HYMANS # ROBERTSON

The Highland Council Pension Fund

Actuarial valuation as at 31 March 2020 - DRAFT

Final valuation report

March 2021

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Contents

1 Introduction

Background to the actuarial valuation

We have been commissioned by The Highland Council ("the Administering Authority") to carry out an actuarial valuation of The Highland Council Pension Fund ("the Fund") as at 31 March 2020 as required under Regulation 60 of the Local Government Pension Scheme (Scotland) Regulations 2018 ("the Regulations").

The actuarial valuation is a risk management exercise with the purpose of reviewing the current funding plans and setting contribution rates for the Fund's participating employers for the period from 1 April 2021 to 31 March 2024. This report summarises the outcomes of the valuation and the underlying advice provided to the Administering Authority throughout the valuation process.

This summary report is the culmination of other communications in relation to the valuation, in particular:

- our 2020 valuation toolkit which sets out the methodology used when reviewing funding plans;
- our discussion papers regarding the valuation's actuarial assumptions dated 18 June 2020;
- our Initial Results Report dated 8 October 2020 which outlines the whole fund results and inter-valuation experience; and
- the Funding Strategy Statement which details the approach taken to adequately fund the current and future benefits due to members.

Reliances and limitations

This report has been prepared for the sole use of The Highland Council in its role as Administering Authority of the Fund to provide an actuarial valuation of the Fund as required under the Regulations. It has not been prepared for any other third party or for any other purpose. We make no representation or warranties to any third party as to the accuracy or completeness of this report, no reliance should be placed on this report by any third party and we accept no responsibility or liability to any third party in respect of it.

The totality of our advice complies with the Regulations as they relate to actuarial valuations.

The following Technical Actuarial Standards[1] are applicable in relation to this report and have been complied with where material:

- TAS 100 – Principles for technical actuarial work;
- TAS 300 – Pensions.

[1] Technical Actuarial Standards (TASs) are issued by the Financial Reporting Council (FRC) and set standards for certain items of actuarial work.

Use of this report by other parties

This report is addressed to the Administering Authority of the Fund only. We appreciate that other parties may also seek information about the 2020 valuation process and methodology. We would encourage such parties to refer to the following publicly available documents for further information:

- The Fund's Funding Strategy Statement;
- The Fund's Statement of Investment Principles;
- Published meeting papers and minutes for the meetings of the Fund's Pensions Committee.

Considering these papers alongside this valuation report will provide a more complete view of the Fund's funding strategy and decision-making process surrounding this. These documents are available on the Fund's website or on request.

2 Valuation approach

Employer contribution rates

The purpose of the valuation is to review the current funding strategy and ensure the Fund has a contribution plan and investment strategy in place that will enable it to pay members' benefits as they fall due.

Valuations for open, defined benefit, multi-employer pension funds such as The Highland Council Pension Fund are complex. Firstly, the time horizons are very long; benefits earned in the LGPS today will be paid out over a period of the next 80 years or more, and new members will continue to join in the future. Secondly, as they depend on unknowns such as future inflation and life expectancy, the actual value of future benefit payments is uncertain. Finally, to keep contributions affordable, the Fund invests in return-seeking assets which have higher levels of future volatility.

Given the above and that the future cannot be predicted with certainty, employer contribution rates can only ever be an estimate. However, the valuation approach adopted uses an understanding of the Fund, and the uncertainties and risks discussed above, to quantify the likelihood of the contribution plan and investment strategy for each employer being sufficient to fund future benefits.

This is achieved in practice by following the process outlined below:

Step 1: The Fund sets a funding target (or funding basis) for each employer which defines the estimated amount of assets to be held to meet the future benefit payments.

Step 2: The Fund sets the funding time horizon over which the funding target is to be achieved.

Step 3: The Fund sets contributions that give a sufficiently high likelihood of meeting the funding target over the set time horizon.

These three steps are central to the "risk-based" approach to funding which is described in Guide 5 (*Employer risk based funding*) of our 2020 valuation toolkit[2].

