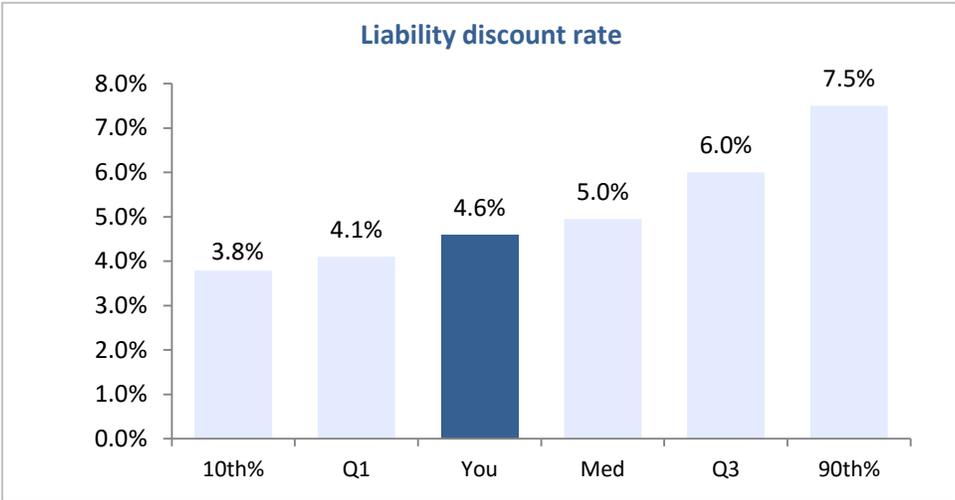
Other plan data - Plan liabilities

What % of the plan's liabilities are in respect to retired members?

	# of Funds with data	% Plan liabilities for retired members
Your fund	1	46.0%
Global	292	48.7%

2014 Valuation assumptions

Actuarial assumptions for funding purposes during 2014.



6

Appendices

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- 34 Appendix B - Data quality
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Appendix A - Glossary of terms

Average - All averages are fund weighted (i.e., each fund is given equal weight, regardless of size).

Benchmark cost - Can be thought of as the predicted operating cost for a fund given its size, asset mix and country of origin. It is calculated using the cost function, which is determined from the survey database using regression analysis.

Benchmark return - Rate of return on an index 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.

Category benchmarks - Policy-weighted average of passive and active benchmarks given for each asset class.

Direct investment management costs -

a) For externally managed assets, it is the sum of all investment management fees, participation fees, commitment and carrying fees and should include all hidden fees netted from commingled asset pools.

b) For internally managed assets, it is the costs directly traceable to internally managed investments and should include: compensation and benefits of investment employees and support staff, related overhead (office rent, telephone, computer systems, etc.) and associated costs (conference, research, travel, subscriptions and memberships, etc.).

Excess cost - Difference between actual cost and benchmark cost.

F statistic - Measure of the statistical significance of the regression coefficients taken as a group. Generally, a regression equation with 5 coefficients and sample size greater than 20 is statistically significant if its F-statistic is greater than 3.

Oversight, custodial and other costs, the sum of:

a) Oversight costs which are (i) the salaries and benefits of executives and their assistants and clerical staff, carrying out duties directly associated with the oversight of plan assets, (ii) fees/salaries of Board of Trustees or Investment Committee based on the amount of time spent in this capacity, and (iii) office overhead (rent, utilities, telephone, office, computer systems, etc.) and associated costs (travel, subscriptions, memberships, etc.) all of which should be allocated on a pro rata governance and administration.

b) Custodial costs before any reductions relating to securities lending. Note that custodial costs for preparing benefit checks or relating to other asset pools should not be included.

c) Consulting and performance.

d) Audit and other measurements costs.

Operating costs - Sum of overlay, direct investment management and oversight, custodial and other costs.

Overlay - Derivative-based program, that is unfunded other than margin requirements.

Passive - Assets managed passively, i.e., indexed to broad capital market benchmarks or dedicated to matching a specific set of liabilities.

Policy mix - Reflects long term policy or target asset weights. Policy mix is often established by an investment committee or board and is determined by such long-term considerations as liability structure, risk tolerance and long-term capital markets prospects. If asset mix policy is expressed in ranges, our default is the midpoint of those ranges.

Policy return - The return a fund would have earned if it had passively implemented its policy mix through its benchmark indices. Policy return equals the sum of policy weights multiplied by benchmarks for each asset class.

R² (Coefficient of determination) - The percentage of the differences in the dependent variable explained by the regression equation. For example, an R² of 1 means 100% of the differences are explained and an R² of 0 means that none of the differences are explained.

Value Added - Difference between actual return and policy return.

Appendix B - Data quality

We recognize that the value of the information contained in these reports is only as good as the quality of the data we receive. Our procedures for checking and improving the data include:

- **Constant improvement in survey clarity** - Years of feedback from survey participants has led to improved definitions and survey clarity.
- **Client confirmation** - A five-page summary of each respondent's data as it appears in our database was sent to all survey participants for confirmation prior to preparing this report. Your data is summarized in Appendix C (which begins on the following page).
- **Automated & manual checks** - We compare responses to norms for the survey universe and to each sponsor's prior year data when available. This typically results in questions that we email back to each survey respondent and follow up on by phone.

