NorthernPool
The Collective Asset Pool for Greater Manchester Merseyside and West Yorkshire Pension Funds

Guardsman Tony Downes House
5 Manchester Road
Droylsden
M43 6SF

<u>By email</u>
Teresa Clay
Ministry of Housing, Communities and Local Government
Fry Building
2 Marsham Street
London, SW1P 4DF

22 October 2018

Dear Ms Clay,

LOCAL GOVERNMENT PENSION SCHEME POOLING: AUTUMN 2018 PROGRESS REPORT

Thank you for your letter of the 26 July 2018, and your positive feedback.

I hope the information set out in this letter and the Northern Pool's progress update to 30 September 2018, which we are pleased to enclose herewith, addresses the matters you raised.

Once again we would like to emphasise our strong support for the outcomes that the Government seeks from pooling in the LGPS, which we expect to benefit Scheme members, employers and taxpayers alike.

In order to achieve these outcomes, all pools must meet the requirements of the LGPS Investment Regulations and the Pooling Criteria and Guidance, which you issued in November 2015.

The Northern Pool has already started to deliver immediate cost savings, strengthened governance arrangements, and via its GLIL infrastructure vehicle and housebuilding finance, a significant increase in investment in UK infrastructure.

Independent benchmarking analysis, highlighted in the progress update, continues to show that the performance of the funds in the Northern Pool has been well above the LGPS average, whilst our average costs are below those of the Northern Pool's global peer group. However, as we discussed when we met in May, we remain disappointed that all LGPS funds and pools are not participating in such analysis.

Due to their existing scale and low cost, the vast majority of the benefits of pooling for the funds in the Northern Pool as we have previously advised relate to alternative assets where there is greatest scope to generate further economies of scale, and to combine resources to make increasingly direct investments. Since we met in May, the Northern Pool has:

- Established a vehicle (known as 'NPEP') to make collective private equity investments. NPEP has a General Partner/Limited Partner structure and is fully compliant with all relevant financial services regulations. NPEP is currently ahead of schedule having made 3 fund commitments totalling c£200m since its formation in July and will be making total commitments of £480m to private equity funds in 2018/19 and is expected to make commitments of £1bn by 31 March 2020.

- Increased its commitments to the GLIL Infrastructure vehicle to £1.275bn, taking the total commitments to GLIL up to £1.825bn resulting in further investment in wind farms and ports over the summer.

We are pleased to report that GLIL recently became a FCA regulated entity following the appointment of the Local Pensions Partnership as the vehicles' regulated operator. This means that other LGPS pools (and other institutional investors) can now invest without the need to be involved in day to day investment management. Further details of the structure and operation of GLIL and its investments made to date are set out in our progress update. So far, GLIL has invested over £1bn in both greenfield and brownfield direct UK infrastructure assets.

GLIL has developed a template for successful sourcing and delivery through an experienced team of investment, compliance, operational, risk and programme management professionals. It is becoming widely recognised as an established, low-cost investor in the UK and international Infrastructure sectors and is very much on the radar for receipt of investment opportunities.

We firmly believe that through collaboration, the local government pension sector can be a world leader in infrastructure investment. This is why we have been developing the GLIL platform to allow other LGPS pools and funds to join.

Value for money

We are proud to be at the forefront of LGPS investments in this area and believe that such investment can meet the twin aims of providing superior risk-adjusted pension fund returns and having a positive impact on the local and national economy.

As we discussed at our meeting, the key principles of the Northern Pool are to ensure value for money for our members, employers and taxpayers by maintaining simple arrangements, via a relatively low number of managers with low manager and portfolio turnover. In order to meet our fiduciary duty, the Northern Pool structure is designed to ensure there is no increase in costs for any participating fund, even in the short term.

Overall implementation costs so far are approximately £700,000 and are expected to be materially lower than earlier estimates. These costs have already been far exceeded by the costs savings generated via making direct infrastructure investments via the GLIL vehicle. All told, **annual cost savings are now expected to be substantially higher than the £28m estimated** in earlier submissions.

Next steps

As you will be aware, much of the recent correspondence between the Northern Pool and Government has been focused on how investment manager selection is delegated to the Pool and in particular concerns set out in the Minister's letter of the 26 July 2018 about delivering the necessary delegation of manager selection to the pool for all three funds.

We have recently received Leading Counsel's advice on the requirements of the LGPS Investment Regulations in this area, which is attached for reference as an appendix to this letter.

We believe it provides the comfort that the Minister is seeking.

The Guidance laid down four criteria which pooling arrangements should satisfy and we believe that we are fully compliant in meeting those as required by law:

1. ***Asset pools should achieve the benefits of scale, being at least £25bn in size*** - the Northern Pool comfortably satisfies that criterion at a current size of £47.3bn at 30 September 2018.

2. ***Strong governance and decision-making*** - the managers of segregated mandates will be selected at pool level, available to all Pool partners, so this criterion will be satisfied by these appointments being made by the joint committee, which is being established to oversee the Northern Pool. We are conscious of the Government's strong desire for elected members not to be involved in the selection of third-party managers or individual investments and therefore would like to reassure Government that the Northern Pool inter-authority agreement, which formally establishes the joint-committee, clearly delegates selection decisions to appropriately qualified and experienced officers with such independent and professional advice being taken where expedient. Squire Patton Boggs Solicitors are currently reviewing the Northern Pool inter-authority agreement and delegations to ensure that we address this.

3. ***Reduced costs and excellent value for money*** - The funds making up the Northern Pool perform extremely well in keeping costs down, in comparison with their peers both global comparators, and within the LGPS. Northern Pool has an estimated average pool cost of 0.45% over year to 31/3/18, this is below the estimated global peer group median actual cost of 0.54% and the estimated global peer group benchmark cost of 0.58% (after controlling for differences in asset allocation). Approximately 80% of costs are in respect of private market assets. <u>The 5 year net value-add for Pool is 0.7% p.a. This is roughly equivalent to £1.5bn of added value as against the local government scheme median of zero and the global median of 0.2%.</u>

   The Northern Pool oversight joint committee will use the CEM report in consideration of whether net returns can be improved by reducing, amalgamating or retendering existing mandates across the Pool, including internal mandates, although clearly this will need to be undertaken in line with each fund's investment strategy taking into account liabilities and risk appetite.

4. ***Improved capacity to invest in infrastructure*** - again, the Northern Pool is a "market leader" in this regard.

We believe Northern Pool continues to lead on meeting the Government's objectives in its reform of LGPS investments, and the independent evidence from the Centre for Evaluation and Monitoring (CEM) would support that assertion.

We very much look forward to further discussion with Government and our stakeholders.

Yours sincerely,

Ian Greenwood.

Ian Greenwood
Chair of Northern Pool

Enclosed herewith:

(a) **Jason Coppel QC legal advice to the Pool & Administering Authorities**
(b) **Autumn 2018 Progress Report**
(c) Appendix 1 – CEM benchmarking reports for the year to 31 March 2018 for the three Northern Pools
(d) Appendix 2 – analysis undertaken by PIRC on the historical risk /return of the funds in the Northern Pool compared to the LGPS funds in London and Wales
(e) Appendix 3 - current GLIL investments

NORTHERN PENSION POOL

IMPLEMENTATION OF THE LOCAL GOVERNMENT PENSION SCHEME (MANAGEMENT AND INVESTMENT OF FUNDS) REGULATIONS 2016

ADVICE

The advice sought

1. I am instructed by Tameside MBC ("**the Council**"), to advise the Council, City of Bradford Metropolitan Council and Wirral MBC, on certain issues arising out of the implementation of the Local Government Pension Scheme (Management and Investment of Funds) Regulations 2016 (SI 2016/946, "**the Regulations**"). These three local authorities are the administering authorities of the Greater Manchester Pension Fund, the West Yorkshire Pension Fund and the Merseyside Pension Fund respectively, pension funds within the Local Government Pension Scheme ("**LGPS**") which have recently joined forces to become the Northern Pension Pool ("**the Northern Pool**").

2. The Northern Pool was established pursuant to reforms introduced by central Government with a view to requiring pension funds within the LGPS to come together to create so-called British Wealth Funds, thereby reducing administrative costs and encouraging greater investment in infrastructure in the UK. In order to achieve this, reg. 7(1) of the Regulations requires an LGPS administering authority to "*formulate an investment strategy which must be in accordance with guidance issued from time to time by the Secretary of State*". A strategy must include, *inter alia*, the authority's approach to pooling investments, including the use of collective investment vehicles and shared services. In the event of a failure to act in accordance with the Secretary of State's guidance, reg. 8 permits the Secretary of State to give directions to an administering authority including, for example, that the authority amend its strategy or comply with instructions given by the Secretary of State or a nominee.

3. The relevant guidance is the *Local Government Pension Scheme: Investment Reform Criteria and Guidance* (November 2015, "**the Guidance**"). The Guidance laid down four criteria which pooling arrangements should satisfy:

   (1) Asset pools should achieve the benefits of scale, being at least £25bn in size. The Northern Pool comfortably satisfies that criterion.

   (2) Strong governance and decision-making.

   (3) Reduced costs and excellent value for money. The funds making up the Northern Pool perform extremely well in keeping costs down, in comparison with their peers.

   (4) Improved capacity to invest in infrastructure. Again, the Northern Pool is a "market leader" in this regard.

   More detailed guidance is then given in relation to how each of these criteria may be satisfied.

4. The Government required each LGPS administering authority to submit initial pooling proposals by 19 February 2016 and refined proposals by 15 July 2016, requirements with which the Northern Pool duly complied. Since then, there has been regular correspondence between the Northern Pool and what is now the Ministry of Housing, Communities and Local Government ("**the Ministry**") regarding the progress of implementation of the Northern Pool's proposals. Similar correspondence has been underway between the Ministry and other pools.

5. I am instructed that there are two particular areas where the Ministry remains dissatisfied with the Northern Pool's proposals for compliance with the Guidance. Both areas of dispute arise out of the view which has been taken by the Northern Pool that, such are the efficiencies which the three constituent funds currently achieve in regard to investment costs, there are no material benefits in outsourcing all of their investment management activities. The Northern Pool therefore does not wish to establish a third party investment manager which would be responsible for the investment of all of the funds under management, but would prefer to maintain segregated mandates – a mandate for each fund - for listed assets rather than transferring these to a pooled vehicle.

6. The Northern Pool's July 2016 submission of its detailed pooling proposals did suggest that it would create an investment management company, wholly owned by the three funds, and compliant with the Alternative Investment Fund Manager Directive, which would be regulated by the Financial Conduct Authority ("**FCA**") and would manage all pool assets. However, further work led to the conclusion that the additional expense entailed by this option could not be justified and that the Northern Pool would be better served by (a) appointing an FCA-regulated common custodian for the funds in the Northern Pool, thereby facilitating collective investments, and (b) establishing pooled vehicles for alternative (ie non-listed) assets, also FCA-regulated, as and when appropriate.

7. The two areas of current dispute are:

(1) Most significantly, whether the Northern Pool should be required to implement its July 2016 proposal and appoint a FCA-regulated investment manager to manage all pool assets.

(2) Whether, under the preferred regime of the Northern Pool, investment managers for the segregated mandates should be appointed at pool level rather than by each individual administering authority as is currently the case.

8. I have been asked to consider whether the stance adopted by the Northern Pool is consistent with the Guidance and hence with its legal obligations under the Regulations. I have concluded:

(1) There is no justification for the Ministry's apparent view that the Northern Pool is obliged to appoint a third-party, FCA-regulated investment manager for all pool assets.

(2) Nor would it necessarily be open to the Ministry to change the Guidance so as, in effect, to compel the Northern Pool to appoint an FCA-regulated investment manager for all pool assets.

(3) The Guidance as currently worded does require investment managers to be appointed at pool level but this can easily be achieved by delegating the relevant decisions to the joint committee which is being established to oversee the Northern Pool.

Analysis

9. There is no provision of the Guidance which suggests that a pool will have an obligation to establish an investment management company, or otherwise engage a third party investment manager, to manage all pool funds.

10. The second criterion, of "*strong governance and decision-making*" encourages authorities towards greater consolidation of decision-making in order to realise economies of scale. §3.32 of the Guidance states:

> *The creation of pools will necessarily lead to a review of decision making within each authority. The Government expects to see greater consolidation where possible. However, as a minimum, we would expect to see the selection of external fund managers and the implementation of the investment strategy to be carried out at the pooled level.*

11. This is not, however, a requirement that authorities appoint external fund managers but only that when they do so they should act jointly so as to realise economies of scale. That is apparent both from the wording of §3.32 and also from reading it together with provision made in respect of the third criterion, "*reduced costs and excellent value for money*". §3.46, headed "In-house management", states:

> *Some authorities manage all or the majority of their assets internally and so can already show very low management costs. In these cases, a move to a collective investment vehicle with external fund managers is unlikely to deliver cost savings from investment fees alone. However, there are wider benefits of collaboration which authorities with in-house teams should consider when developing their proposals for pooling. A pool of internally managed assets could lead to further reductions in costs, for example by sharing staff, research and due diligence checks; it may improve access to staff with stronger expertise in particular asset classes; and could introduce greater resilience in staff recruitment, retention and succession planning. Alternatively, newly created pools might wish to work with existing in-house teams to build up expertise and take advantage of their lower running costs.*

12. The clear message from this paragraph is that in-house management of funds is permissible and indeed – as is the case with the Northern Pool - may well be desirable from the point of view of reducing costs, in accordance with the third criterion. Where funds are managed in-house, authorities should consider collaboration between in-house teams when developing their pooling

proposals, but there is no suggestion that in-house management should cease, and funds transferred to a third party asset manager, even where this would increase rather than decrease costs.

13. Accordingly, it is in my view clear that the Northern Pool's reluctance to proceed to establish an investment management company to own and manage all pool assets is consistent with the Guidance. And therefore that it would not be open to the Secretary of State to take enforcement action so as to compel this result, pursuant to reg. 8 of the Regulations. I should say that the fact that the Northern Pool had originally intended to proceed immediately to establish a third party investment management company and had submitted proposals to the Secretary of State to that effect does not prevent it from subsequently changing its mind in the light of further consideration.

14. I understand that the Ministry has intimated that it may change the Guidance so as to compel the Northern Pool to establish a third party investment management company. This will be a far from straightforward exercise, given the current clear provision in favour of in-house management where justified on costs grounds. Indeed, unless the Ministry is to drop altogether the criterion of "*reduced costs and excellent value for money*" – which is unlikely – it is difficult to see how it could be rational to compel authorities to adopt a mode of fund management which, in particular cases, is directly inconsistent with that objective.

15. I also understand that the Ministry's principal objective in changing the Guidance would be to act against other authorities whose fund management is not nearly as efficient as the members of the Northern Pool. That motivation also gives rise to potential difficulties. It is unequal treatment of the Northern Pool to subject it to the same rules as other pools which are not in a similar position, because they do not already manage their funds efficiently. In other words, there would be a strong onus on the Ministry to justify why the Northern Pool was being compelled to adopt a course which would be more costly and less efficient than its current structures, and that justification is unlikely to be found in the position of other pools who would undoubtedly benefit from comprehensive third party fund management.

16. As regards the second area of dispute between the Northern Pool and the Ministry, it will be apparent from what I have set out above that the Guidance does require the choice of third party

fund managers to be taken at pool level. Hence, the managers of segregated mandates should be chosen at pool level. That requirement can easily be satisfied by these appointments being made by the joint committee which is being established to oversee the Northern Pool. Although it could be compliant with the Guidance for a collective decision to be taken to appoint different fund managers for similar segregated mandates, the clear implication of the Guidance is that, in order to maximise economies of scale, the same manager ought to be appointed for similar mandates.

17. If I can be of any further assistance, my Instructing Solicitor should not hesitate to contact me.

JASON COPPEL QC

11KBW
11 King's Bench Walk
Temple
London
EC4Y 7EQ

9 October 2018

LOCAL GOVERNMENT PENSION SCHEME POOLING: AUTUMN 2018 PROGRESS REPORT

Please report against each of the areas outlined below as at 30 September 2018, highlighting any significant changes since your last progress update report submitted in spring 2018.

The deadline for submission is 15 October 2018. Please send reports to teresa.clay@communities.gsi.gov.uk copied to lgpensions@communities.gsi.gov.uk.

We will follow up with individual pools to discuss any questions or concerns as necessary.

Pool: Northern Pool

Date: 30 September 2018

CRITERION A: SCALE

- **Scale – please state the estimated total value of assets owned by participating funds**

  £47.3bn at 30 September 2018

- **Assets within the pool – please state the total value of assets included in the transition plan for investment through the pool structure, with the valuation date**

  £46.8bn at 30 September 2018

- **Assets outside the pool – please state the value of assets not included in the transition plan for investment through the pool structure, with the valuation date and the rationale for retaining these assets outside the pool structure**

  £500m at 30 September 2018. This is the assumed level of cash that will be held in the 3 funds' bank accounts

- **Transition – please state the current transition plan, including:**
  - **the sub-funds that are on offer and planned, with launch dates**
  - **progress on establishing these sub-funds**
  - **timetable for transitioning assets**

  Attached as ***Appendix 1 are the CEM benchmarking reports for the year to 31 March 2018 for the three Northern Pool funds.*** We understand that data from other pools is incomplete and that finalised pool comparator figures will be available from CEM upon their receipt of the underlying data from the other pools. Some of the key findings of the reports are:

  - Estimated average pool cost of 0.45% over year to 31/3/18, this is below:
    - the estimated global peer group median actual cost of 0.54%
    - the estimated global peer group benchmark cost of 0.58% (after controlling for differences in asset allocation)
  - Approximately 80% of costs are in respect of private market assets
  - 5 year net value-add for Pool is 0.7% p.a., this is roughly equivalent to £1.5bn

In addition, attached as ***Appendix 2 is analysis undertaken by PIRC on the historical risk/return of the funds in the Northern Pool compared to LGPS funds in London and Wales.***

It is clear from the analysis that the vast majority of the benefits of pooling for the funds in the Northern Pool are in respect of alternative assets where there is greatest scope to generate further economies of scale and to combine resources to make increasingly direct investments.

Therefore, the focus of the Northern Pool has been on establishing vehicles which can make collective investments in alternative assets, in particular infrastructure and private equity, noting that roughly 50% of the funds' costs relate to about 10% of their assets and, given the maturity of the funds, there is a requirement to further diversify from equities.

The Northern Pool funds are the major investors in the GLIL infrastructure vehicle (current commitments of c£1.8bn and current assets under management of over £1bn) and also provide significant resource, including three of the four members of the GLIL Investment Committee. GLIL recently became a FCA regulated entity following the appointment of the Local Pensions Partnership as the vehicles' regulated operator. This means that other LGPS pools (and other institutional investors) can now invest. Further details of the structure and operation of GLIL and its investments made to date are provided later in this document in the response to Criterion D.

The Northern Pool has also established a vehicle (known as 'NPEP') to make collective private equity investments. NPEP has a General Partner/Limited Partner structure and is fully compliant with all relevant financial services regulations. NPEP is currently ahead of schedule having made 3 fund commitments totalling c£200m since its formation in July and will be making total commitments of £480m to private equity funds in 2018/19.

The Northern Pool has selected Northern Trust as the FCA regulated custodian for the pool to ensure all listed assets of the pool (i.e. internally and externally managed equities and bonds) are held within a single permanent FCA regulated entity. The custodian will act as 'master record-keeper' for all assets of the constituent funds and manage the calls and distributions in the Northern Pool private equity vehicle.

We discussed the proposed governance arrangements for the selection of managers of listed assets at our meeting on 23 May 2018 and provided supporting legal advice on 25 June 2018.

As you will be aware, much of the recent correspondence between the Northern Pool and Government has been focused on how investment manager selection is delegated to the Pool and in particular concerns set out in the Minister's letter of the 26 July 2018 about delivering the necessary delegation of manager selection to the pool for all three funds.

We have recently received Leading Counsel's advice on the requirements of the LGPS Investment Regulations in this area, which we believe provides the comfort that the Minister is seeking.

The Guidance laid down four criteria which pooling arrangements should satisfy and we believe that we are fully compliant in meeting those as required by law:

1. *Asset pools should achieve the benefits of scale, being at least £25bn in size* - the Northern Pool comfortably satisfies that criterion at a current size of £47.3bn at 30 September 2018.

2. *Strong governance and decision-making* - the managers of segregated mandates will be selected at pool level, available to all Pool partners, so this criterion will be satisfied by these appointments being made by the joint committee, which is being established to oversee the Northern Pool. We are conscious of the Government's strong desire for elected members not to be involved in the selection of third-party managers or individual investments and therefore would like to reassure Government that the Northern Pool inter-authority agreement, which formally establishes the joint-committee, clearly delegates selection decisions to appropriately qualified and experienced officers with such independent and professional advice being taken where expedient. Squire Patton Boggs Solicitors are currently reviewing the Northern Pool inter-authority agreement and delegations to ensure that we address this.

3. *Reduced costs and excellent value for money* - The funds making up the Northern Pool perform extremely well in keeping costs down, in comparison with their peers both global comparators, and within the LGPS. Northern Pool has an estimated average pool cost of 0.45% over year to 31/3/18, this is below the estimated global peer group median actual cost of 0.54% and the estimated global peer group benchmark cost of 0.58% (after controlling for differences in asset allocation). Approximately 80% of costs are in respect of private market assets. <u>The 5 year net value-add for Pool is 0.7% p.a. This is roughly equivalent to £1.5bn of added value as against the local government scheme median of zero and the global median of 0.2%.</u>

The Northern Pool oversight joint committee will use the CEM report in consideration of whether net returns can be improved by reducing, amalgamating or retendering existing mandates across the Pool, including internal mandates, although clearly this will need to be undertaken in line with each fund's investment strategy taking into account liabilities and risk appetite.