The risk-based approach uses an Asset Liability Model, as described in Guide 6 (*Understanding ALMs*) of the 2020 valuation toolkit, to project each employer's future benefit payments, contributions and investment returns into the future under 5,000 possible economic scenarios. Future inflation (and therefore benefit payments) and investment returns for each asset class (and therefore asset values) are variables in the projections. Further details of these variables are provided in Appendix 2. The investment strategy underlying the projection of employer asset values is provided in Appendix 1.

By projecting the evolution of an employer's assets and benefit payments 5,000 times, a contribution rate can be set that results in a sufficient number of the future projections being successful i.e. meeting the funding target by the funding time horizon.

The risk-based approach to setting employer contributions allows the Fund and its employers to understand and quantify the level of risk inherent in funding plans, something that is not possible using a single set of assumptions alone.

[2] https://www.hymans.co.uk/media/uploads/LGPS_Valuation_toolkit_2020.pdf

Further detail on the approach to calculating contributions for individual employers, including the parameters used in the three steps for each type of employer, is set out in the Funding Strategy Statement dated March 2021.

Funding position as at 31 March 2020

The valuation also offers an opportunity to measure the Fund's funding position as at 31 March 2020. Whilst this measurement has limited insight into understanding the long-term ability to be able to pay members' benefits, it is a useful summary statistic.

For the purposes of this valuation we have adopted a "mark to market" approach, meaning that the Fund's assets have been taken into account at their market value and the liabilities have been valued by reference to a single set of assumptions based on market indicators at the valuation date. These assumptions are detailed in Appendix 2. As we have taken a market-related approach to the valuation of both the assets and the liabilities, we believe that they have been valued on a consistent basis.

Significant events

McCloud judgement

The figures in this report are based on our understanding of the benefit structure of the LGPS in Scotland as at 31 March 2020 (details can be found at http://www.scotlgpsregs.org) with one exception. The LGPS benefit structure is currently under review following the Government's loss of the right to appeal two Court of Appeal judgements in December 2018, collectively referred to as the 'McCloud judgement'. The exact details of the solution to the McCloud judgement have yet to be confirmed. A consultation on this closed on 23 October 2020 and is currently under consideration by the Scottish Public Pensions Agency (SPPA).

In May 2020, the SPPA set out their expectations for how funds should allow for this uncertainty in the benefit structure at the 2020 valuation. We have valued the Fund's liabilities in line with SPPA's instructions. Further details are set out in Guide 11 (*Allowing for McCloud and the Cost Cap mechanism*) of our 2020 valuation toolkit.

Cost cap mechanism

Alongside the McCloud judgement, there is another ongoing national process which is resulting in current uncertainty around the benefit structure of the LGPS – the "cost cap" mechanism. As part of the public sector pension scheme reforms in the first half of the 2010s, a mechanism was put in place to protect employers from significant increases in future pension costs. The mechanism is symmetrical in its design – following a Cost Cap valuation, if the scheme is determined to have either a lower than intended cost or a higher than intended cost to employers, then action will be taken: either a change in the benefit structure for future benefit accrual or a change in employee contribution rates. The first Cost Cap mechanism for LGPS Scotland was as at 31 March 2017, however this has been put on hold until the McCloud judgement is resolved.

At the time of writing, there is no information available about the results of the 2017 Cost Cap valuation and whether a change in the benefit structure from 1 April 2020 may occur. The Fund has decided to make no allowance or adjustment to contribution rates and liabilities at the 2020 valuation. However, once the outcome of the Cost Cap valuation is known, the Fund may revisit contribution rates set to ensure they remain appropriate. Further details are set out in Section 2.8 of the Funding Strategy Statement.

Indexation and equalisation of Guaranteed Minimum Pensions (GMP)

As a result of the Government's introduction of a single-tier state pension (STP) there is currently uncertainty around who funds certain elements of increases on GMPs for members reaching State Pension Age after 6 April 2016.

As part of the introduction of STP, the Government confirmed that public service pension schemes, including the LGPS, will be responsible for funding

all increases on GMP as an 'interim solution'. In their January 2018 consultation response, HM Treasury confirmed that the 'interim solution' will continue to remain in place up to 5 April 2021. The Government recently consulted upon an extension of this interim solution until at least April 2024, with further questions on whether the interim solution should be made permanent or to convert GMP to scheme pension.