In addition, the quality of our data continues to improve as the universe of participants grows. Our confidence in the results improves with universe size as unbiased errors tend to average themselves out.

Appendix C - Your data

Your data is summarized on the following pages. As discussed with you or the person who provided the data for your fund during the data confirmation process, there may be changes to your original survey responses for the following reasons:

1. Gross versus net returns - Participants report returns on either a net or gross basis. In order to ensure apples-to-apples comparisons, we grossed up net returns as follows:

Gross return = Net return + Netted costs /Holdings.

2. Returns not available - We requested that you enter N/A if full year returns for an asset class were unavailable. The default for an unavailable return is to set it equal to your benchmark return for the same asset class, thereby effectively neutralizing that asset class when determining your in-category value added.

3. Costs not given - The costs of non-traditional assets and real estate are often buried in commingled funds and may not be worth the effort to obtain if their asset value is immaterial relative to your total fund. Therefore, if you report assets but do not report costs/fees we impute a figure using industry data. See the last page of Appendix C for any defaults used for your fund.

Appendix C - Your Data

Harrow

Plan info	2014	2013	2012
Contact	Shelley Jones	Shelley Jones	Shelley Jones
Type of fund (corporate, public, other)	Public	Public	Public
Total fund size (Millions)	666.8	584.7	528.7
Are assets provided year end or average?	Year End	Year End	Year End
Total return for year ended	9.50%	16.20%	10.70%
Is the return net or gross?	Net of manager fees	Net of manager fees	Net of manager fees
If net, what do you normally deduct?			
Total fund policy or benchmark return	8.70%	17.00%	11.00%
Ancillary data	2014	2013	2012
What is your hedging policy for:			
Foreign non-U.S. Holdings?	50%	50%	50%
U.S. Holdings?	50%	50%	50%
Were your stock/bond/TAA managers under performance-based fees?	No	Yes	Yes
What were your actuarial fees in 000s?			
How many plan members/beneficiaries do you have:			
Active?	5,526	5,582	5,562
Active - not accruing benefits?			
Retired?	5,294	5,087	4,873
Other?	6,323	6,023	5,569
What type of plans do you have?	Career Average	Final Average	Final Average
To what extent are your retired members' benefits indexed to inflation?			
Contractual %	100	100	100
Ad hoc %			
If the indexation is subject to a cap, describe the cap			
What % of the plan's liabilities pertain to retired members?	46	47	47
Actuarial valuation assumptions for funding purposes:			
Liability discount rate	4.6	6.1	6.1
Salary progression rate	3.8	4.8	4.8
What was your actuarial assumption for expected rate of return?	4.6	6.1	6.1

Appendix C - Your data: Policy weights and benchmarks

Harrow

Asset class	Year	Policy weight	Benchmark description	Return
Stock - UK	2014		Your Stock: UK benchmark	1.2
	2013	26.0	Your Stock: UK benchmark	20.8
	2012	27.0	Your Stock: UK benchmark	12.3
Stock - Emerging	2014	10.0	MSCI Emerging Market Index	3.9
	2013			
	2012			
Stock - Global	2014	52.0	MSCI All World Index (59%) / MSCI World NDR (20%) / MSCI World (Local) TR Net (21%) -(No BM as not full year in Fund)	10.0
	2013	36.0	MSCI All Countries World Index GDR (79% of BM 21.1%) & MSCI World (Local) TR Net (21% of BM 28.9%)	22.8
	2012	47.0	MSCI All Countries World Index GDR (85% @ BM of 11.7%) MSCI World (Local) TR Net (15% @ BM 15.7%)	12.3
Fixed Income - UK	2014	10.0	iBoxx Sterling Non Gilt Only 10+ Yr Index	18.0
	2013	10.0	iBoxx Sterling Non-Gilts Over 10 Year	-0.6
	2012	10.4	iBoxx Sterling Non-Gilts Over 10 Year	14.5
Fixed Income - UK Gov't	2014	3.0	Your Bonds:UK Gov't benchmark	21.4
	2013	3.0	Your Bonds:UK Gov't benchmark	0.6
	2012	2.6	Your Bonds:UK Gov't benchmark	0.5
Global TAA	2014	10.0	3 Month LIBOR + 4%	4.5
	2013	10.0	3 Month LIBOR + 4%	14.9
	2012			
Real Estate ex-REITs	2014	10.0	IPD UK PPF All Balanced Funds	17.2
	2013	10.0	IPD UK PPF All Balanced Funds	9.1
	2012	10.0	IPD UK PPF All Balanced Funds	1.0
Diversified Private Equity	2014	5.0	Your Diversified or All benchmark	10.8
	2013	5.0	GBP 7 Day Libid	0.4
	2012	3.0	GBP 7 Day Libid	0.4