4. *Improved capacity to invest in infrastructure* - again, the Northern Pool is a "market leader" in this regard.

We believe Northern Pool continues to lead on meeting the Government's objectives in its reform of LGPS investments, and the independent evidence from the Centre for Evaluation and Monitoring (CEM) would support that assertion.

- **Reporting – please explain how you will publicly and transparently report progress against your transition timetable**

Details of GLIL, NPEP and other pool investment vehicles will be made available on the Northern Pool website. The website will also link to the pages of individual fund websites which show all the holdings of each fund. In addition, progress against pooling objectives will be explained comprehensively in each fund's annual report.

CRITERION B: GOVERNANCE

- **New functions – please provide an update on the governance arrangements and their current status, including:**
  - **Fund governance (i.e. joint committees or equivalent/related functions) – terms of reference, resources, key appointments, policies and procedures, accountability to elected members, external support/scrutiny**
  - **for pools managed by an external pool operator – contract management, resources, appointments policies and procedures**
  - **for pools managed by a wholly owned pool company – legal structure, FCA authorisation, key appointments, sub-contracts, etc.**

A Northern Pool oversight board has been meeting in shadow form throughout the pooling project. The Northern Pool oversight board, which takes the form of a Joint Committee, will be formally established by the participating administering authorities via the approval of an inter-authority agreement once the external lawyers have confirmed that the process used to select managers of listed assets is properly delegated.

Tameside MBC will be the host authority of the joint committee providing the secretariat and contract management services and managing and recharging to the individual funds any Oversight Board expenditure.

The inter-authority agreement sets out the composition of the joint committee, its policies and procedures, terms of reference and the reserved matters for the individual authorities.

The joint committee will comprise six elected members (two chosen by each fund) and three trade union representatives. Councillor Ian Greenwood, one of the West Yorkshire Pension Fund representatives, has been elected as Chair of the Northern Pool Oversight Board.

The Northern Pool has established a common proxy voting policy for its listed equity holdings, delivered by an FCA regulated proxy voting advisory service provider.

- **Relationship – please provide an update on the relationship between the fund and the pool company, including:**
  - **who makes what decisions (asset allocation, manager selection, custodian selection, etc)**
  - **reporting and communications - to assure authorities that their investments are being managed appropriately by the pool company, in line with their stated investment strategy**
- **Risk management/contingency planning on both sides (e.g. how will changes in fund requirements be implemented , how will unsatisfactory performance be tackled) key contract features (where relevant)**

Asset allocation decisions are made by the pensions committees of the participating administering authorities.

Manager selection (where applicable) for the GLIL and Private Equity vehicles is made by these vehicles' investment committees, which comprise senior investment officers from each of the investors.

For other asset classes, manager selection decisions are currently made by Fund Directors, supported by other officers of in accordance with the LGPS Investment Regulations.

The custodian selection for the Northern Pool was an OJEU procurement exercise led by West Yorkshire Pension Fund under the supervision of the Northern Pool Shadow Joint Committee, with the decision to appoint Northern Trust being made by each participating funds' pensions committee following a recommendation from the Shadow Joint Committee. The Northern Pool was also advised by custodian procurement specialists Thomas Murray, a unique provider of insights into the various risks to which investors are exposed through their arrangements with global custodians and depositary banks, and their subsequent network exposures to sub-custodians, capital market infrastructure and central securities depositories. Founded in 1994, TM has offices in the UK (London - its headquarters), Australia (Melbourne) and Canada (Toronto), and it also has representation in New York. www.thomasmurray.com

Reports of GLIL, NPEP, other pool investment vehicles and the Pool Custodian will be taken to each Joint Committee meeting with minutes of these meetings being provided to each of the funds' pension committees.

In addition, each authority has a senior investment officer sitting on the investment committee of each of the pool vehicles who can ensure that the vehicles are meeting the strategic objectives set by the pension committees and can be held accountable by the pension committees if performance or risk levels are unsatisfactory.

Each pension committee will also be provided with external benchmarking reports providing comparison with other large global pension funds.

The legal agreements governing the Northern Pool Joint Committee, GLIL, NPEP and the Pool Custodian all have clearly defined exit terms and allow for the evolution of assets strategies over time by the participating funds.

- **Transparency – please confirm that the pool company has signed up to the Scheme Advisory Board Code of Transparency**

The Pool has determined to adopt the Scheme Advisory Board Code of Transparency in respect of its private market investment vehicles and will ensure that all managers of listed assets (including internal managers at participating funds) also adopt the Code of Transparency.

- **Benchmarking – please explain the extent to which benchmarking will be used to assess governance and performance of the fund and the pool company**

The Northern Pool will continue to obtain CEM benchmarking reports both at the pool and individual fund level to measure costs and performance against relevant global comparators. These will be distributed to each authority's pension committee in order that the appropriate level of scrutiny and accountability can be undertaken.

CRITERION C: REDUCED COSTS AND VALUE FOR MONEY

- **The new CIPFA guidance on LGPS annual reports for 2018/19 should be followed in calculating costs and savings. The baseline should be March 2015 as set out in the guidance unless otherwise stated.**
- **Please also include relevant assumptions and definitions and indicate to what degree costs are on a fully transparent basis in line with the Code of Transparency.**
- **Please state your set-up costs**

Set up costs to date are approximately £700,000. Our analysis and research informs us that this cost would have been about £6m adopting a pooling structure typical of other LGPS pools. Some of the most significant elements of the costs incurred to date are as follows:

- £146,000 in respect of amendments to the GLIL structure;
- £272,000 in respect of professional advice;
- £170,000 in respect of the procurement and appointment of the Pool custodian;

Please note that the vast majority of the work in establishing the Pool has been resourced internally, generating significant savings for fund employers and local taxpayers.

Overall implementation costs are expected to be materially lower than those estimated in the July 2016 submission, which estimated costs of £1.8m.

- **Please state your current annual running costs or fee to operator**

Annual running costs of the pooled arrangements are currently approximately £500,000 per annum. This is comprised of fees payable to the GLIL operator and fund administration costs for NPEP.

The Pool custodian will shortly be appointed and following this appointment custody costs across the pool are expected to be c£3.7m p.a. (vs £9.4m p.a. at present).

- **Please state your costs for transition of assets including fees, tax, and other costs, to date and forecast of annual costs until transition is complete**

Under the Northern Pool's operating model, legal ownership of existing assets is not changing therefore there are not expected to be any transition costs. Some transition costs may be incurred in future following any consolidation of external mandates for listed assets.

- **Where possible please state your total annual investment costs and total expense ratio, including fees, transaction costs and custody**

Total annual investment costs per CEM are 0.45% of AUM (£196m), which excludes transaction costs.

- **Please also state your estimate of savings to date and total expected costs and savings as set out in the table below. Please use the methodology for calculating fee savings set out on pp12-13 of the CIPFA guidance where possible.**

CEM analysis, which is attached as **Appendix 1** to the report, indicates that the Pool has achieved cumulative costs savings of £67m between 1 April 2013 and 31 March 2018 having controlled for changes in asset allocation and growth in assets over that period. We believe this is a particularly significant achievement given the already low costs of the funds in the Pool.

Eventual savings are expected to be higher than the £28.3m p.a. estimated in the Northern Pool's July 2016 submission. The savings projected in the July 2016 submission were largely as a result of making direct infrastructure investments via the GLIL vehicle rather than via 3rd party fund managers, not making any further private equity investments on a fund-of-funds basis and by re-negotiating fees with external securities managers.

In addition, following the appointment of Pool Custodian and with standard assumptions regarding asset growth we are forecasting that cumulative savings from core custody services over the next 7 years will be £5.7m. (Current forecast payment of £9.4m v proposed forecast payment of £3.7m.)

CEM are an independent service provider selected from the National LGPS Framework, thus supporting joint procurement.

CEM are experts in cost analysis and benchmarking and provide all users with independent analysis on a consistent basis year on year. The use of CEM analysis has and will continue to support the objectives of transparency, benchmarking and monitoring of costs going forwards.

The established CEM analysis (figures from which are quoted above) uses methodology broadly consistent with that set out in the annex. The Northern Pool will seek to develop its approach to calculating savings data in line with the draft CIPFA working group methodology, either directly, or in collaboration with CEM.

- **Please also state in what year you expect to break even**.

The Northern Pool structure is designed to ensure there is no increase in costs for any participating fund even in the short term. The implementation costs incurred to date have already been recovered via savings from making infrastructure investments via GLIL.

- **Other benefits and other indicators – please state other benefits of pooling (realised or expected), as well as other indicators of progress (e.g. reduction in the aggregate number of mandates awarded by participating funds, examples of individual savings achieved e.g. through joint procurement of passive management or joint custodian)**

The creation of the NPEP private equity vehicle allows the range of opportunities considered for investment to increase.

Development of due diligence procedures will encapsulate best practice from the three funds.

The GLIL vehicle has facilitated direct investment in UK infrastructure.

Improvement in stewardship resulting from joint working on sustainability and responsible investment

- **Benefits realisation – please explain your plan for achieving (and monitoring the achievement of) savings and other benefits of pooling, while at least maintaining overall investment performance**

  CEM benchmarking will be obtained on an annual basis at both pool and fund level and analysis undertaken to ensure that costs savings are materialising as planned and the existing strong performance of the funds is maintained.

  All pool investment vehicles will also be benchmarked against appropriate comparators.

- **Reporting – please confirm that all the administering authorities participating in the pool will apply the new CIPFA guidance when preparing their annual reports from 2018/19 in order to publicly and transparently report:**
  - **set up and transition costs;**
  - **fees and net performance for each asset class, with a comparison to a passive index for each listed asset class; and**
  - **savings and other benefits of pooling**

Set up and transition costs will be clearly shown in each of the participating funds' report and accounts which will be available on each fund's website and via the Northern Pool website. Commentary will also be provided on how these costs compare against forecasts made.

Whether to apply the new CIPFA guidance when preparing annual reports from 2018/19 is a decision for each individual authority, but it is expected that the guidance will be applied in full.

The Pool will publish via its website, on at least an annual basis, detailed performance and cost data and comparisons against relevant benchmarks. This will also be published on the websites of the individual funds within the Pool.

Criterion D: Infrastructure

- **Status – please state the current allocation to infrastructure at participating funds and how much is currently committed**
- **Ambition – please state the current ambition of the pool for infrastructure investment with timescale**
- **Progress – please explain how pooling has increased capacity and capability to invest in infrastructure, or is expected to, including:**
  - **the platform/product/external manager arrangements that are being used or are intended to be used**
  - **indicators of progress made to date (e.g. mandates awarded, specialist appointments at pool companies, examples of investments made)**

As set out in its July 2016 submission, the Northern Pool has a target allocation to infrastructure of 10% of Pool assets (equivalent to £4.5bn at 31 March 2018), which will be delivered via the 'GLIL' direct infrastructure vehicle, allocations to infrastructure funds and extending the existing direct investment activities of the three funds in this area, for example GMPF's Matrix Homes, which works in partnership with local authorities to finance the construction of new homes on sites that would not otherwise be developed.

As part of this commitment to infrastructure investment, the Pool has an objective of financing 10,000 new homes over the next 3 years.

Up to 30 September 2018, GMPF has financed over 500 completed homes, with a further 2,800 under construction. Due diligence is currently being undertaken on further projects which would deliver another 1,200 homes. Discussions are also ongoing to extend the Matrix Homes model via joint ventures with other funds in the Pool.

Committed infrastructure funds at 30 June 2018 are set out in the table below. Figures at 31 March 2015 are provided in brackets to illustrate the significant progress made by the pool in increasing infrastructure investment. Committed funds stand at over £3bn, with almost £2bn already at work.

		GMPF	MPF	WYPF	Pool
Direct	Allocated 30/06/2018 (31/03/2015)	£1,168m (£250m)	£170m (£30m)	N/A (£0m)	N/A (£280m)
	Committed	£500m (£250m)	£170m (£30m)	£257m (£0m)	£927m (£280m)
	At Work	£349m (£90m)	£120m (£15m)	£169m (£0m)	£638m (£105m)
Funds	Allocated	£1,168m (£680m)	£443m (£320m)	N/A (£325m)	N/A (£1,325m)
	Committed	£1,054m (£469m)	£389m (£272m)	£647m (£366m)	£2,090m (£1,107m)
	At Work	£549m (£224m)	£331m (£220m)	£456m (£271m)	£1,336m (£715m)

Total	Allocated	£2,236m (£930m)	£613m (£350m)	N/A (£325m)	N/A (£1,605)
	Committed	£1,554m (£719m)	£559m (£302m)	£904m (£366m)	£3,017m (£1,387m)
	At Work	£898m (£314m)	£451m (£235m)	£625m (£271m)	£1,974m (£820m)

GLIL

Since the Northern Pool's last update to Government the total commitments to GLIL have increased from £1,275m to £1,825m.

Each of Northern Pool and the Local Pensions Partnership ('LPP') are active participants in the LGPS Infrastructure cross pool group and continue to support colleagues through sharing of best practice and ideas. To this end we have further evolved GLIL to make it available to all LGPS Funds/Pools. In order to achieve this wide availability and maintain GLIL's track record for delivery it was necessary to broaden the routes to accessing the investment opportunities.

GLIL is now established as an Alternative Investment Fund ('AIM') with a regulated AIF Manager, Local Pensions Partnership Investments Ltd ('LPPI).

The existing investors in GLIL, together with potential new investors that can make both significant capital contributions and provide the requisite human resource, nominate representatives to the GLIL governance structures. Those involved in the GLIL Investment Committee are registered as carrying out Controlled Functions at LPPI under its regulatory licence.

GLIL now enables Funds/Pools without the relevant scale and/or internal expertise to participate passively and without the need to be involved in day to day investment management. Advanced due diligence on becoming a GLIL investor is taking place with investment consultants working on behalf of their LGPS clients.

Presentations to senior decision makers within the some of the nascent pools have also taken place and follow-up meetings are planned in the coming months. There has been significant positive engagement from both pools and funds with our initial approaches.

GLIL has now invested over £1bn in a combination of greenfield and brownfield UK direct infrastructure assets and is currently undertaking detailed due diligence/negotiation on a significant pipeline for investment. The current portfolio is generating income in excess of 4% per annum which is well ahead of schedule for a portfolio of this type.

Further details of the current GLIL investments are provided in **Appendix 3**.

GLIL continues to develop it's template for successful sourcing and delivery through an experienced team of investment, compliance, operational, risk and programme management professionals. It is becoming widely recognised as an established investor in the UK and international Infrastructure sectors and is very much on the radar for receipt of investment opportunities.

Indeed it has become apparent that GLIL is increasingly seen as a credible and desirable investment partner to other large institutional investors and is able to access club deals with these established investors on a pari-pasu basis, reducing overall fee load and transaction risk.

Moreover, GLIL operates with extremely low running costs; aggregate ongoing staffing and management costs are less than 0.25% per annum. This compares to a typical infrastructure fund charging annual management fees of up to 1.25% per annum, plus performance fees and operational costs of 0.25%-0.30%. All fee savings flow directly to investors.

(a) **Appendix 1 – CEM benchmarking reports for the year to 31 March 2018 for the three Northern Pools**
(b) **Appendix 2 – analysis undertaken by PIRC on the historical risk /return of the funds in the Northern Pool compared to the LGPS funds in London and Wales**
(c) **Appendix 3 - current GLIL investments**

Greater Manchester Pension Fund
Investment Benchmarking Results
For the 5 year period ending March 31, 2018

Interim Report

This is an interim and draft report that will be updated when more data has been submitted by other LGPS funds. The headlines and conclusions may change as a result of the inclusion of more LGPS funds.

CEM Benchmarking
What gets measured gets managed

1 Change Alley
London, EC3V 3ND
+44 203 887 9289
www.cembenchmarking.com

This report will help you to satisfy your oversight responsibilities by:

- Comparing your investment performance with other funds.
- Highlighting returns that come from:
  - The local Pension Committee's strategic asset allocation decisions, and
  - The implementation of the Committee's strategy (typically the responsibility of management).
- Comparing the level of risk inherent in your portfolio and relative to your liabilities and your funding position.
- Comparing your investment costs and explaining why your costs compare as they do.
- Considering how and why your costs have changed over time.
- Looking at value-for-money – 'did paying more get you more'?

The report is based on standardised data submitted to CEM by your fund, by other LGPS funds and a wider universe of funds from around the world. Care is taken to validate the data contained in the report. This includes automated validations on outlying or unusual data as it is submitted, and an additional manual data 'clean' where our analysts interact with fund personnel to ensure the data is fit for purpose. The information in this report is confidential and should not be disclosed to third parties without the express written consent of CEM. CEM will not disclose any of the information in the report without your express written consent.

We compare your returns to other LGPS funds and a wider global universe.

CEM's LGPS Universe

Pool / Group	# of Participant Funds	Total Assets (£bns)	% of CEM's LGPS Universe	Funds
Access Pool	3	£8.9	6%	Essex, Isle of Wight, Suffolk.
BCPP	9	£34.3	22%	Bedford, Durham, East Riding, Lincolnshire, Northumberland, SYPF, Surrey, Tyne and Wear, Warwickshire.
Brunel Pool	1	£4.8	3%	Avon.
Central Pool	3	£12.7	8%	Cheshire, Staffordshire, Worcestershire.
LPP Pool	2	£10.8	7%	Lancashire, LPFA.
Northern	3	£44.3	28%	GMPF, Merseyside, West Yorkshire.
Scotish Pool	4	£30.2	19%	Falkirk, Lothian, Shetland Islands, Strathclyde.
Welsh Pool	5	£10.3	7%	Swansea, Torfaen, Powys, Rhondda Cynon TAF, Cardiff.
Total	30	£156.4	100%	

The main performance comparisons are with the LGPS universe comprising 30 funds with total assets of £156 billion (average £5 billion, median £4 billion).

We also compare your returns (and LGPS returns generally) with a wider global universe comprising 322 funds with total assets of £6.7 trillion (average £21bn, median £5bn). The global universe includes half of the world's top 300 funds.

Your 5-year net total return of 8.8% was above both the LGPS median of 8.6% and the Global median of 7.9%.

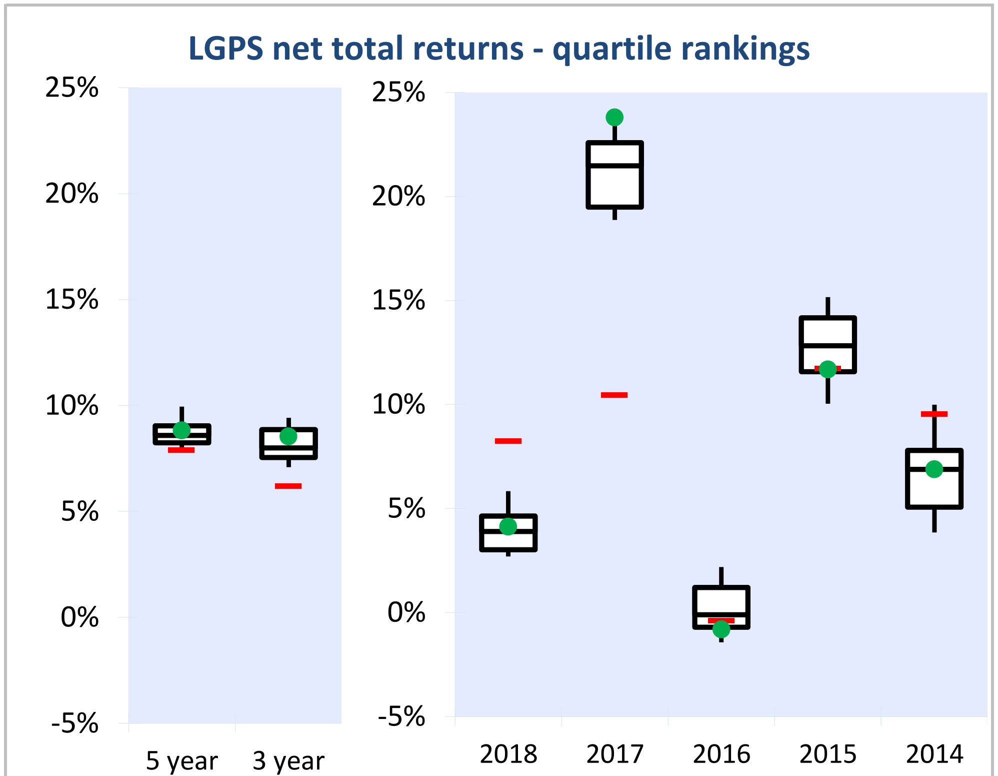
Total returns, by themselves, provide little insight into the reasons behind relative performance. Therefore, we separate total return into its more meaningful components:

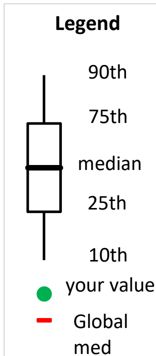
- Strategic asset mix return: The return from strategic asset allocation decisions. These decisions are typically made by the local Pensions Committee.

- Value added: A function of active management decisions, including tactical asset allocation, manager selection, stock selection, etc. These 'implementation' decisions tend to be made by management (increasingly within pools in England and Wales).

These are discussed on the pages that follow.

Global return comparisons have been particularly influenced by the relative strength of the $US over the period covered by this report and by the depreciation of the £ in 2016/17, i.e. there is some currency 'noise' in the global comparison.





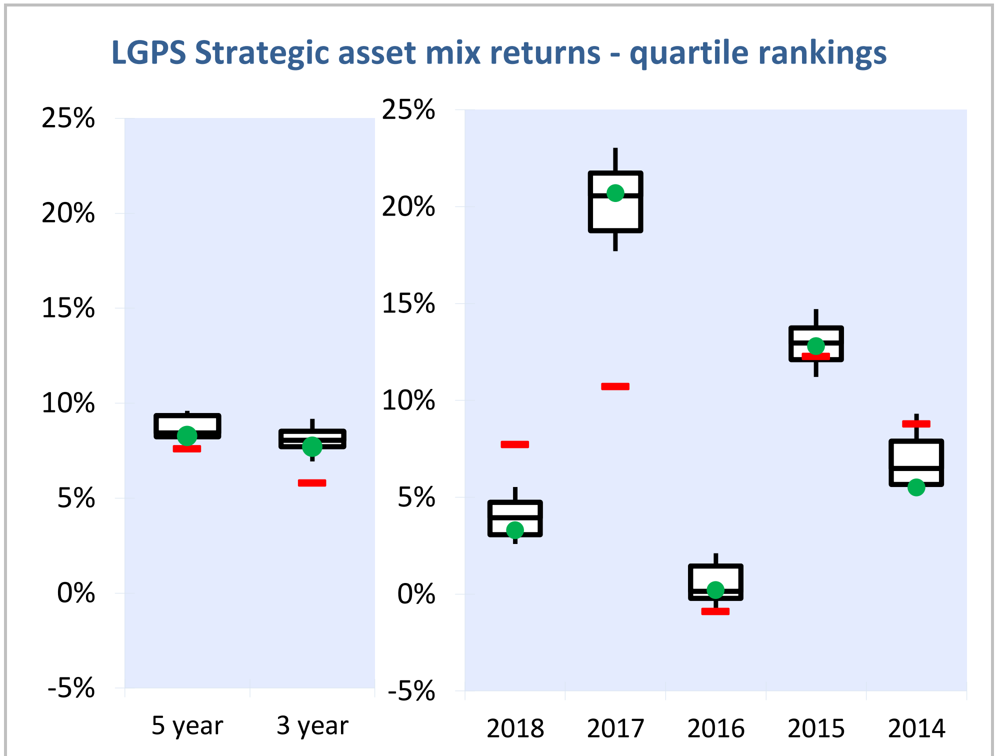
	5 year	3 year	2018	2017	2016	2015	2014
LGPS							
90th	9.9	9.4	5.8	24.1	2.2	15.2	10.0
Q3	9.0	8.9	4.6	22.6	1.2	14.2	7.8
Median	8.6	8.0	3.9	21.5	-0.1	12.8	6.9
Q1	8.2	7.5	3.0	19.5	-0.7	11.6	5.1
10th	7.8	7.1	2.7	18.9	-1.4	10.0	3.9
Average	8.7	8.1	3.9	21.3	0.4	12.6	6.8
Global Median	7.9	6.2	8.3	10.5	-0.4	11.7	9.6
Your fund	8.8	8.5	4.1	23.8	-0.8	11.7	6.9
LGPS %ile	64%	68%	62%	83%	15%	31%	50%

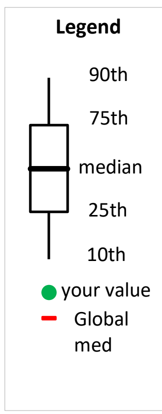
Your 5-year strategic asset mix return of 8.3% was slightly below the LGPS median of 8.4% and above the Global median of 7.6%.

Your strategic asset mix return is the return you could have earned passively by indexing your investments according to your strategic asset mix. The strategic asset mix return is typically the most significant driver of total returns.

Having a higher or lower relative strategic asset mix return is not necessarily good or bad. Your strategic asset mix return reflects your asset mix which in turn reflects your funding position, long-term capital market expectations, liabilities, employer covenant and appetite for risk.

Each of these factors is different across funds. Therefore, it is not surprising that strategic asset mix returns often vary widely between funds. In the following page we explore how your asset mix impacts your strategic asset mix returns relative to peers.





	5 year	3 year	2018	2017	2016	2015	2014
LGPS							
90th	9.6	9.2	5.5	23.0	2.1	14.7	9.3
Q3	9.3	8.5	4.7	21.7	1.5	13.7	7.9
Median	8.4	8.0	3.9	20.6	0.1	13.0	6.5
Q1	8.2	7.7	3.1	18.8	-0.2	12.1	5.7
10th	8.0	6.9	2.6	17.7	-0.9	11.2	5.1
Average	8.7	8.1	4.0	20.4	0.5	12.8	7.0
Global Median	7.6	5.8	7.7	10.7	-0.9	12.3	8.8
Your fund	8.3	7.7	3.3	20.7	0.2	12.8	5.5
LGPS %ile	32%	24%	31%	53%	56%	45%	24%

Differences in strategic asset mix return are caused by differences in benchmarks and asset mix.

Your 5-year policy return was slightly below the LGPS median primarily because:

- You had a higher weight to U.K. stock and a lower weight to global stock compared to the LGPS average.
- You had a higher weight to cash compared to the LGPS average.

	5-Year average strategic asset mix[1]			return	
	Your Fund	LGPS Avg.	More/ Less	Your Fund	LGPS Avg.
Asia-Pacific Stock	9%	4%	5%	9.6%	9.4%
U.K. Stock	22%	18%	4%	6.6%	6.7%
Europe exUK Stock	10%	4%	6%	9.6%	9.8%
U.S. Stock	11%	5%	7%	15.0%	14.5%
Emerging Market Stock	5%	3%	2%	6.9%	6.3%
Global Stock	3%	24%	-21%	n/a[3]	11.2%
Other Stock[2]		2%	-2%		n/a[3]
Total Stock	60%	60%	0%	9.5%	9.6%
Fixed Income - UK		4%	-4%		5.3%
Fixed Income - UK Gov't	4%	2%	2%	4.3%	5.2%
Fixed Income - UK Credit	5%	1%	4%	4.9%	4.4%
Inflation Indexed Bonds	3%	3%	-1%	6.9%	8.0%
Global Bonds	3%	5%	-2%	3.1%	3.4%
Cash	6%	1%	5%	0.3%	0.3%
Other Fixed Income[2]	2%	3%	0%	n/a[3]	n/a[3]
Total Fixed Income	23%	19%	4%	3.6%	4.8%
Hedge Funds		2%	-2%		2.5%
Balanced Funds	0%	3%	-3%	7.9%	7.1%
Infrastructure	3%	2%	0%	6.2%	5.6%
Real Estate ex-REITs	0%	3%	-3%	n/a[3]	8.8%
Domestic Property	10%	5%	5%	11.7%	10.3%
Other Real Assets[2]	1%	1%	0%	n/a[3]	n/a[3]
Private Equity	3%	5%	-2%	6.6%	16.5%
Total	100%	100%	0%		

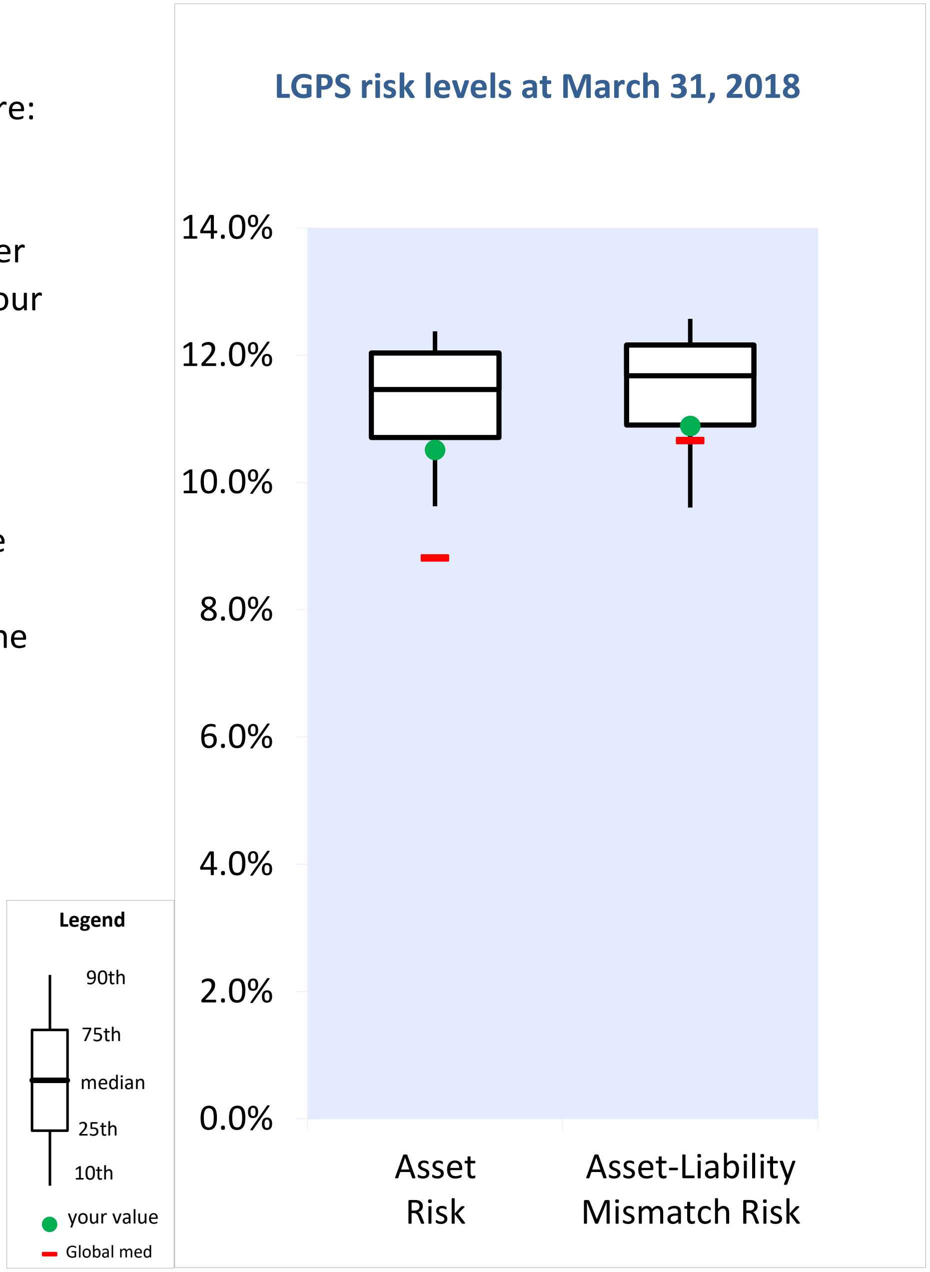
1. 5-year weights are based only on plans with 5 years of continuous data.
2.Other stock includes Canadian, EAFE and ACWIxUS stock. Other fixed income includes Canada, UK, U.S., long bonds and EAFE bonds. Other real assets includes commodities, natural resources and REITS.
3. A value of 'n/a' is shown if asset class return are not available for the full 5 years or if they are broad and incomparable.

Your strategic asset allocation is largely a function of your appetite for risk.

The two key risks for the Pension Committee to consider are:

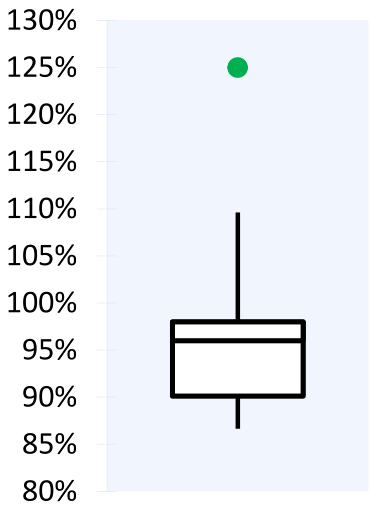
- Asset Risk - A higher asset risk is indicative of a higher weighting to more volatile assets (and vice-versa). Your asset risk of 10.5% was below the LGPS median of 11.5%.

- Asset-liability mismatch risk - A higher asset-liability mismatch risk is indicative a willingness to take more risk to improve the funding level. Lower asset risk is indicative of either better funding, concerns about the employer covenant or a desire for stability in contributions. A lower asset-liability mismatch risk means you are closer to a 'fully-matched' position. Your asset-liability risk of 10.9% was below the LGPS median of 11.7%.

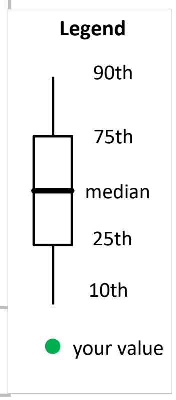


Your funding level of 125% was above the LGPS median of 96%. You had more asset liability mismatch risk.

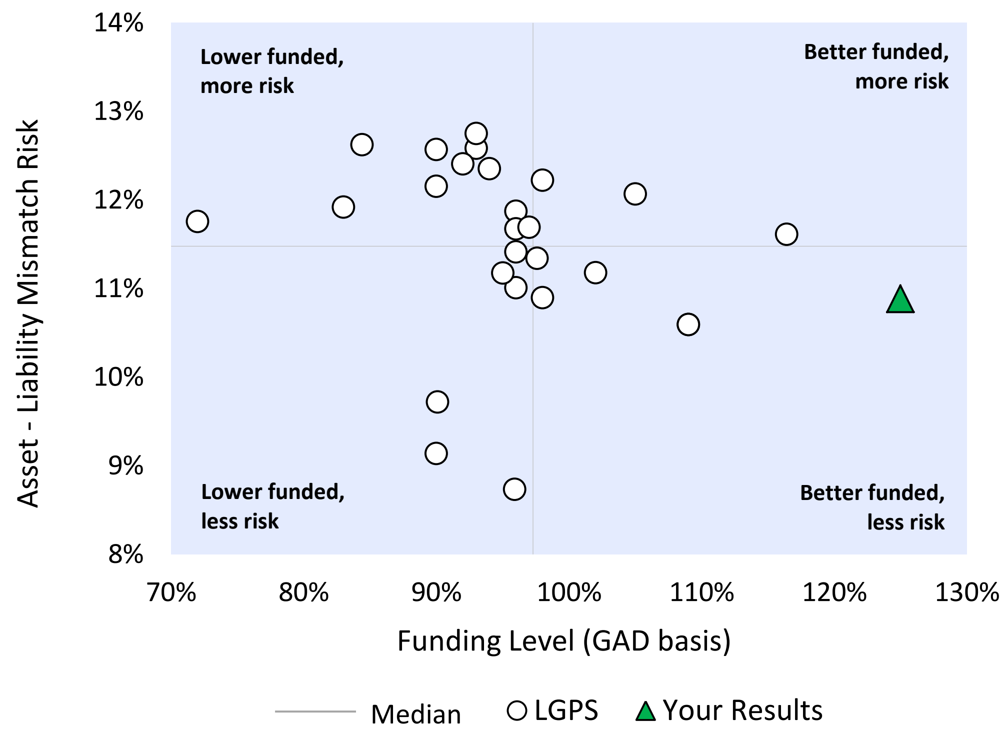
Funding Level using GAD's standard assumptions



LGPS	
90th	109.6%
Q3	98.0%
Median	96.0%
Q1	90.1%
10th	86.6%
Average	97.1%
Your fund	125.0%
LGPS %ile	100.0%



Funding Level vs Asset-Liability Mismatch Risk



Funding level is based on standardised actuarial assumptions developed by the Government Actuaries Department (GAD). Most of the key assumptions are consistent across funds but some assumptions, and in particular mortality assumptions, are fund specific. Your funding level as shown may not reflect the actuarial basis you use to determine your asset allocation or contribution policies, but it serves a useful purpose in providing context for comparisons of asset risk and asset liability mismatch risk.

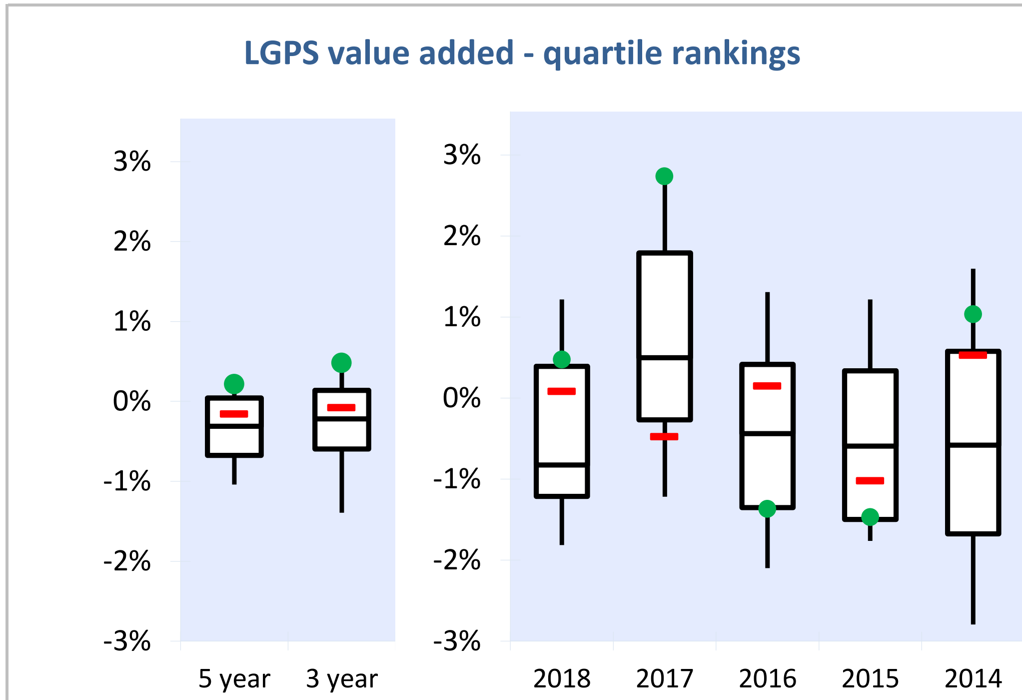
Net value added is the component of total return from active management. This is typically the responsibility of management (increasingly within pools in England and Wales). Your 5-year net value added was 0.6%.

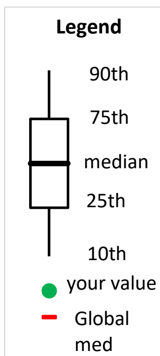
Net value added equals total net return minus strategic asset mix return.

It is a function of active management decisions which includes tactical asset allocation, manager selection, stock selection, choice of benchmarks, hedging, overlays, etc.

Your 5-year net value added of 0.6% compares to a median of 0.0% for the LGPS universe and 0.2% globally.

Your value added was impacted by your choice of benchmarks for private equity. CEM suggests using lagged, investable benchmarks for private equity. If your fund used the private equity benchmark suggested by CEM, your 5-year total fund value added would have been 0.3% lower.

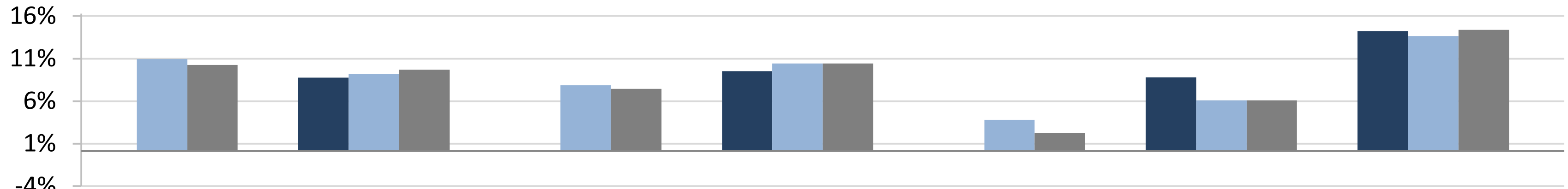




LGPS	5 year	3 year	2018	2017	2016	2015	2014
90th	0.6	0.9	1.6	3.0	1.7	1.6	1.9
Q3	0.4	0.5	0.7	2.1	0.8	0.7	0.9
Median	0.0	0.1	-0.5	0.8	-0.1	-0.2	-0.2
Q1	-0.3	-0.2	-0.9	0.1	-1.0	-1.2	-1.3
10th	-0.7	-1.0	-1.5	-0.9	-1.8	-1.4	-2.4
Average	-0.1	0.0	-0.1	0.9	-0.1	-0.2	-0.1
Global Median	0.2	0.3	0.4	-0.1	0.5	-0.7	0.9
Your fund	0.6	0.8	0.8	3.1	-1.0	-1.1	1.4
LGPS %ile	88%	84%	79%	94%	24%	26%	83%

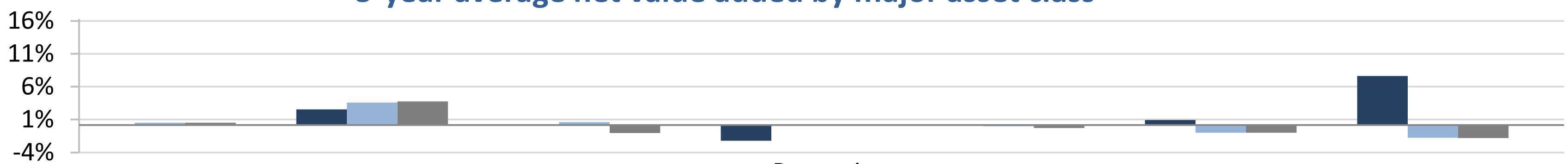
Here is how your net returns and net value added compare.