Appendix C - Your Data: Assets, Returns and Costs

Harrow

Asset class		Assets (millions)					Fees/Costs in 000s									
		Externally managed Indexed			Externally managed Active		Externally managed Indexed			Externally managed Active						
		Assets	Assets	Return	Assets	Return	# of mgrs	Fees	Over- sight	Total 000s	bps ¹	Base Fees	Perform Fees	Internal & Other	Total 000s	bps ¹
Stock - UK	2014	0.0		n/a				45.0		45.0	3.5					
	2013	155.5		20.9		1		70.0		70.0	4.7					
	2012	142.6		12.4		1		61.0		61.0	4.5					
Stock - Emerging	2014				76.5	1						224.0			224.0	73.4
	2013															
	2012															
Stock - Global	2014	220.6		6.2	152.8	11.4	3	48.0		48.0	4.4	637.0	166.0		803.0	41.8
	2013				231.8	23.0	3					769.0	42.6		811.6	33.8
	2012				248.1	11.9	3					774.0	12.7		786.7	33.3
Fixed Income - UK	2014				69.3	17.3	1					112.0			112.0	17.7
	2013				57.6	-0.5	1					101.0			101.0	17.6
	2012				57.5	16.5	1					99.0			99.0	18.1
Fixed Income - UK Gov't	2014				17.1	21.3	1					28.0			28.0	17.7
	2013				14.5	0.9	1					25.0			25.0	17.3
	2012				14.5	1.2	1					25.0			25.0	18.1
Global TAA	2014				59.5	5.8	2					428.0			428.0	75.1
	2013				54.5	n/a	2					378.0			378.0	105.0
	2012															

1. Cost in basis points = total cost / average of beginning and end of year holdings

Appendix C - Your Data: Private Market Assets, Returns and Costs

Harrow

Asset class		Annual				Assets (millions) and annual gross returns				# Ext Mgrs	Investment fees and costs in 000s ¹												
		Internal		Co-Investment		External		Fund of Funds			Internal & Co-Inv					Fund of Funds							
		Assets	Return	Assets	Return	Amt fees based on	Assets	Return	Amt fees based on		Assets	Return	Total 000s	bps	Base fees	Perf. fees	Internal & other	Total ¹ 000s	bps (% of fee basis)	Underlying ² Fees	Base Fees	Perf. Fees	Internal & Other
Real Estate ex-REITs	2014	<u>Direct</u>						50.6	50.6	17.5	1							341.0	92.0			433.0	90.6
	2013							45.1	45.1	10.7	1							326.0	93.0			419.0	96.4
	2012							41.9	41.9	3.5	1							306.0	87.0			393.0	98.5
Diversified Private Equity	2014							23.0	23.0	21.7	1	<u>Oversight</u>						227.0	299.0			526.0	221.0
	2013							24.6	24.6	10.9	1							250.0	299.0			549.0	215.5
	2012							26.3	26.3	3.3	1							250.0	299.0			549.0	219.3

1. Cost in basis points = total cost / average of beginning and end of year holdings. Total cost excludes private asset performance fees because of comparability issues.
2. Default for fees paid to underlying partnerships have been applied.

Appendix C - Your Data: Oversight, custodial and other costs

Harrow

Oversight, custodial and other costs			
		000s	bps
Oversight of the fund assets ¹	2014	238.0	3.8bp
	2013	160.0	2.9bp
	2012	163.0	3.2bp
Custodial total	2014	10.0	0.2bp
	2013	9.0	0.2bp
	2012	9.0	0.2bp
Consulting / performance measurement	2014	175.0	2.8bp
	2013	187.0	3.4bp
	2012	134.0	2.7bp
Audit	2014	19.0	0.3bp
	2013	21.0	0.4bp
	2012	21.0	0.4bp
Other (legal etc)	2014	66.0	1.1bp
	2013	23.0	0.4bp
	2012	20.0	0.4bp
Total	2014	508.0	8.1bp
	2013	400.0	7.2bp
	2012	347.0	6.9bp

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.

Summary of total investment costs ²			
		000s	bps
Investment management costs	2014	2,647.0	42.3bp
	2013	2,353.6	42.3bp
	2012	1,913.7	38.0bp
Overlay costs	2014	21.0	0.3bp
	2013	20.0	0.4bp
	2012	20.0	0.4bp
Oversight, custodial & other costs	2014	508.0	8.1bp
	2013	400.0	7.2bp
	2012	347.0	6.9bp
Total	2014	3,176.0	50.8bp
	2013	2,773.6	49.8bp
	2012	2,280.7	45.3bp

2. Total investment cost excludes transaction costs and performance fees for private assets.

Appendix C - Your data: Overlays

Harrow

Overlays		Internal					External								
		Market value (mils)	Notional amount (mils)	Profit/Loss (000s)	Cost (000s)	% of Notion. (bps)	Duration (years)	Market value (mils)	Notional amount (mils)	Profit/Loss (000s)	Base fees (000s)	Perf. fees (000s)	Over-sight (000s)	Total (000s)	% of Notion. (bps)
Currency Hedge	2014						-2.6	179.5		21.0			21.0		1.2
	2013						1.1	105.0		20.0			20.0		1.9
	2012						-2.3	111.6		20.0			20.0		1.8