5-year average net return by major asset class



	Stock	Infrastructure	Global Property	Domestic Property	Hedge Funds	Balanced Funds	Private Equity[1]
Your fund		8.6%		9.4%		8.7%	14.1%
Global average	10.8%	9.0%	7.7%	10.3%	3.7%	5.9%	13.5%
LGPS average	10.1%	9.6%	7.3%	10.3%	2.1%	5.9%	14.3%
Your % of assets	3.7%	1.7%	0.3%	5.2%	0.0%	81.7%	3.8%

5-year average net value added by major asset class



	Stock	Infrastructure	Global Property	Domestic Property	Hedge Funds	Balanced Funds	Private Equity[1]
Your fund		2.4%		-2.4%		0.8%	7.5%
Global average	0.4%	3.4%	0.5%	-0.1%	-0.1%	-1.2%	-1.9%
LGPS average	0.4%	3.6%	-1.2%	-0.1%	-0.4%	-1.2%	-2.0%

1. To enable fairer comparisons, the private equity benchmarks of all participants, except your fund, were adjusted to reflect lagged, investable, public-market indices. If your fund used the private equity benchmark suggested by CEM, your fund's 5-year private equity net value added would have been -3.0%.

We compare your costs to the following custom peer group:

- 19 Global sponsors from £5.5 billion to £57.4 billion
- Median size of £26.9 billion versus your £21.8 billion

- Peers are selected based on size (because size impacts costs) and to include both LGPS and non-LGPS funds (to help you understand how your costs compare with a broad cross-section of funds).
- We specifically exclude other LGPS funds from your pool because costs will increasingly be homogenous within the pool.

LGPS Funds

Essex Pension Fund
Greater Manchester Pension Fund
Lothian Pension Fund
South Yorkshire Pensions Fund
Strathclyde Pension Fund
Tyne and Wear Pension Fund

Non-LGPS Funds

Andra AP-fonden
AustralianSuper
BT Pension Scheme Management
Healthcare of Ontario
Iowa PERS
Keva
Lloyds Number 1
Nokia - US
Pensioenfonds Metalektro
PERS of Nevada
State of Tennessee
BPF voor de Bouwnijverheid
Tredje AP-fonden

The names of the above fund sponsors in your peer group are confidential and may not be disclosed to third parties.

We are benchmarking investment costs of £92.0 million or 43.1 basis points in 2017/18.

Asset management costs by asset class and style (£000s)	Internal Mgmt Active	Internal Mgmt Overseeing of external	External Management Passive fees	External Management Active base fees	External Management Perform. fees [2]	Total	
Stock - Global				1,492		1,492	
Fixed Income - Absolute Return Bonds				1,970		1,970	
Balanced Funds			2,052	9,792		11,844	
Global Property - LPs		23		4,602		4,624	
Infrastructure [1]	1,058					1,058	
Infrastructure - LPs [1]		81		9,193	7,552	16,826	
Domestic Property		23		4,787	331	5,141	
Other Real Assets [1]		27		4,748	1,609	6,384	
Diversified Private Equity - LPs [1]		130		14,195	8,368	22,692	
Diversified Private Equity - FoFs [1]		32		6,718	4,650	11,401	
Other Private Equity - LPs [1]		56		3,520	3,137	6,713	
Total						90,143	42.2bp
Oversight, custodial and other costs [3]							
Oversight of the fund						1,105	
Trustee & custodial						357	
Consulting and performance measurement						227	
Audit						62	
Other						77	
Total oversight, custodial & other costs						1,827	0.9bp
Total investment costs (excl. transaction costs)						91,970	43.1bp

Footnotes

1. Default performance fees were added: Other Private Equity - LPs 115 bps, Diversified Private Equity - FoFs 42 bps, Diversified Private Equity - LPs 183 bps, Other - External Not Fund of Fund 40 bps, Infrastructure - LPs 185 bp. Refer to Appendix A for full details regarding defaults.
2. Total cost includes carry/performance fees for all asset classes.
3. Excludes non-investment costs, such as benefit insurance premiums and preparing cheques for retirees.

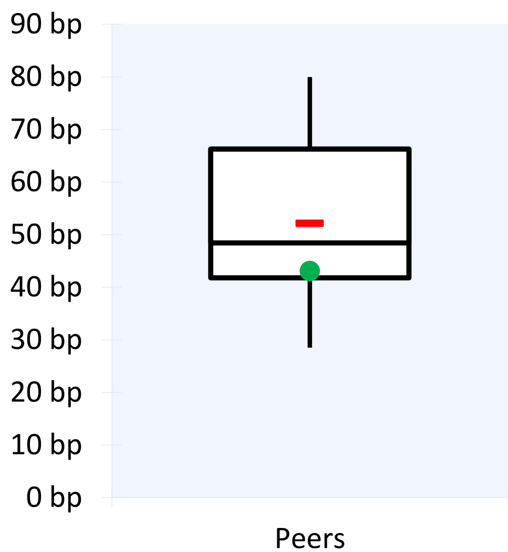
Your cost of 43.1 bps was below your benchmark cost of 57.0 bps.

Comparison of costs before adjusting for asset mix:

Before adjusting for differences in asset mix, your costs of 43.1 bps were -5.4 bps below the peer median of 48.5 bps.

Your cost versus peers

(before adjusting for asset mix differences)



Comparison of costs after adjusting for asset mix:

To calculate a benchmark cost we apply peer median costs at an asset class level to your asset mix (i.e., we adjust for differences in asset mix).

Your cost versus benchmark

(after adjusting for asset mix differences)

	£000s	basis points
Your total investment cost	91,970	43.1 bp
Your benchmark cost	121,806	57.0 bp
Your excess cost	(29,836)	(14.0) bp

Your fund was low cost because you paid less than peers for similar services.

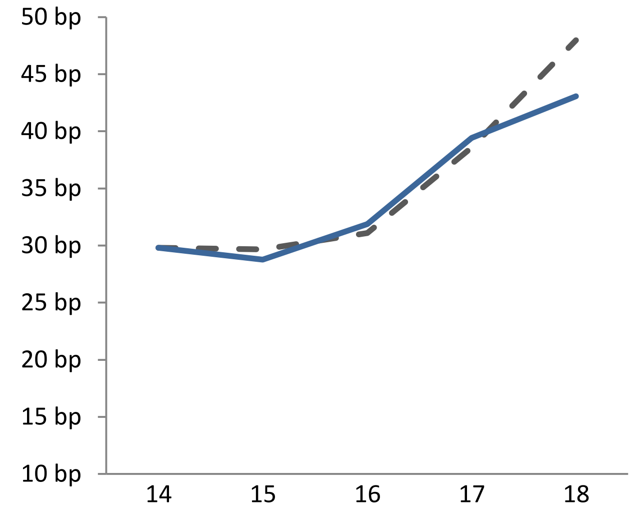
Reasons for your low cost status

	You	Peer Median	Excess Cost/ (Savings) £000s	bps
1. Higher cost implementation style				
• Use of active management (vs. lower cost passive)			436	0.2
• More internal management (vs. higher cost external)	You	Peer Median		
Infrastructure	79%	84%	(1,446)	(0.7)
Stock - Global	100%	67%	1,235	0.6
All other differences			2,159	1.0
• More partnerships for private assets (vs. funds)			5,632	2.6
• Less fund of funds			(2,289)	(1.1)
• Less overlays			(979)	(0.5)
			4,748	2.2
2. Paying less than peers for similar services				
• External investment management costs	You	Peer Median		
Balanced Funds - Active	10.4 bp	38.8 bp	(26,630)	(12.5)
Diversified Private Equity - Fof - Underlying base fees	69.4 bp	157.0 bp	(3,845)	(1.8)
Stock - Global - Active	13.6 bp	40.2 bp	(2,911)	(1.4)
Balanced Funds - Passive	3.0 bp	7.0 bp	(2,743)	(1.3)
All other differences			2,151	1.0
• Internal investment management costs			775	0.4
• Oversight, custodial and other costs			(1,382)	(0.6)
			(35,086)	(16.2)
Total savings			(29,836)	(14.0)

Your cost increased from 29.8 bps in 2013/14 to 43.1 bps in 2017/18.

	Bps	£000s
Investment cost reported in 2013/14	29.8 bp	£37,652
Impact of changes in assets and asset mix		
• Increase in assets[1]	n/a	£26,000
• Higher cost asset mix	18.2 bp	£38,825
	48.0 bp	£102,476
Impact of changes within the same asset classes		
• More passive (less active)	(1.0) bp	
• More external management (vs. internal)	2.3 bp	
• Less fund-of-funds	(0.2) bp	
Higher/-lower fees for:		
• Stock and fixed Income	(1.4) bp	
• Private markets and hedge funds:		
Lower base fees	(8.2) bp	
Higher performance fees	4.0 bp	
• Lower oversight and other changes	(0.4) bp	
Total changes in underlying costs	(4.9) bp	£-10,506
Investment cost in 2017/18	43.1 bp	£91,970

Investment cost changes



	14	15	16	17	18
Asset mix impact	29.8	29.7	31.1	38.6	48.0
Actual cost	29.8	28.8	31.9	39.4	43.1

• Change in underlying (bp)	-0.9	0.8	0.8	-4.9
• Change in underlying in £mils	-1.4	1.4	1.7	-10.5
• Cumulative (£mils)				-8.8

1. Assumes all costs increase in line with the value of assets.

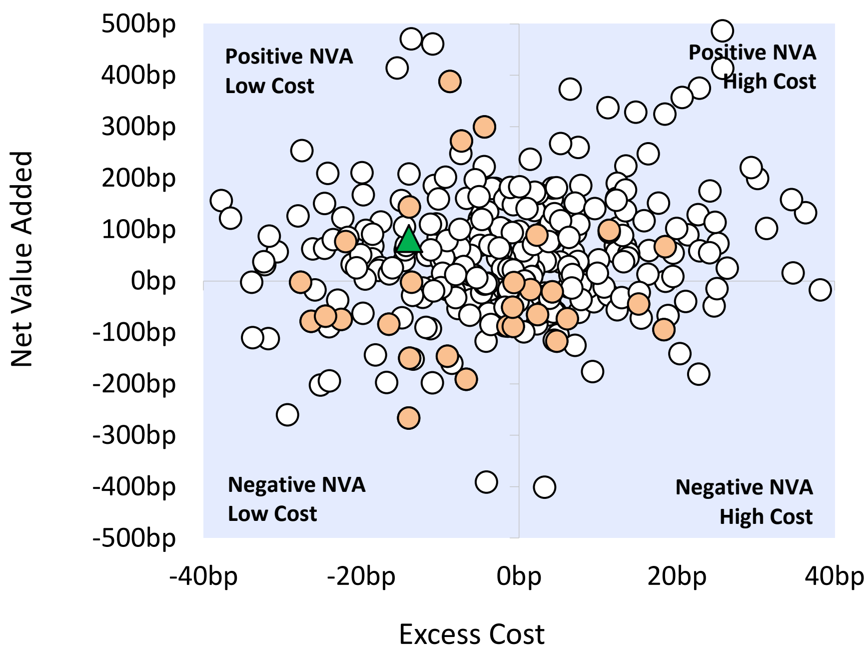
Cost Effectiveness

Your 2017/18 performance placed in the positive value added, low cost quadrant of the cost effectiveness chart.

Your 5-year performance placed in the positive value added, low cost quadrant of the cost effectiveness chart.

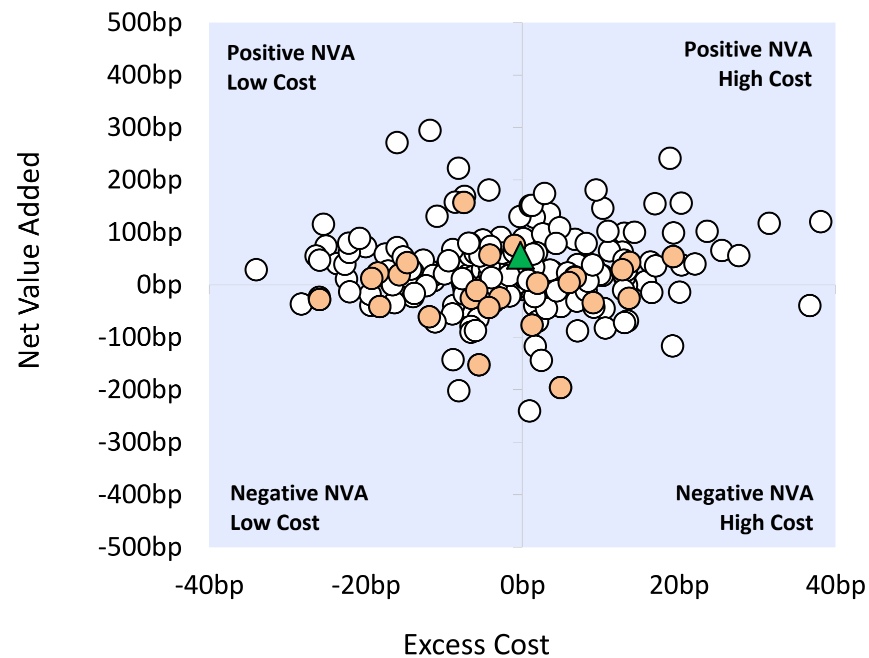
2017/18 net value added versus excess cost

(Your 2017/18: net value added 82 bps, cost savings 14 bps [1])



5-Year net value added versus excess cost

(Your 5-year: net value added 56 bps, cost savings 0 bps [1])



Global LGPS You

1. Your 5-year cost savings relative to peers of 0 basis points is the average for the past 5 years. Cost savings before 2016/17 are calculated using regression analysis.

Key takeaways

Returns

- Your 5-year net total return was 8.8%. This was above the LGPS median of 8.6% and above the global median of 7.9%.
- Your 5-year strategic asset mix return was 8.3%. This was close to the LGPS median of 8.4% and above the global median of 7.6%.

Risk

- Your asset risk of 10.5% was below the LGPS median of 11.5%. Your asset-liability risk of 10.9% was below the LGPS median of 11.7%.
- Your funding level on the standard GAD basis of 125% was above the LGPS median of 96%.

Value added

- Your 5-year net value added was 0.6%. This was above the LGPS median of 0.0% and above the global median of 0.2%.

Cost

- Your investment cost of 43.1 bps was below your benchmark cost of 57.0 bps. This suggests that your fund was low cost compared to your peers.
- Your fund was low cost because you paid less than peers for similar services.
- Your cost increased from 29.8 bps in 2013/14 to 43.1 bps in 2017/18.

Merseyside Pension Fund
Investment Benchmarking Results

For the 5 year period ending March 31, 2018

Interim Report

This is an interim and draft report that will be updated when more data has been submitted by other LGPS funds. The headlines and conclusions may change as a result of the inclusion of more LGPS funds.

CEM Benchmarking

What gets measured gets managed

1 Change Alley
London, EC3V 3ND
+44 203 887 9289
www.cembenchmarking.com

This report will help you to satisfy your oversight responsibilities by:

- Comparing your investment performance with other funds.

- Highlighting returns that come from:

  - The local Pension Committee’s strategic asset allocation decisions, and
  - The implementation of the Committee’s strategy (typically the responsibility of management).

- Comparing the level of risk inherent in your portfolio and relative to your liabilities and your funding position.

- Comparing your investment costs and explaining why your costs compare as they do.

- Considering how and why your costs have changed over time.

- Looking at value-for-money – ‘did paying more get you more’?

The report is based on standardised data submitted to CEM by your fund, by other LGPS funds and a wider universe of funds from around the world. Care is taken to validate the data contained in the report. This includes automated validations on outlying or unusual data as it is submitted, and an additional manual data ‘clean’ where our analysts interact with fund personnel to ensure the data is fit for purpose. The information in this report is confidential and should not be disclosed to third parties without the express written consent of CEM. CEM will not disclose any of the information in the report without your express written consent.

We compare your returns to other LGPS funds and a wider global universe.

CEM's LGPS Universe

Pool / Group	# of Participant Funds	Total Assets (£bns)	% of CEM's LGPS Universe	Funds
Access Pool	3	£8.9	6%	Essex, Isle of Wight, Suffolk.
BCPP	9	£33.8	22%	Bedford, Durham, East Riding, Lincolnshire, Northumberland, SYPF, Surrey, Tyne and Wear, Warwickshire.
Brunel Pool	1	£4.8	3%	Avon.
Central Pool	3	£12.7	8%	Cheshire, Staffordshire, Worcestershire.
LPP Pool	2	£10.8	7%	Lancashire, LPFA.
Northern Pool	3	£44.3	29%	GMPF, Merseyside, West Yorkshire.
Scottish Pool	4	£30.2	19%	Falkirk, Lothian, Shetland Islands, Strathclyde.
Welsh Pool	5	£9.7	6%	Swansea, Torfaen, Powys, Rhondda Cynon TAF, Cardiff.
Total	30	£155.3	100%	

The main performance comparisons are with the LGPS universe comprising 30 funds with total assets of £155 billion (average £5 billion, median £3 billion).

We also compare your returns (and LGPS returns generally) with a wider global universe comprising 317 funds with total assets of £6.4 trillion (average £20bn, median £5bn). The global universe includes half of the world's top 300 funds.

Your 5-year net total return of 8.5% was equal to the LGPS median of 8.5% and above the Global median of 7.9%.

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

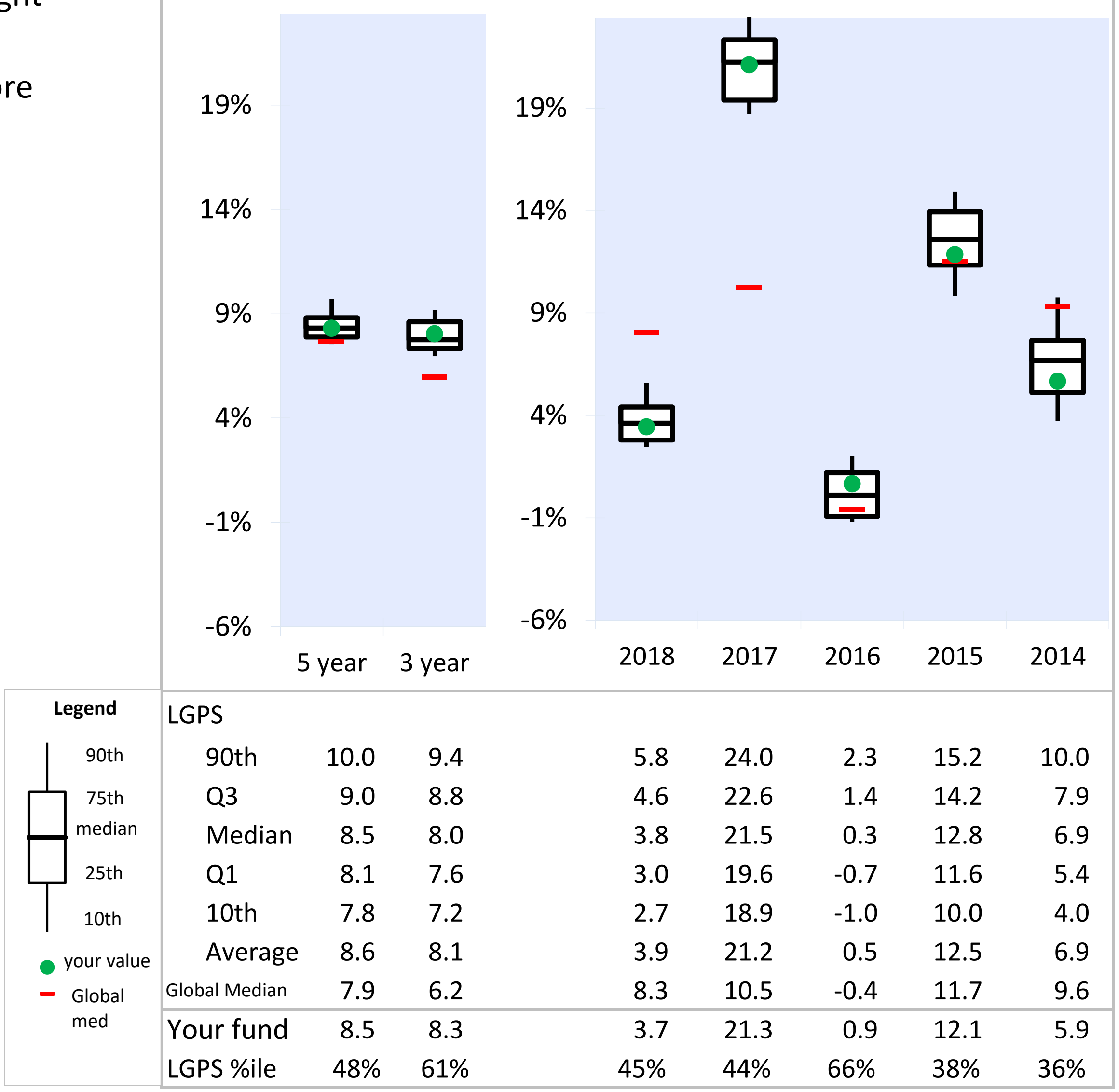
- Strategic asset mix return: The return from strategic asset allocation decisions. These decisions are typically made by the local Pensions Committee.

- Value added: A function of active management decisions, including tactical asset allocation, manager selection, stock selection, etc. These 'implementation' decisions tend to be made by management (increasingly within pools in England and Wales).

These are discussed on the pages that follow.

Global return comparisons have been particularly influenced by the relative strength of the $US over the period covered by this report and by the depreciation of the £ in 2016/17, i.e. there is some currency 'noise' in the global comparison.

LGPS net total returns - quartile rankings



LGPS	5 year	3 year	2018	2017	2016	2015	2014
90th	10.0	9.4	5.8	24.0	2.3	15.2	10.0
Q3	9.0	8.8	4.6	22.6	1.4	14.2	7.9
Median	8.5	8.0	3.8	21.5	0.3	12.8	6.9
Q1	8.1	7.6	3.0	19.6	-0.7	11.6	5.4
10th	7.8	7.2	2.7	18.9	-1.0	10.0	4.0
Average	8.6	8.1	3.9	21.2	0.5	12.5	6.9
Global Median	7.9	6.2	8.3	10.5	-0.4	11.7	9.6
Your fund	8.5	8.3	3.7	21.3	0.9	12.1	5.9
LGPS %ile	48%	61%	45%	44%	66%	38%	36%

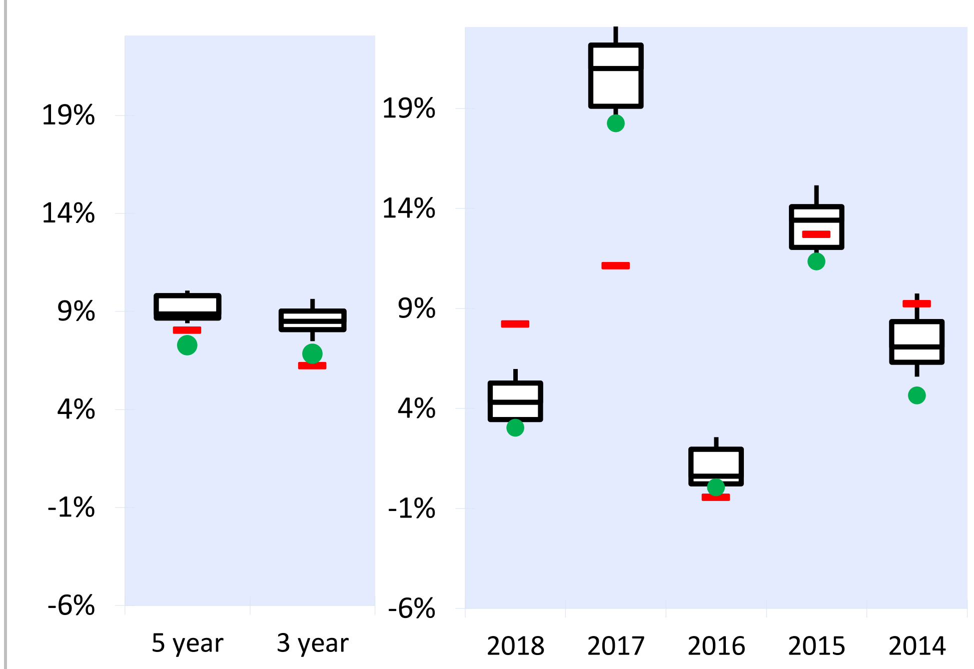
Your 5-year strategic asset mix return of 6.8% was below both the LGPS median of 8.4% and the Global median of 7.6%.

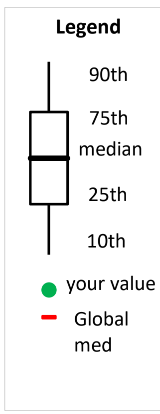
Your strategic asset mix return is the return you could have earned passively by indexing your investments according to your strategic asset mix. The strategic asset mix return is typically the most significant driver of total returns.

Having a higher or lower relative strategic asset mix return is not necessarily good or bad. Your strategic asset mix return reflects your asset mix which in turn reflects your funding position, long-term capital market expectations, liabilities, employer covenant and appetite for risk.

Each of these factors is different across funds. Therefore, it is not surprising that strategic asset mix returns often vary widely between funds. In the following page we explore how your asset mix impacts your strategic asset mix returns relative to peers.

LGPS Strategic asset mix returns - quartile rankings





	5 year	3 year	2018	2017	2016	2015	2014
LGPS							
90th	9.6	9.2	5.5	22.8	2.1	14.7	9.3
Q3	9.4	8.6	4.8	21.7	1.5	13.6	7.9
Median	8.4	8.0	3.9	20.6	0.2	13.0	6.6
Q1	8.2	7.6	3.0	18.7	-0.2	11.6	5.9
10th	7.9	7.0	2.6	17.6	-0.8	11.1	5.1
Average	8.7	8.1	4.0	20.3	0.6	12.6	7.0
Global Median	7.6	5.8	7.8	10.7	-0.9	12.3	8.8
Your fund	6.8	6.4	2.6	17.8	-0.4	10.9	4.2
LGPS %ile	0%	0%	10%	12%	19%	7%	0%

Differences in strategic asset mix return are caused by differences in benchmarks and asset mix.

Your 5-year policy return was below the LGPS median primarily because:

- The negative impact of your cash benchmark (7 day LIBID) for hedge funds, infrastructure and private equity. Cash underperformed almost all benchmarks during this period. Cash is a poor benchmark for private assets.

- The negative impact of your mix of stock (i.e., you had more UK stock and less Global Stock, etc.). Your weighted benchmark for your mix of stock was 8.7%. This was 1.1% lower than the 9.8% LGPS universe average.

- The negative impact of your lower weight in one of the better performing asset classes of the past 5 years: Total Stock (your 53% 5-year average weight versus a LGPS average of 59%).

	5-Year average strategic asset mix[1]			5-year bmk. return	
	Your Fund	LGPS Avg.	More/ Less	Your Fund	LGPS Avg.
Asia-Pacific Stock	8%	3%	5%	8.3%	9.3%
U.K. Stock	23%	18%	6%	6.6%	6.9%
Europe exUK Stock	8%	4%	4%	10.0%	9.8%
U.S. Stock	8%	5%	3%	14.4%	14.6%
Emerging Market Stock	6%	3%	3%	7.0%	6.2%
Global Stock		24%	-24%	n/a[3]	11.4%
Other Stock[2]		2%	-2%	n/a[3]	n/a[3]
Total Stock	53%	59%	-5%	8.7%	9.8%
Fixed Income - UK	8%	7%	1%	4.6%	5.1%
Inflation Indexed Bonds	11%	3%	7%	6.9%	8.0%
Cash		1%	-1%	0.3%	0.3%
Other Fixed Income[2]		8%	-8%	n/a[3]	n/a[3]
Total Fixed Income	19%	20%	-1%	5.9%	4.8%
Hedge Funds	4%	2%	2%	0.3%	2.7%
Balanced Funds		3%	-3%	n/a[3]	7.1%
Infrastructure	5%	3%	3%	0.3%	5.6%
Global Property	3%	3%	0%	10.9%	8.7%
Domestic Property	5%	5%	0%	11.5%	10.3%
Other Real Assets[2]	0%	1%	-1%	n/a[3]	n/a[3]
Private Equity	9%	5%	4%	0.3%	16.0%
Total	100%	100%	0%		

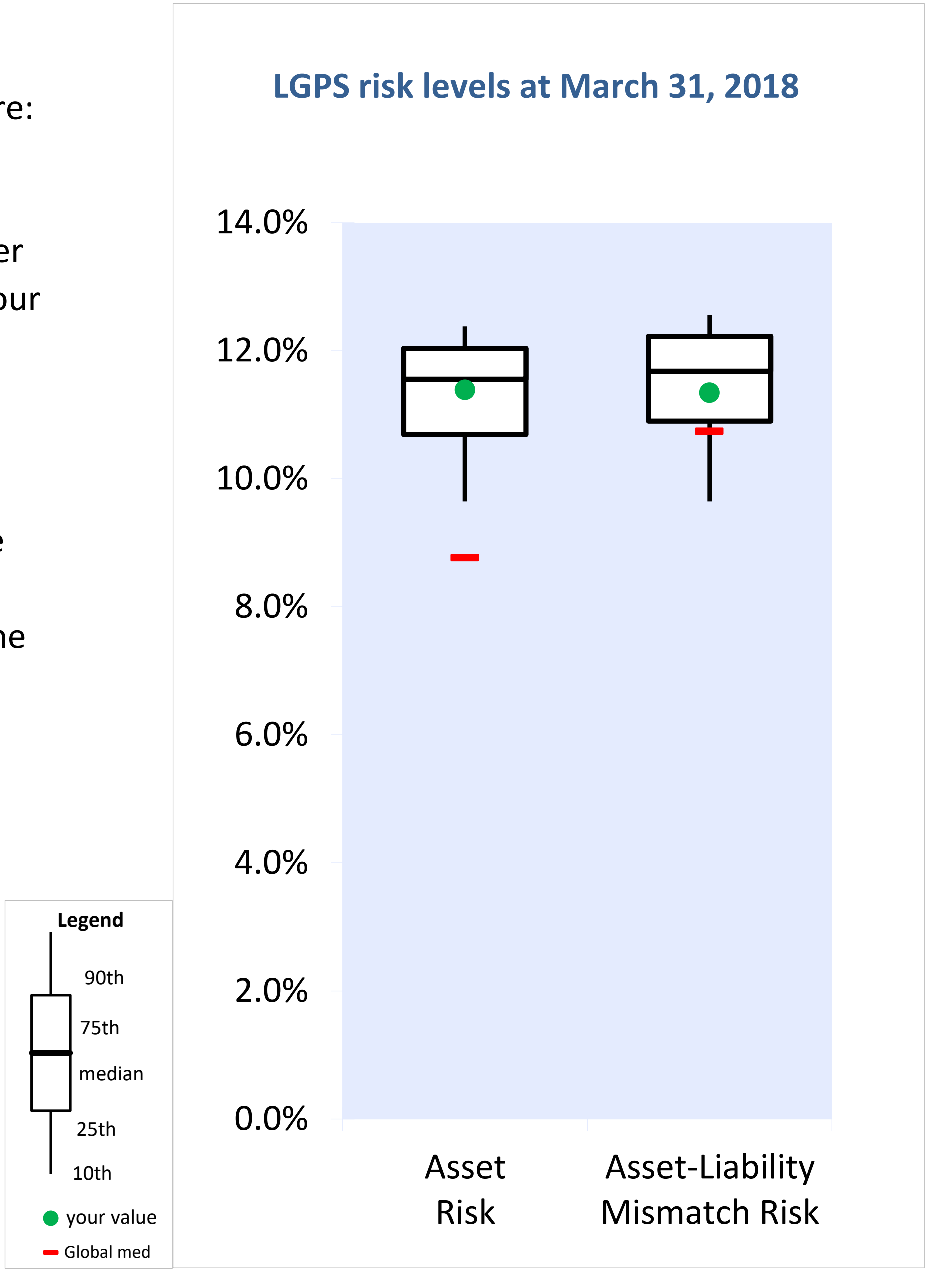
1. 5-year weights are based only on plans with 5 years of continuous data.
2.Other stock includes Canadian, EAFE and ACWIxUS stock. Other fixed income includes Canada, U.S., long bonds, EAFE, Global and Global bonds. Other real assets includes commodities, natural resources and REITS.
3. A value of 'n/a' is shown if asset class return are not available for the full 5 years or if they are broad and incomparable.

Your strategic asset allocation is largely a function of your appetite for risk.

The two key risks for the Pension Committee to consider are:

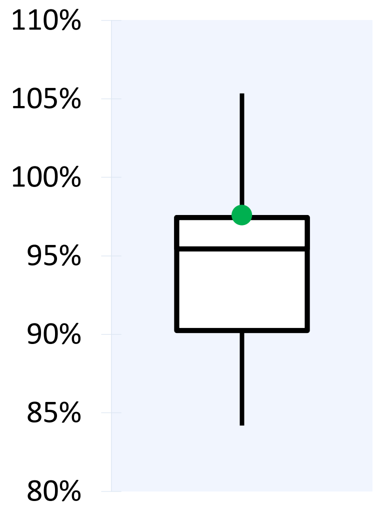
- Asset Risk - A higher asset risk is indicative of a higher weighting to more volatile assets (and vice-versa). Your asset risk of 11.4% was below the LGPS median of 11.6%.

- Asset-liability mismatch risk - A higher asset-liability mismatch risk is indicative a willingness to take more risk to improve the funding level. Lower asset risk is indicative of either better funding, concerns about the employer covenant or a desire for stability in contributions. A lower asset-liability mismatch risk means you are closer to a 'fully-matched' position. Your asset-liability risk of 11.3% was below the LGPS median of 11.7%.



Your funding level of 98% was above the LGPS median of 95%. You had more asset liability mismatch risk.

Funding Level using GAD's standard assumptions

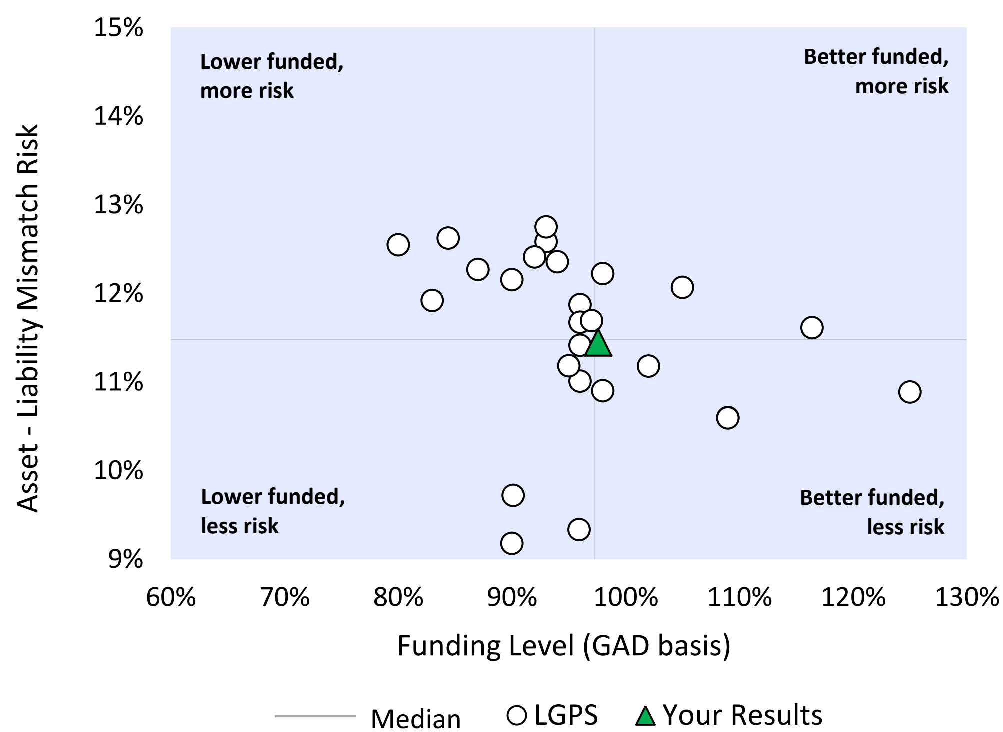


LGPS	
90th	105.4%
Q3	97.5%
Median	95.5%
Q1	90.3%
10th	84.2%
Average	94.3%
Your fund	97.6%
LGPS %ile	75.8%

Legend

90th
75th
median
25th
10th
your value

Funding Level vs Asset-Liability Mismatch Risk



Funding level is based on standardised actuarial assumptions developed by the Government Actuaries Department (GAD). Most of the key assumptions are consistent across funds but some assumptions, and in particular mortality assumptions, are fund specific. Your funding level as shown may not reflect the actuarial basis you use to determine your asset allocation or contribution policies, but it serves a useful purpose in providing context for comparisons of asset risk and asset liability mismatch risk.

Net value added is the component of total return from active management. This is typically the responsibility of management (increasingly within pools in England and Wales). Your 5-year net value added was 1.7%.

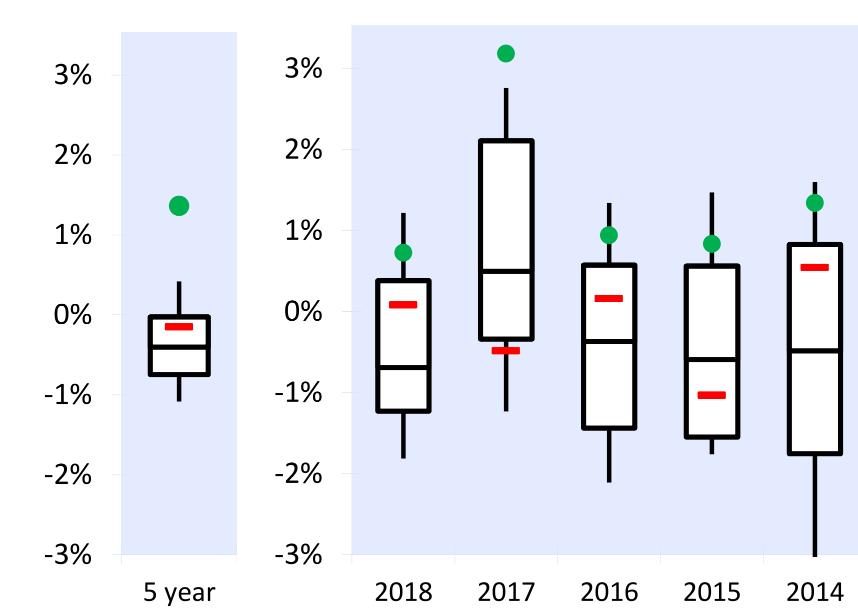
Net value added equals total net return minus strategic asset mix return.

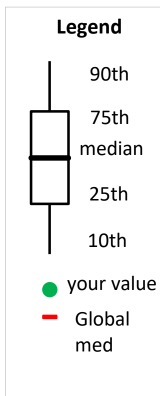
It is a function of active management decisions which includes tactical asset allocation, manager selection, stock selection, choice of benchmarks, hedging, overlays, etc.

Your 5-year net value added of 1.7% compares to a median of -0.1% for the LGPS universe and 0.2% globally.

Your superior net value added partly reflects the fact that you use a cash benchmark for hedge funds, infrastructure and private equity. Cash is usually a very easy benchmark to beat. For example, for private equity, CEM suggests using lagged, investable benchmarks. If your fund used the private equity benchmark suggested by CEM, your 5-year total fund value added would have been 1.5% lower.

LGPS policy returns - quartile rankings

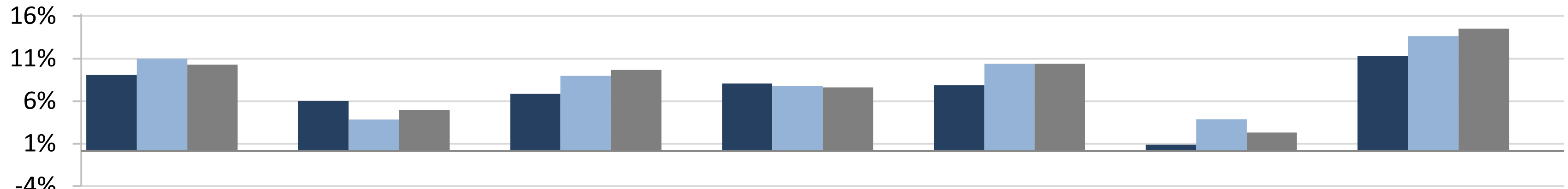




	5 year	2018	2017	2016	2015	2014
LGPS						
90th	0.8	1.6	3.1	1.7	1.8	1.9
Q3	0.3	0.7	2.5	0.9	0.9	1.2
Median	-0.1	-0.3	0.8	0.0	-0.2	-0.1
Q1	-0.4	-0.9	0.0	-1.1	-1.2	-1.4
10th	-0.7	-1.5	-0.9	-1.8	-1.4	-2.8
Average	0.0	-0.1	1.0	-0.1	-0.1	-0.1
Global Median	0.2	0.4	-0.1	0.5	-0.7	0.9
Your fund	1.7	1.1	3.5	1.3	1.2	1.7
LGPS %ile	100%	86%	94%	84%	79%	86%

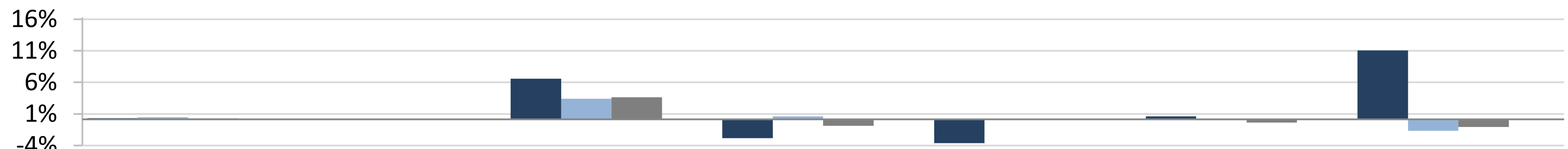
Here is how your net returns and net value added compare.

5-year average net return by major asset class



	Stock	Fixed Income	Infrastructure	Global Property	Domestic Property	Hedge Funds	Private Equity[1]
Your fund	9.0%	5.9%	6.7%	7.9%	7.7%	0.7%	11.2%
Global average	10.8%	3.7%	8.8%	7.6%	10.3%	3.7%	13.5%
LGPS average	10.2%	4.8%	9.5%	7.5%	10.3%	2.2%	14.4%
Your % of assets	55.0%	17.2%	3.4%	2.9%	5.5%	3.7%	11.5%

5-year average net value added by major asset class



	Stock	Fixed Income	Infrastructure	Global Property	Domestic Property	Hedge Funds	Private Equity[1]
Your fund	0.2%	-0.1%	6.4%	-3.0%	-3.8%	0.5%	10.9%
Global average	0.4%	0.1%	3.3%	0.5%	-0.1%	-0.1%	-1.8%
LGPS average	0.1%	0.0%	3.5%	-1.0%	-0.1%	-0.5%	-1.2%

1. To enable fairer comparisons, the private equity benchmarks of all participants, except your fund, were adjusted to reflect lagged, investable, public-market indices. If your fund used the private equity benchmark suggested by CEM, your fund's 5-year private equity net value added would have been -6.0%.

We compare your costs to the following custom peer group:

- 19 Global sponsors from £4.8 billion to £10.4 billion
- Median size of £8.4 billion versus your £8.6 billion

- Peers are selected based on size (because size impacts costs) and to include both LGPS and non-LGPS funds (to help you understand how your costs compare with a broad cross-section of funds).
- We specifically exclude other LGPS funds from your pool because costs will increasingly be homogenous within the pool.

<u>LGPS Funds</u>

Avon Pension Fund
Essex Pension Fund
Lothian Pension Fund
Merseyside Pension Fund
South Yorkshire Pensions Fund
Staffordshire Pension Fund
Tyne and Wear Pension Fund

<u>Non-LGPS Funds</u>

Citigroup
Con Edison
ExxonMobil Corporation
Lloyds Number 2
Los Angeles Water & Power Employees Retirement Plan
Maine PERS
Ontario Power Generation Inc.
OSOOL Total Pension Fund
Pensionskasse SBB
Pfizer Inc
SPF Werk en (re)Integratie
Vestcor Inc.

The names of the above fund sponsors in your peer group are confidential and may not be disclosed to third parties.

We are benchmarking investment costs of £55.1 million or 63.7 basis points in

Asset management costs by asset class and style (£000s)	Internal Mgmt		External Management				
	Active	Overseeing of external	Passive fees	Active base fees	Perform. fees [3]	Total	
Stock - U.S.			135			135	
Stock - UK	76		68	2,547	1,214	3,905	
Stock - Japan			1	1,625		1,626	
Stock - Asia-Pacific ex-Japan				1,199		1,199	
Stock - EAFE ex-UK	308			2,067		2,375	
Stock - Emerging			56	2,399		2,455	
Fixed Income - UK				748	332	1,081	
Fixed Income - Inflation Indexed			69			69	
Cash	11					11	
Hedge Fund - External Not Fund of Fund		51		2,697	2,298	5,047	
Real Estate - LPs [1]		51		4,706	665	5,422	
Infrastructure [1]	273					273	
Infrastructure - LPs [1]		73		4,539	44	4,656	
Domestic Property	526					526	
Diversified Private Equity - LPs [1]		60		4,345	4,199	8,604	
Diversified Private Equity - FoFs [2]		46		5,996	7,240	13,282	
Other Private Equity - LPs [1]		92		2,357	116	2,565	
Derivatives/Overlays			150			150	
Total						53,379	61.7bp
Oversight, custodial and other costs [4]							
Oversight of the fund						886	
Trustee & custodial						166	
Consulting and performance measurement						584	
Audit						39	
Other						0	
Total oversight, custodial & other costs						1,675	1.9bp
Total investment costs (excl. transaction costs)						55,054	63.7bp

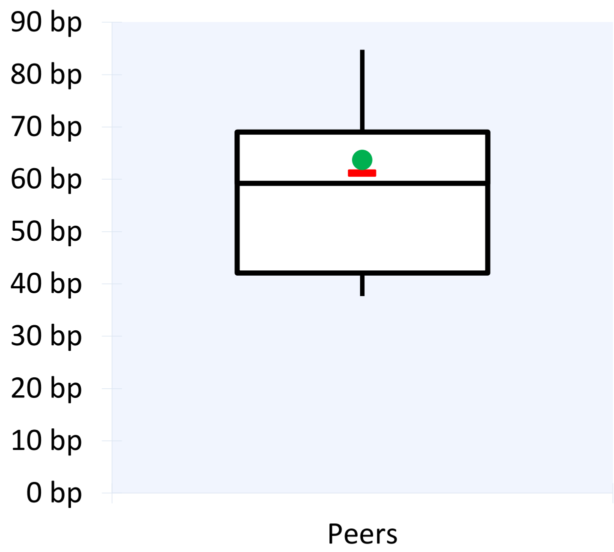
Footnotes
1. Fees are the weighted average management cost calculated using the detailed limited partnership survey provided.
2. Default underlying costs were added: Diversified Private Equity - FoFs 157 bp. Refer to Appendix A for full details regarding defaults.
3. Total cost includes carry/performance fees for all asset classes.
4. Excludes non-investment costs, such as benefit insurance premiums and preparing cheques for retirees.

Your cost of 63.7 bps was below your benchmark cost of 72.0 bps.

Comparison of costs before adjusting for asset mix:

Before adjusting for differences in asset mix, your costs of 63.7 bps were 4.5 bps above the peer median of 59.2 bps.

Your cost versus peers
(before adjusting for asset mix differences)



Comparison of costs after adjusting for asset mix:

To calculate a benchmark cost we apply peer median costs at an asset class level to your asset mix (i.e., we adjust for differences in asset mix).

Your cost versus benchmark
(after adjusting for asset mix differences)

	£000s	basis points
Your total investment cost	55,054	63.7 bp
Your benchmark cost	62,245	72.0 bp
Your excess cost	(6,665)	(7.7) bp

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

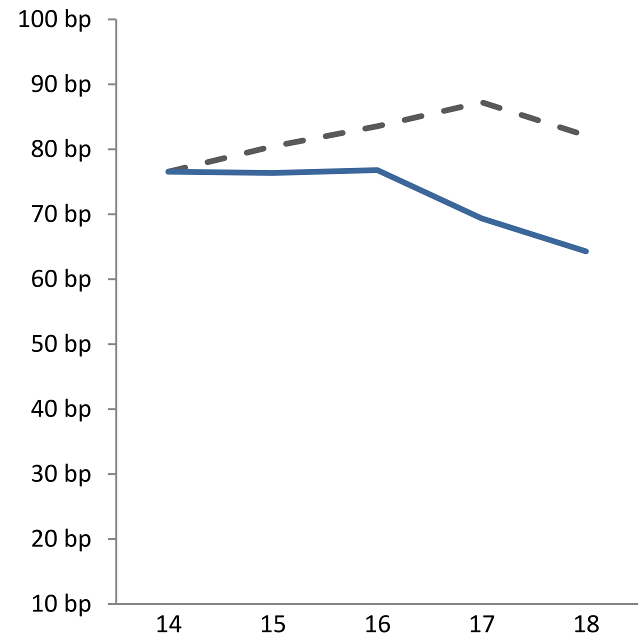
Reasons for your low cost status

	You	Peer Median	Excess Cost/ (Savings) £000s	Excess Cost/ (Savings) bps
1. Lower cost implementation style				
• Use of external active management (vs. lower cost passive and internal)			(2,346)	(2.7)
• More partnerships as a percentage of external			1,250	1.4
• Less fund of funds			(1,628)	(1.9)
• Less overlays			(88)	(0.1)
• Other style differences			(50)	(0.1)
			(2,862)	(3.3)
2. Paying less than peers for similar services				
• External investment management costs				
Global Property base fees	138.3 bp	93.3 bp	1,547	1.8
Diversified Private Equity top layer fees	170.5 bp	82.2 bp	1,629	1.9
Global Property Performance fees	24.7 bp	56.0 bp	(844)	(1.0)
Infrastructure Performance fees	1.2 bp	152.1 bp	(5,579)	(6.5)
Other differences in external management costs			554	0.6
• Internal investment management costs			(927)	(1.1)
• Oversight, custodial and other costs			(183)	(0.2)
			(3,803)	(4.4)
Total savings			(6,665)	(7.7)

Your cost fell from 76.5 bps in 2013/14 to 64.3 bps in 2017/18.

	Bps	£000s
Investment cost reported in 2013/14	70.4 bp	£39,872
Impact of methodology changes[1]		
• Inclusion of hedge fund performance fees	6.2 bp	£5,333
Restated costs for 2013/14[1]	76.5 bp	£45,205
Impact of changes in assets and asset mix		
• Increase in assets[2]	n/a	£20,983
• Higher cost asset mix	5.0 bp	£4,363
• Reduced use of overlays	(0.1) bp	£-79
	81.5 bp	£71,030
Impact of changes within the same asset classes		
• More passive (less active)	(2.0) bp	
• Less external management (vs. internal)	(3.3) bp	
• Less fund-of-funds	(1.1) bp	
Higher/-lower fees for:		
• Stock and fixed Income	(3.6) bp	
• Private markets and hedge funds:		
Lower base fees	(8.9) bp	
Higher performance fees	2.4 bp	
• Lower oversight and other changes	(1.4) bp	
Total changes in underlying costs	(17.9) bp	£-15,449
Investment cost in 2017/18	64.3 bp	£55,580

Investment cost changes



	14	15	16	17	18
Asset mix impact	76.5	80.4	83.6	87.3	82.1
Actual cost	76.5	76.4	76.8	69.3	64.3

• Change in underlying (bp)	-4.1	-6.8	-17.9	-17.9
• Change in underlying in £mils	-2.6	-4.5	-13.4	-15.4
• Cumulative (£mils)				-35.9

1. To enable a meaningful comparison, we have adjusted your reported 2013/14 cost to allow for the fact that we started to collect more costs at a later date. The reported cost is increased as if you were paying the same amount in bps in 2013/14 for each asset class. For example, we started to collect hedge fund performance fees in 2014. If your hedge fund performance fees were 50 bps at that time, then we assume you were paying 50 bps in 2013/14 and that your 'implementation style' was unchanged.
2. Assumes all costs increase in line with the value of assets.

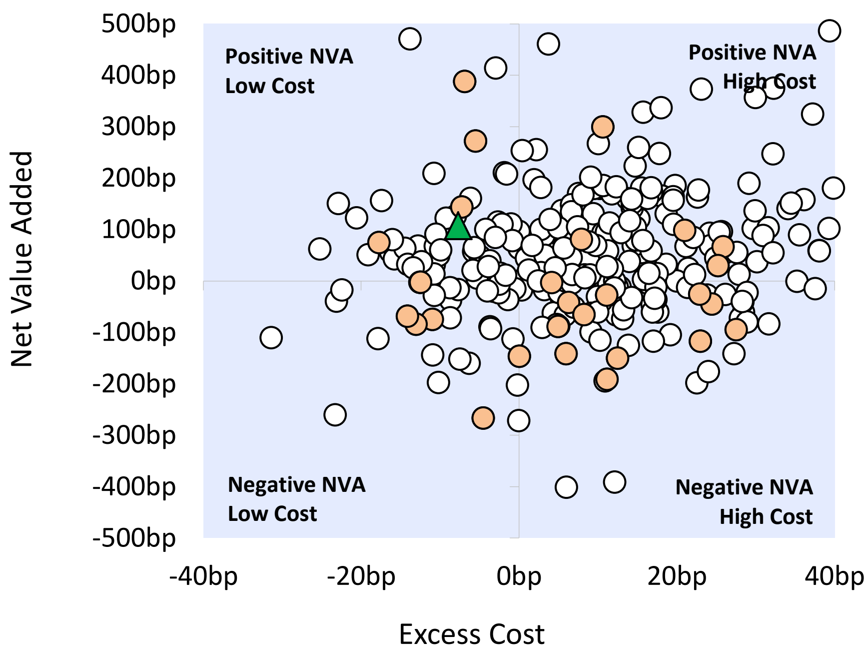
Cost Effectiveness

Your 2017/18 performance placed in the positive value added, low cost quadrant of the cost effectiveness chart.

Your 5-year performance placed in the positive value added, low cost quadrant of the cost effectiveness chart.

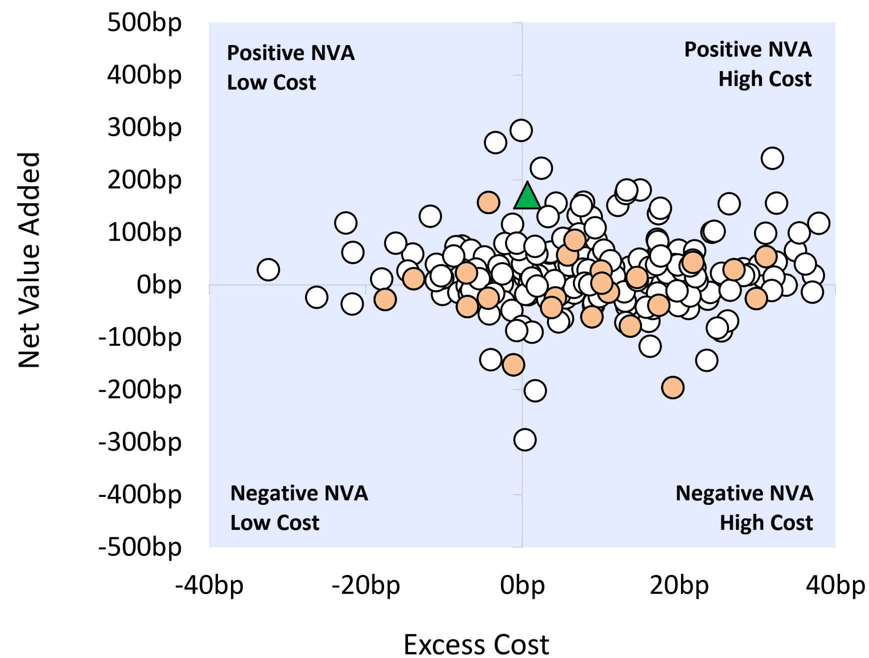
2017/18 net value added versus excess cost

(Your 2017/18: net value added 107 bps, cost savings 8 bps [1])



5-Year net value added versus excess cost

(Your 5-year: net value added 171 bps, excess cost 1 bps [1])



Global LGPS You

1. Your 5-year excess cost relative to peers of 1 basis points is the average for the past 5 years. Excess costs before 2016/17 are calculated using regression analysis.

Key takeaways

Returns

- Your 5-year net total return was 8.5%. This was equal to the LGPS median of 8.5% and above the global median of 7.9%.
- Your 5-year strategic asset mix return was 6.8%. This was below the LGPS median of 8.4% and below the global median of 7.6%.

Risk

- Your asset risk of 11.4% was below the LGPS median of 11.6%. Your asset-liability risk of 11.3% was below the LGPS median of 11.7%.
- Your funding level on the standard GAD basis of 98% was above the LGPS median of 95%.

Value added

- Your 5-year net value added was 1.7%. This was above the LGPS median of -0.1% and above the global median of 0.2%.

Contribution versus median LGPS performance

- Your fund is approximately £0.7 billion better off than if it had earned the LGPS median value added of -0.1%

Cost

- Your investment cost of 63.7 bps was below your benchmark cost of 72.0 bps. This suggests that your fund was low cost compared to your peers.
- Your fund was low cost because you paid less than peers for similar services and you had a lower cost implementation style.

West Yorkshire Pension Fund
Investment Benchmarking Results

For the 5 year period ending March 31, 2018

Interim Report

This is an interim and draft report that will be updated when more data has been submitted by other LGPS funds. The headlines and conclusions may change as a result of the inclusion of more LGPS funds.

CEM Benchmarking

What gets measured gets managed

1 Change Alley
London, EC3V 3ND
+44 203 887 9289
www.cembenchmarking.com

This report will help you to satisfy your oversight responsibilities by:

- Comparing your investment performance with other funds.
- Highlighting returns that come from:
  - The local Pension Committee’s strategic asset allocation decisions, and
  - The implementation of the Committee’s strategy (typically the responsibility of management).
- Comparing the level of risk inherent in your portfolio and relative to your liabilities and your funding position.
- Comparing your investment costs and explaining why your costs compare as they do.
- Considering how and why your costs have changed over time.
- Looking at value-for-money – ‘did paying more get you more’?

The report is based on standardised data submitted to CEM by your fund, by other LGPS funds and a wider universe of funds from around the world. Care is taken to validate the data contained in the report. This includes automated validations on outlying or unusual data as it is submitted, and an additional manual data ‘clean’ where our analysts interact with fund personnel to ensure the data is fit for purpose. The information in this report is confidential and should not be disclosed to third parties without the express written consent of CEM. CEM will not disclose any of the information in the report without your express written consent.

We compare your returns to other LGPS funds and a wider global universe.

CEM's LGPS Universe

Pool / Group	# of Participant Funds	Total Assets (£bns)	% of CEM's LGPS Universe	Funds
Access Pool	3	£8.9	6%	Essex, Isle of Wight, Suffolk.
BCPP	9	£33.8	22%	Bedford, Durham, East Riding, Lincolnshire, Northumberland, SYPF, Surrey, Tyne and Wear, Warwickshire.
Brunel Pool	1	£4.8	3%	Avon.
Central Pool	3	£12.7	8%	Cheshire, Staffordshire, Worcestershire.
LPP Pool	2	£10.8	7%	Lancashire, LPFA.
Northern Pool	3	£44.3	29%	GMPF, Merseyside, West Yorkshire.
Scotish Pool	4	£30.2	19%	Falkirk, Lothian, Shetland Islands, Strathclyde.
Welsh Pool	5	£9.7	6%	Swansea, Torfaen, Powys, Rhondda Cynon TAF, Cardiff.
Total	30	£155.3	100%	

The main performance comparisons are with the LGPS universe comprising 30 funds with total assets of £155 billion (average £5 billion, median £3 billion).

We also compare your returns (and LGPS returns generally) with a wider global universe comprising 318 funds with total assets of £6.6 trillion (average £21bn, median £5bn). The global universe includes half of the world's top 300 funds.

Your 5-year net total return of 7.9% was below the LGPS median of 8.5% and equal to the Global median of 7.9%.

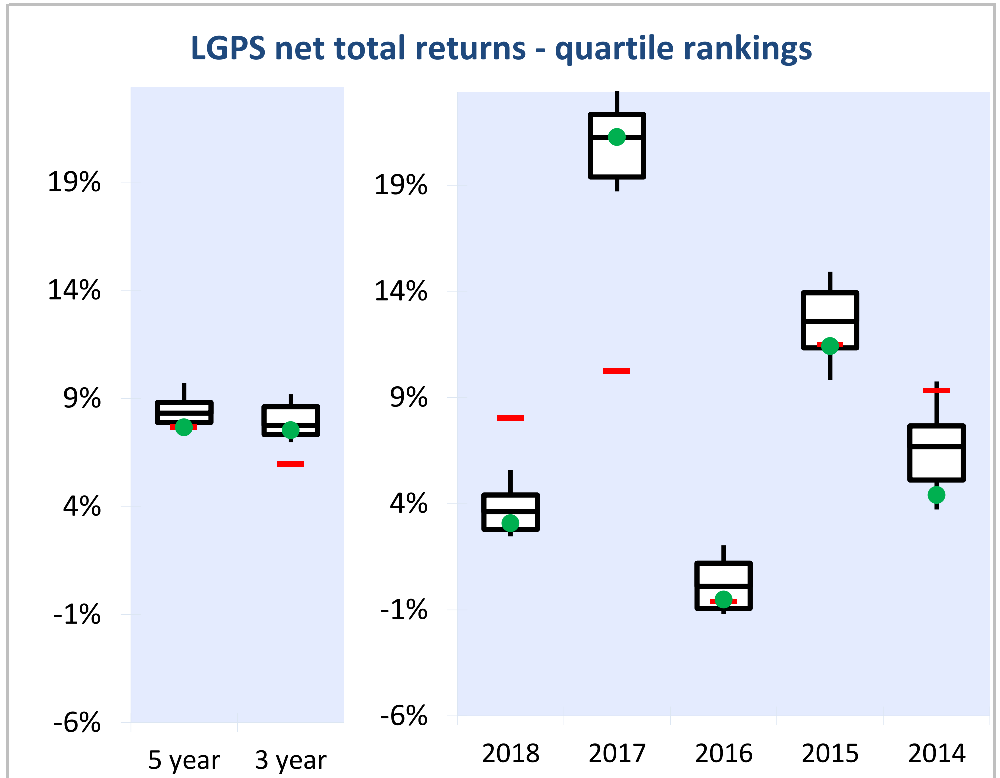
Total returns, by themselves, provide little insight into the reasons behind relative performance. Therefore, we separate total return into its more meaningful components:

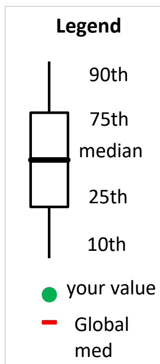
- Strategic asset mix return: The return from strategic asset allocation decisions. These decisions are typically made by the local Pensions Committee.

- Value added: A function of active management decisions, including tactical asset allocation, manager selection, stock selection, etc. These 'implementation' decisions tend to be made by management (increasingly within pools in England and Wales).

These are discussed on the pages that follow.

Global return comparisons have been particularly influenced by the relative strength of the $US over the period covered by this report and by the depreciation of the £ in 2016/17, i.e. there is some currency 'noise' in the global comparison.





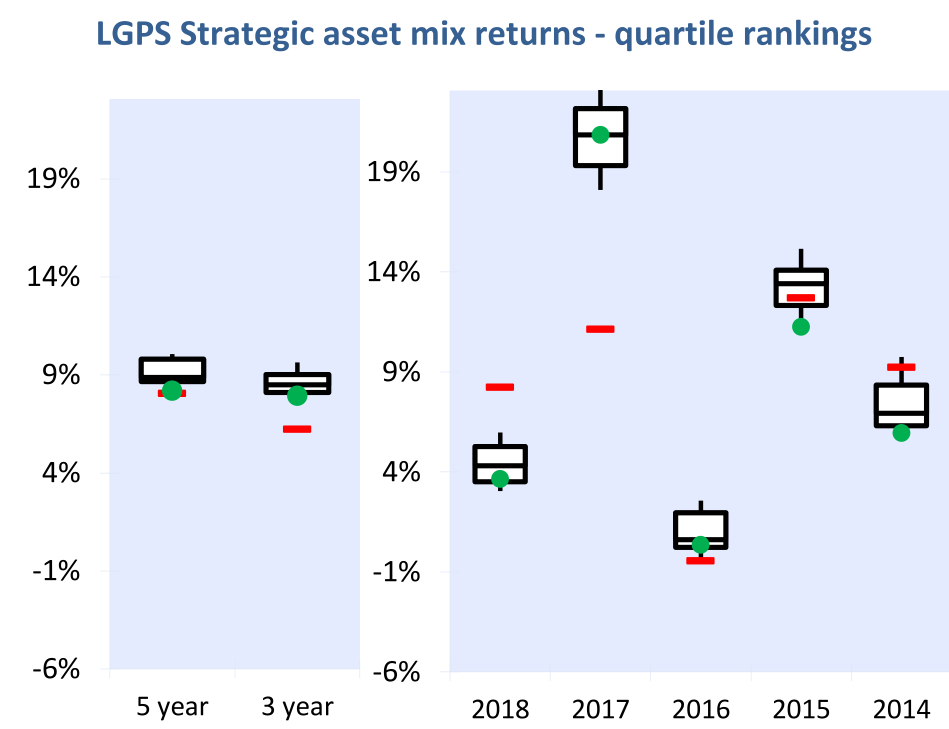
	5 year	3 year	2018	2017	2016	2015	2014
LGPS							
90th	10.0	9.4	5.8	24.0	2.3	15.2	10.0
Q3	9.0	8.8	4.6	22.6	1.4	14.2	7.9
Median	8.5	8.0	3.8	21.5	0.3	12.8	6.9
Q1	8.1	7.6	3.0	19.6	-0.7	11.6	5.4
10th	7.8	7.2	2.7	18.9	-1.0	10.0	4.0
Average	8.6	8.1	3.9	21.2	0.5	12.5	6.9
Global Median	7.9	6.2	8.3	10.5	-0.4	11.7	9.6
Your fund	7.9	7.8	3.3	21.5	-0.3	11.6	4.6
LGPS %ile	13%	39%	34%	53%	34%	29%	14%

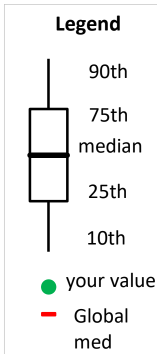
Your 5-year strategic asset mix return of 7.7% was below the LGPS median of 8.4% and above the Global median of 7.6%.

Your strategic asset mix return is the return you could have earned passively by indexing your investments according to your strategic asset mix. The strategic asset mix return is typically the most significant driver of total returns.

Having a higher or lower relative strategic asset mix return is not necessarily good or bad. Your strategic asset mix return reflects your asset mix which in turn reflects your funding position, long-term capital market expectations, liabilities, employer covenant and appetite for risk.

Each of these factors is different across funds. Therefore, it is not surprising that strategic asset mix returns often vary widely between funds. In the following page we explore how your asset mix impacts your strategic asset mix returns relative to peers.





	5 year	3 year	2018	2017	2016	2015	2014
LGPS							
90th	9.6	9.2	5.5	22.8	2.1	14.7	9.3
Q3	9.4	8.6	4.8	21.7	1.5	13.6	7.9
Median	8.4	8.0	3.9	20.4	0.2	13.0	6.5
Q1	8.2	7.7	3.1	18.9	-0.2	11.9	5.9
10th	7.9	7.1	2.6	17.7	-0.8	11.1	5.2
Average	8.7	8.1	4.0	20.3	0.6	12.6	7.1
Global Median	7.6	5.8	7.8	10.7	-0.9	12.3	8.8
Your fund	7.7	7.5	3.2	20.4	-0.1	10.8	5.5
LGPS %ile	4%	22%	28%	50%	38%	7%	21%

Differences in strategic asset mix return are caused by differences in benchmarks and asset mix.

Positive impacts

- You had a higher weight in U.S. stock compared to the LGPS average, and U.S. stock was one of the best performing asset classes over the past 5 years.

Negative impacts:

- Your mix of stock. You were overweight in U.K. stock compared to the LGPS average. U.K. stock was one of the poorer performing asset classes of the past 5 years. Your aggregate stock benchmark returned 8.5% versus the LGPS average of 10.0%.

- Your choice of benchmarks. You use a flat 7.5% benchmark for your private equity while we suggest using lagged, small-cap blends. Refer to section 3, pages 12-13 for more details.

	5-Year average strategic asset mix[1]			5-year bmk. return	
	Your Fund	LGPS Avg.	More/ Less	Your Fund	LGPS Avg.
Asia-Pacific Stock	7%	3%	4%	9.4%	9.3%
U.K. Stock	35%	18%	17%	6.6%	6.9%
Europe ex U.K. Stock	10%	4%	6%	10.2%	9.8%
U.S. Stock	8%	5%	3%	14.3%	14.6%
Emerging Market Stock	5%	3%	2%	6.9%	6.2%
Global Stock	0%	24%	-24%	n/a[3]	11.4%
Other Stock	0%	2%	-2%	n/a[3]	n/a[3]
Total Stock	65%	59%	6%	8.5%	9.8%
Fixed Income - UK Gov't	5%	2%	3%	4.2%	5.2%
Fixed Income - UK Credit	4%	2%	3%	1.6%	4.4%
Inflation Indexed Bonds	5%	3%	2%	6.9%	8.0%
Global Bonds	3%	6%	-3%	3.3%	3.1%
Cash	2%	1%	1%	0.3%	0.3%
Other Fixed Income[2]		6%	-6%	n/a[3]	n/a[3]
Total Fixed Income	19%	20%	0%	3.8%	4.8%
Hedge Funds	4%	2%	2%	7.5%	2.7%
Balanced Funds		3%	-3%	n/a[3]	7.1%
Infrastructure	2%	3%	-1%	7.5%	5.6%
Global Property	5%	3%	2%	10.1%	8.7%
Domestic Property	0%	5%	-5%	n/a[3]	10.3%
Other Real Assets[2]		1%	-1%	n/a[3]	n/a[3]
Private Equity	6%	5%	1%	7.5%	16.5%
Total	100%	100%	0%		

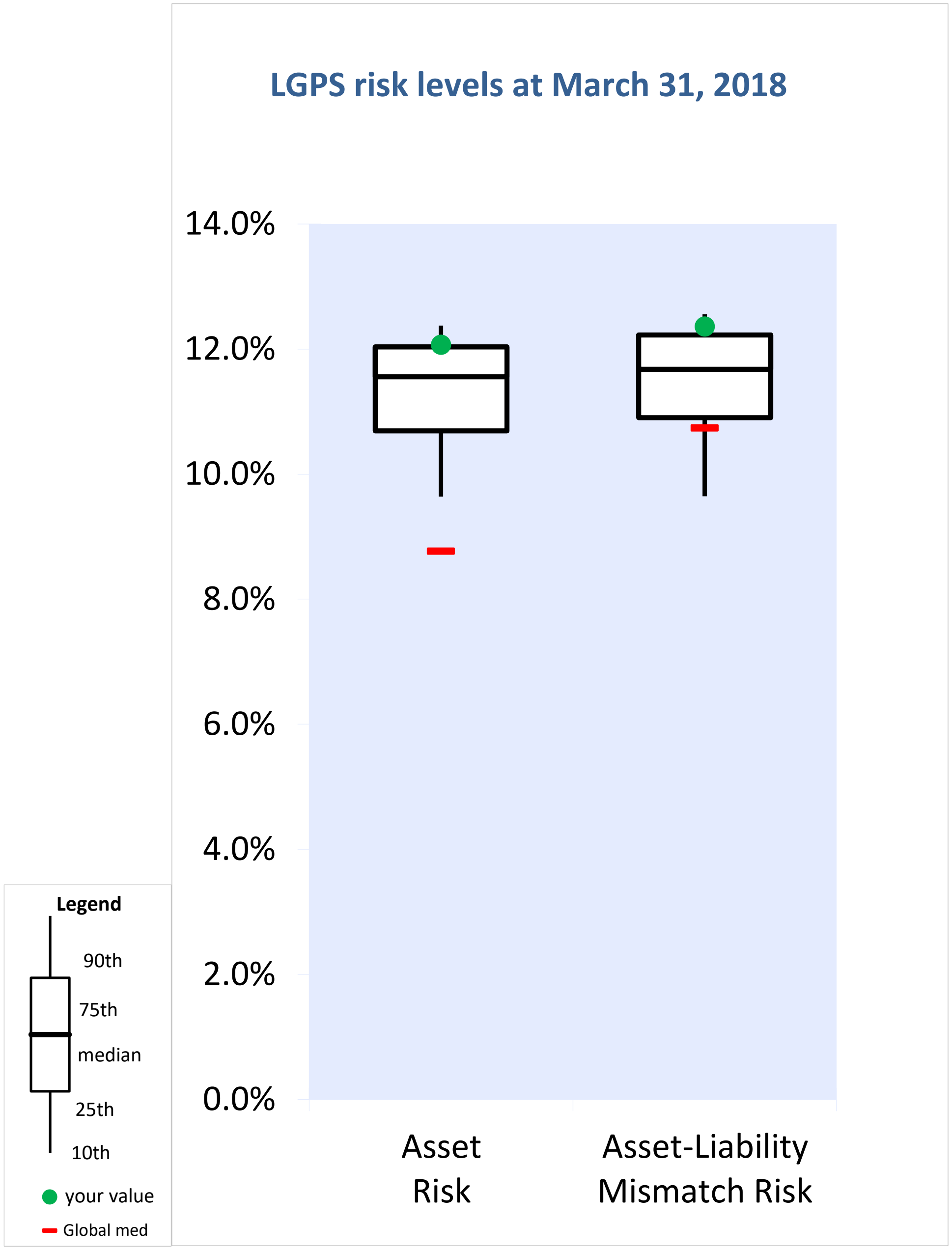
1. 5-year weights are based only on plans with 5 years of continuous data.
2.Other fixed income includes Canada, UK, U.S., long bonds and EAFE bonds. Other real assets includes commodities, natural resources and REITS.
3. A value of 'n/a' is shown if asset class return are not available for the full 5 years or if they are broad and incomparable.

Your strategic asset allocation is largely a function of your appetite for risk.

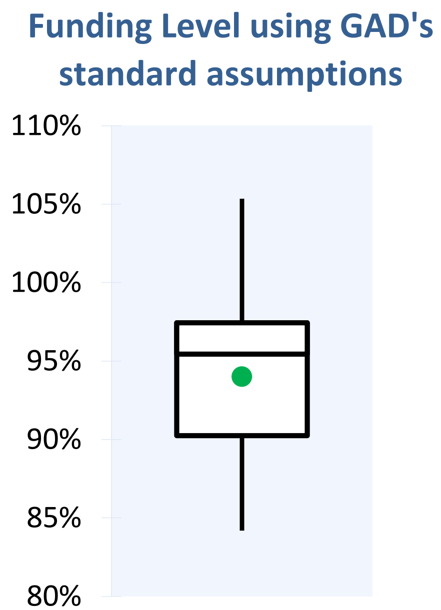
The two key risks for the Pension Committee to consider are:

- Asset Risk - A higher asset risk is indicative of a higher weighting to more volatile assets (and vice-versa). Your asset risk of 12.1% was above the LGPS median of 11.6%.

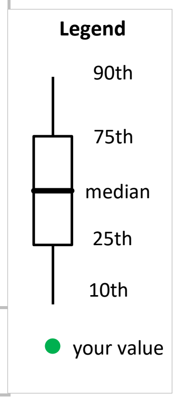
- Asset-liability mismatch risk - A higher asset-liability mismatch risk is indicative a willingness to take more risk to improve the funding level. Lower asset risk is indicative of either better funding, concerns about the employer covenant or a desire for stability in contributions. A lower asset-liability mismatch risk means you are closer to a 'fully-matched' position. Your asset-liability risk of 12.4% was above the LGPS median of 11.7%.

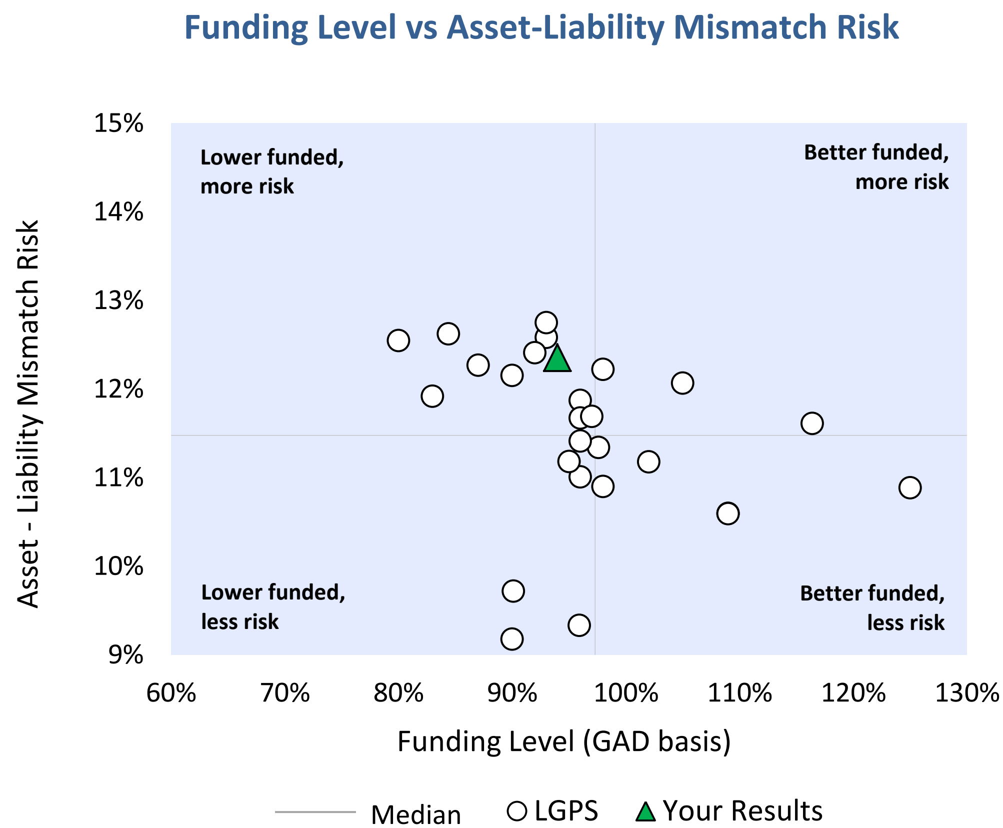


Your funding level of 94% was below the LGPS median of 95%. You had more asset liability mismatch risk.



LGPS	
90th	105.4%
Q3	97.5%
Median	95.5%
Q1	90.3%
10th	84.2%
Average	94.3%
Your fund	94.0%
LGPS %ile	42.4%





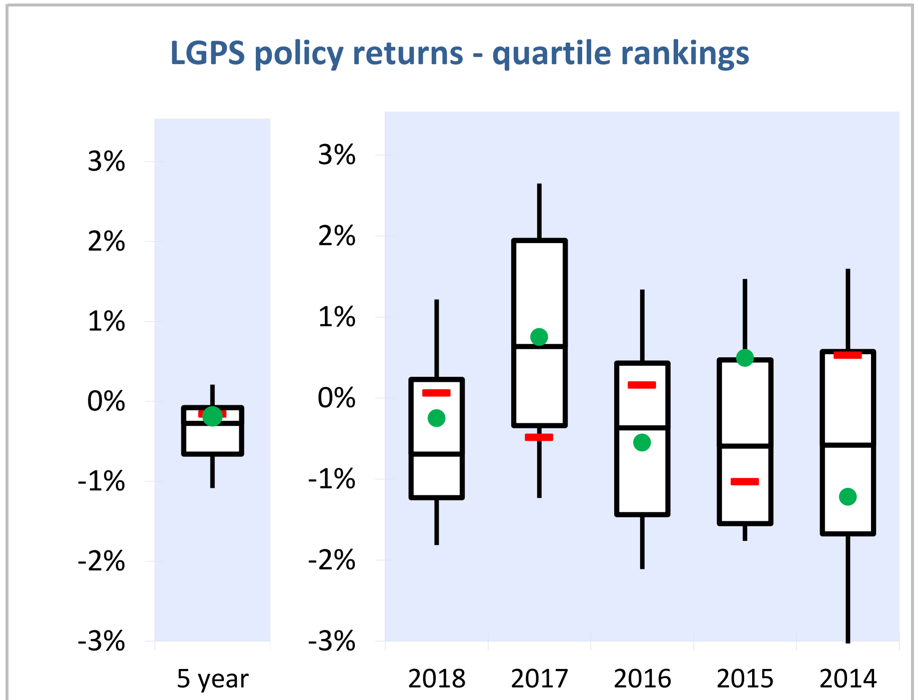
Funding level is based on standardised actuarial assumptions developed by the Government Actuaries Department (GAD). Most of the key assumptions are consistent across funds but some assumptions, and in particular mortality assumptions, are fund specific. Your funding level as shown may not reflect the actuarial basis you use to determine your asset allocation or contribution policies, but it serves a useful purpose in providing context for comparisons of asset risk and asset liability mismatch risk.

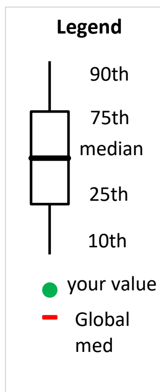
Net value added is the component of total return from active management. This is typically the responsibility of management (increasingly within pools in England and Wales). Your 5-year net value added was 0.2%.

Net value added equals total net return minus strategic asset mix return.

It is a function of active management decisions which includes tactical asset allocation, manager selection, stock selection, choice of benchmarks, hedging, overlays, etc.

Your 5-year net value added of 0.2% compares to a median of 0.1% for the LGPS universe and 0.2% globally.

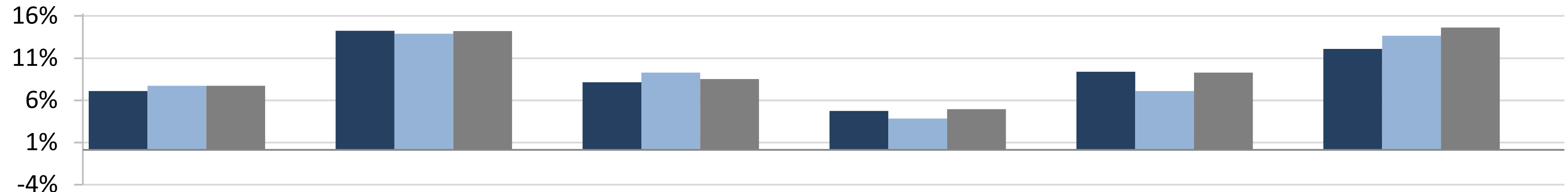




	5 year	2018	2017	2016	2015	2014
LGPS						
90th	0.6	1.6	3.0	1.7	1.8	1.9
Q3	0.3	0.6	2.3	0.8	0.8	0.9
Median	0.1	-0.3	1.0	0.0	-0.2	-0.2
Q1	-0.3	-0.9	0.0	-1.1	-1.2	-1.3
10th	-0.7	-1.5	-0.9	-1.8	-1.4	-2.8
Average	-0.1	-0.1	1.0	-0.1	-0.2	-0.1
Global Median	0.2	0.4	-0.1	0.5	-0.7	0.9
Your fund	0.2	0.1	1.1	-0.2	0.8	-0.9
LGPS %ile	61%	69%	53%	47%	76%	33%

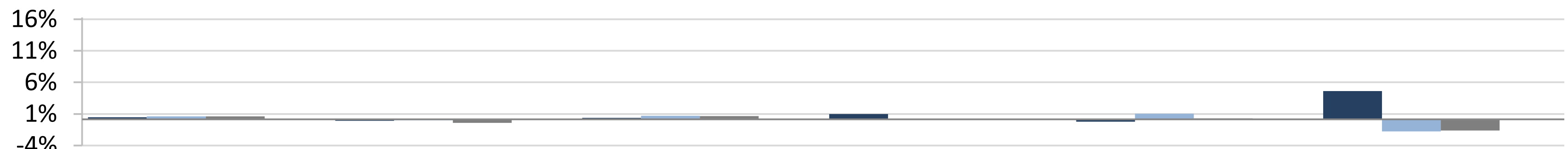
Here is how your net returns and net value added compare.

5-year average net return by major asset class



	UK Stock	U.S. Stock	EAFE Stock	Fixed Income	Real assets	Private Equity[1]
Your fund	6.9%	14.1%	8.0%	4.6%	9.2%	12.0%
Global average	7.6%	13.7%	9.1%	3.7%	6.9%	13.5%
LGPS average	7.6%	14.1%	8.4%	4.8%	9.2%	14.5%
Your % of assets	34.8%	9.9%	54.3%	16.5%	6.0%	4.7%

5-year average net value added by major asset class



	UK Stock	U.S. Stock	EAFE Stock	Fixed Income	Real assets	Private Equity[1]
Your fund	0.4%	-0.2%	0.3%	0.9%	-0.4%	4.5%
Global average	0.5%	-0.2%	0.6%	0.1%	0.9%	-1.9%
LGPS average	0.5%	-0.6%	0.5%	0.0%	0.1%	-1.8%

1. To enable fairer comparisons, the private equity benchmarks of all participants, except your fund, were adjusted to reflect lagged, investable, public-market indices. If your fund used the private equity benchmark suggested by CEM, your fund's 5-year private equity net value added would have been -5.2%.

We compare your costs to the following custom peer group:

- 18 Global sponsors from £4.1 billion to £20.8 billion
- Median size of £13.8 billion versus your £13.9 billion

- Peers are selected based on size (because size impacts costs) and to include both LGPS and non-LGPS funds (to help you understand how your costs compare with a broad cross-section of funds).
- We specifically exclude other LGPS funds from your pool because costs will increasingly be homogenous within the pool.

<u>LGPS Funds</u>	<u>Non-LGPS Funds</u>
Bath & North East Somerset Council - Avon Pension Fund	FCA US LLC
Cheshire Pension Fund	Lloyds Number 1
East Riding Pension Fund	New Zealand Superannuation Fund
Essex Pension Fund	Philips Pensioenfonds
Lothian Pension Fund	Raytheon Company
South Yorkshire Pensions Fund	Régime de retraite d'Hydro Québec
Staffordshire Pension Fund	State Pension Fund of Finland
Strathclyde Pension Fund	Stichting BPL Pensioen
Tyne and Wear Pension Fund	
West Yorkshire Pension Fund	

The names of the above fund sponsors in your peer group are confidential and may not be disclosed to third parties.

We are benchmarking investment costs of £48.6 million or 35.4 basis points in 2017.

Asset management costs by asset class and style (£000s)	Internal Mgmt		External Mgmt		
	Active	Overseeing of external	Active base fees	Perform. fees [3]	Total
Stock - U.S.	487	51	259		797
Stock - UK	1,541	161	3,139		4,840
Stock - Japan	280	12	270		563
Stock - Asia-Pacific ex-Japan	196				196
Stock - EAFE ex-UK	488	84	1,814		2,386
Stock - Emerging	201	163	4,248		4,612
Fixed Income - UK Gov't	260				260
Fixed Income - UK Credit	177				177
Fixed Income - Global Gov't	118				118
Fixed Income - Inflation Indexed	221				221
Cash	110				110
Hedge Fund - FoFs [1 2]		49	2,975	1,469	4,493
Real Estate ex-REITs [1 2]	3	222	4,224	26	4,474
Real Estate - FoFs [1 2]		9	585	368	962
Infrastructure	579				579
Infrastructure - LPs		103	2,318	543	2,964
Diversified Private Equity - LPs		210	8,385	3,160	11,755
Diversified Private Equity - FoFs [1 2]		66	4,251	3,984	8,301
Total					47,806
Oversight, custodial and other costs [4]					
Oversight of the fund					182
Trustee & custodial					560
Consulting and performance measurement					20
Audit					21
Other					0
Total oversight, custodial & other costs					783
Total investment costs (excl. transaction costs)					48,589

Footnotes

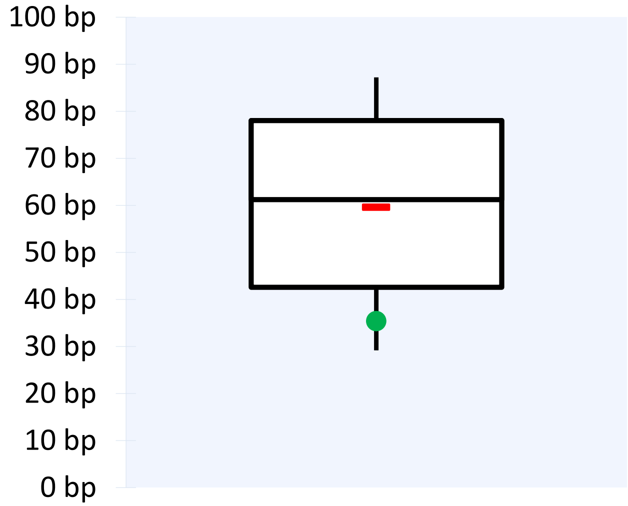
1. Default underlying costs were added: Diversified Private Equity - FoFs 157 bps, Hedge Fund - FoFs 141 bps, Real Estate - FoFs 111 bp.
2. Default underlying performance fees were added: Hedge Fund - FoFs 72 bp. Refer to Appendix A for full details regarding defaults.
3. Total cost includes carry/performance fees for all asset classes.
4. Excludes non-investment costs, such as benefit insurance premiums and preparing cheques for retirees.

Your cost of 35.4 bps was below your benchmark cost of 51.0 bps.

Comparison of costs before adjusting for asset mix:

Before adjusting for differences in asset mix, your costs of 35.4 bps were -25.9 bps below the peer median of 61.3 bps.

Your cost versus peers
(before adjusting for asset mix differences)



Comparison of costs after adjusting for asset mix:

To calculate a benchmark cost we apply peer median costs at an asset class level to your asset mix (i.e., we adjust for differences in asset mix).

Your cost versus benchmark
(after adjusting for asset mix differences)

	£000s	basis points
Your total investment cost	48,589	35.4 bp
Your benchmark cost	70,021	51.0 bp
Your excess cost	(21,431)	(15.6) bp

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

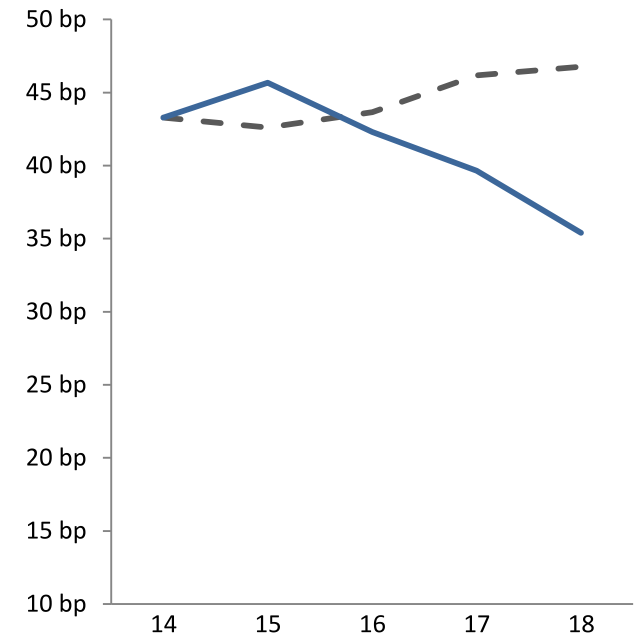
Reasons for your low cost status

	You	Peer Median	Excess Cost/ (Savings) £000s	Excess Cost/ (Savings) bps
1. Lower cost implementation style				
• Less external active management (more lower cost internal)			(5,142)	(3.7)
• Less partnerships as a percentage of external			(5,264)	(3.8)
• Less fund of funds			(1,167)	(0.8)
• Less overlays			(792)	(0.6)
• Other style differences			(33)	(0.0)
			(12,396)	(9.0)
2. Paying less than peers for similar services				
• External investment management costs				
○ Paying more for active UK stock	81 bp	39 bp	1,711	1.2
○ Paying more for active Europe ex-UK stock	85 bp	22 bp	1,401	1.0
○ Paying more for real estate ex-REITs	78 bp	55 bp	1,268	0.9
○ Paying less for diversified private equity perf. fees	62 bp	160 bp	(5,037)	(3.7)
○ Paying less for infrastructure perf. fees	15 bp	185 bp	(5,956)	(4.3)
○ All other			(1,732)	(1.3)
• Internal investment management costs			746	0.5
• Oversight, custodial and other costs			(1,436)	(1.0)
			(9,035)	(6.6)
Total savings			(21,431)	(15.6)

Your cost fell from 43.3 bps in 2013/14 to 35.4 bps in 2017/18.

	Bps	£000s
Investment cost reported in 2013/14	39.1 bp	£39,279
Impact of methodology changes[1]		
• Inclusion of hedge fund performance fees	4.2 bp	£5,712
• Inclusion of private market performance fees	0.0 bp	£0
Restated costs for 2013/14[1]	43.3 bp	£44,990
Impact of changes in assets and asset mix		
• Increase in assets[2]	n/a	£14,443
• Higher cost asset mix	3.5 bp	£4,771
	46.8 bp	£64,204
Impact of changes within the same asset classes		
• More passive (less active)	(0.4) bp	
• Less external management (vs. internal)	(0.4) bp	
• Less fund-of-funds management	(0.8) bp	
Higher/-lower fees for:		
• Stock and fixed Income	1.3 bp	
• Private markets and hedge funds:		
Lower base fees	(8.7) bp	
Lower performance fees	(1.9) bp	
• Lower oversight and other changes	(0.5) bp	
Total changes in underlying costs	(11.4) bp	£-15,614
Investment cost in 2017/18	35.4 bp	£48,589

Investment cost changes



	14	15	16	17	18
Asset mix impact	43.3	42.6	43.7	46.2	46.8
Actual cost	43.3	45.7	42.3	39.6	35.4

	15	16	17	18
• Change in underlying (bp)	3.1	-1.4	-6.5	-11.4
• Change in underlying in £mils	3.3	-1.6	-8.4	-15.6
• Cumulative (£mils)				-22.3

1. To enable a meaningful comparison, we have adjusted your reported 2013/14 cost to allow for the fact that we started to collect more costs at a later date. The reported cost is increased as if you were paying the same amount in bps in 2013/14 for each asset class. For example, we started to collect hedge fund performance fees in 2014. If your hedge fund performance fees were 50 bps at that time, then we assume you were paying 50 bps in 2013/14 and that your 'implementation style' was unchanged.
2. Assumes all costs increase in line with the value of assets.

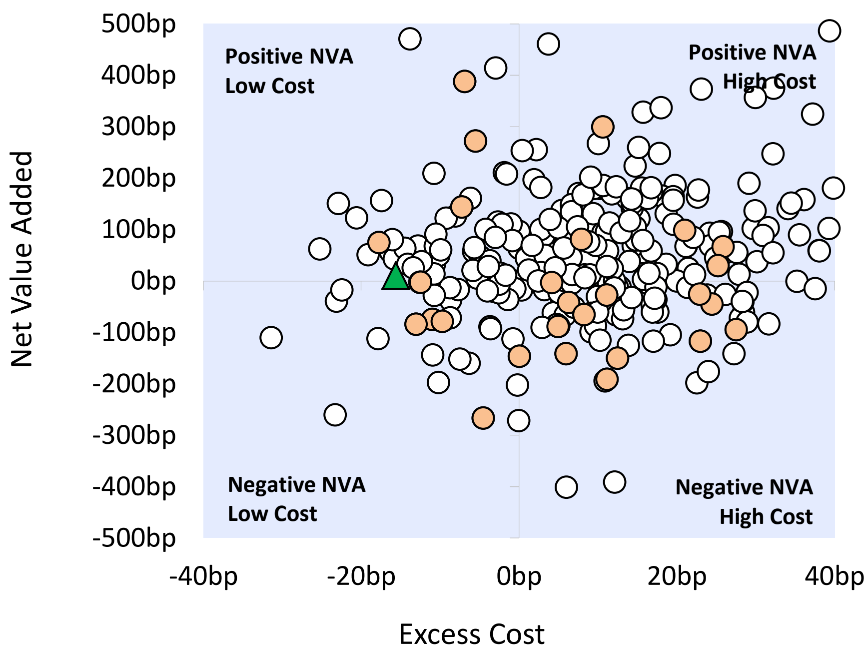
Cost Effectiveness

Your 2017/18 performance placed in the positive value added, low cost quadrant of the cost effectiveness chart.

Your 5-year performance placed in the positive value added, low cost quadrant of the cost effectiveness chart.

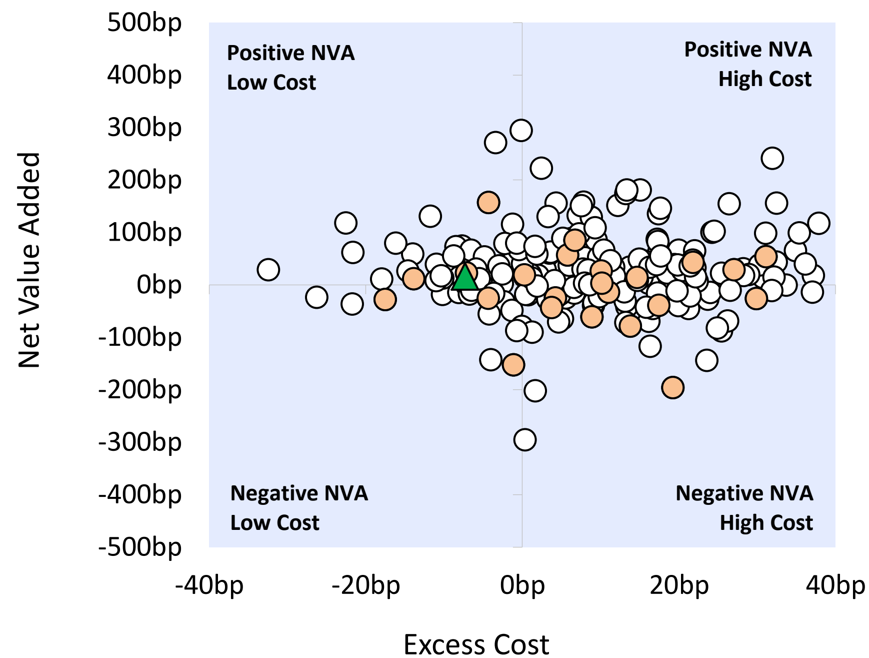
2017/18 net value added versus excess cost

(Your 2017/18: net value added 10 bps, cost savings 16 bps [1])



5-Year net value added versus excess cost

(Your 5-year: net value added 16 bps, cost savings 7 bps [1])



Global LGPS You

1. Your cost savings relative to peers of 7 basis points is the average for the past 5 years. Cost savings before 2016/17 are calculated using regression analysis.

Key takeaways

Returns

- Your 5-year net total return was 7.9%. This was below the LGPS median of 8.5% and equal to the global median of
- Your 5-year strategic asset mix return was 7.7%. This was below the LGPS median of 8.4% and above the global median of 7.6%.

Risk

- Your asset risk of 12.1% was above the LGPS median of 11.6%. Your asset-liability risk of 12.4% was above the LGPS median of 11.7%.
- Your funding level on the standard GAD basis of 94% was below the LGPS median of 95%.

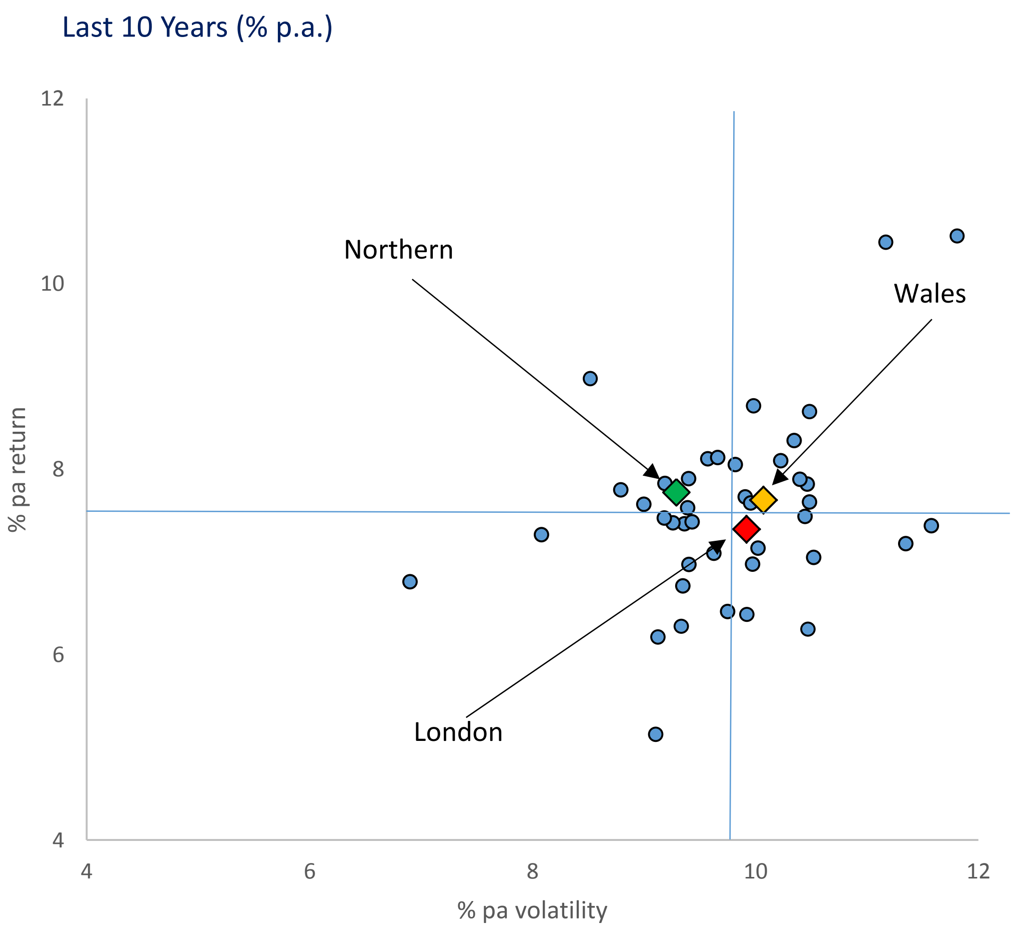
Value added

- Your 5-year net value added was 0.2%. This was above the LGPS median of 0.1% and equal to the global median of 0.2%.

Cost

- Your investment cost of 35.4 bps was below your benchmark cost of 51.0 bps. This suggests that your fund was low cost compared to your peers.
- Your fund was low cost because you had a lower cost implementation style and you paid less than peers for similar services.

Risk and Return – Performance By Pool



- It is interesting to look at the past performance of the funds in each pool
- Each starts from quite different points:
    - Northern – has been low volatility/high return
    - Wales – higher volatility/high return
    - London – slightly higher volatility/lower return

Iona Capital

Transaction highlights	
Investment made	Oct 2015, follow-on Oct 2017
Stake owned	100% Fund 2, 77% Fund 3
Governance secured	Advisory committee representation
Asset life	20-25 years
Revenue drivers	Inflation-linked subsidy, power prices

- Working alongside Iona Capital, a specialist firm that develops, builds and operates small-scale Bioenergy Assets
- Iona have built out a portfolio of 9 renewable projects on behalf of GLIL
- These projects make use of agricultural waste, generating both electricity and heat in an environmentally friendly way
- These assets will produce stable, subsidy-backed cashflows for the next 20-25 years

Clyde Windfarm

Transaction highlights	
Investment made	March 2016, follow on May 2018
Stake owned	21.7%
Governance secured	2 Board seats
Asset life	25 years (& opportunity to re-power)
Revenue drivers	Inflation-linked subsidy, power prices

- Acquisition of a stake in one of the largest operational windfarms in the UK
- GLIL also took the opportunity to invest in the “Clyde Extension” Project, which saw the windfarm grow from 350MW to 522MW in the summer of 2017
- GLIL have developed a strong working relationship with fellow shareholders SSE and Greencoat
- GLIL acquired this stake at an attractive price due to its ability to transact quickly and make a sizeable investment

GLIL INFRASTRUCTURE

Anglian Water

Transaction highlights	
Investment made	April 2018
Stake owned	7.5%
Governance secured	Appointment rights to 1 Board seat
Asset life	Perpetual
Revenue drivers	Regulatory revenues

- AWG is one of the strongest performing water utilities in the UK, with a highly capable management team and a monopolistic position in a vast region of the country
- Regulated utilities provide GLIL with predictable, inflation-linked cashflows in perpetuity
- GLIL is well placed to increase its stake in AWG, given the ROFO rights that it now enjoys

GLIL INFRASTRUCTURE

Rock Rail

Transaction highlights	
Investment made	October 2016, July 2017
Stake owned	49% (GA), 35% (SW)
Governance secured	Board representation (2 GA, 1 SW)
Asset life	35+ years
Revenue drivers	Lease rentals

- GLIL has partnered with SL Capital & Rock Rail to provide equity to 2 new fleets of rolling stock, which will operate on the Greater Anglia (GA) and South Western (SW) networks
- Focused investment on high-quality core fleets that serve economically resilient regions
- Opportunity to deploy further capital into the UK rail sector following the successful completion of 2 transactions

Semperian

Transaction highlights	
Investment made	June 2018
Stake owned	Minority
Governance secured	1 Board seats 1 Observer seat
Asset life	15 Years +
Revenue drivers	Inflation linked PPP/PFI payments

- Semperian is a large-scale, high-quality PPP/PFI portfolio with 92 assets
- A well-diversified portfolio across: Healthcare, Education, Accommodation, Transport, Community Health, Prisons, and Utilities
- The portfolio is yield-generating with long-term inflation linked cash flows, all assets are operational and mostly availability based; with strong pipeline and growth profile