For the 2020 valuation, given the Government's 2020 consultation only considers full indexation or conversion of GMP to scheme pension as a possible long term approach, we have assumed that all increases on GMPs for members reaching State Pension Age after 6 April 2016 will be paid for by LGPS employers. This has served to increase the value placed on the liabilities.

The Government are also seeking to ensure that their preferred long term indexation solution will also meet the requirements of equalisation.

Coronavirus pandemic

Financial markets have been exceptionally volatile in 2020 as a result of the ongoing Covid-19 pandemic. For defined benefit pension schemes like the LGPS, the impact has been felt in the value of scheme assets.

The first quarter of 2020 saw significant falls in asset values as a result of the pandemic, reaching a low point in the middle of March. Whilst markets started to pick up in the second half of March, they had only partially recovered by the valuation date of 31 March 2020. The funding level reported at 31 March 2020 (see Section 3) is based on the asset value and market conditions as at this date and is therefore lower than would have been anticipated at the start of 2020. However, the funding level is only a snapshot of the Fund at one particular day. Indeed, as can be seen from the chart below, asset values have continued to improve since 31 March 2020.

Asset value progression since 1 April 2017

Source: sample LGPS fund

As the LGPS is an open, long-term pension scheme, the reported funding level at the valuation date does not directly drive the employer contribution rates that have been set.

To avoid long-term funding strategies being unduly influenced by the extreme short-term market conditions that were in force at 31 March 2020, employer contribution rates are based on market conditions and expectations as at 30 June 2020.

3 Valuation results

Employer contribution rates

The key objective of the Fund is to set employer contributions that are likely to be sufficient to meet both the cost of new benefits accruing and to address any funding surplus or deficit relative to the funding target over the agreed time horizon. A secondary objective is to maintain relatively stable employer contribution rates.

In order to meet the above objectives, the methodology set out in Section 2 has been used to set employer contributions from 1 April 2021.

Employer contributions are made up of two elements:

a) the estimated cost of future benefits being built up each year, after deducting members' own contributions and including an allowance for the Fund's administration expenses. This is referred to as the "*Primary rate*", and is expressed as a percentage of members' pensionable pay; plus

b) an adjustment for the difference between the Primary rate above and the total contribution the employer needs to pay, referred to as the "*Secondary rate*". In broad terms, the Secondary rate is in respect of benefits already accrued at the valuation date. The Secondary rate may be expressed as a percentage of pay and/or a monetary amount in each year.

The Primary rate and Secondary rate for every contributing employer in the Fund is set out in the Rates and Adjustments Certificate in Appendix 3.

Each employer has been certified Primary and Secondary contributions that are appropriate for that employer's circumstances and which reflect that employer's experience. However, broadly speaking:

- Primary contribution rates have been subject to some upwards pressure as a result of a weaker outlook for future investment returns;
- Secondary contribution rates have decreased as employer assets have increased since 31 March 2017 (noting that this positive experience has been partially offset by the weaker outlook for future investment returns).

The table below summarises the whole fund Primary and Secondary contribution rates at this valuation. The Primary rate is the payroll weighted average of the underlying individual employer primary rates and the Secondary rate is the total of the underlying individual employer secondary rates, calculated in accordance with the Regulations and CIPFA guidance. The whole fund Primary and Secondary contributions calculated at the 2017 valuation of the Fund are shown for comparison.

	Last Valuation 31 March 2017		This Valuation 31 March 2020	
Primary Rate (% of pay)	17.8%		21.2%	
Secondary Rate (£)	2018/19	3,973,000	2021/22	-4,279,000
	2019/20	4,108,000	2022/23	-4,369,000
	2020/21	4,248,000	2023/24	-4,470,000

The Primary rate includes an allowance of 0.7% of pensionable pay for the Fund's expenses (0.6% at the 2017 valuation).

The average employee contribution rate is 6.1% of pensionable pay (6.0% of pay at the 2017 valuation).

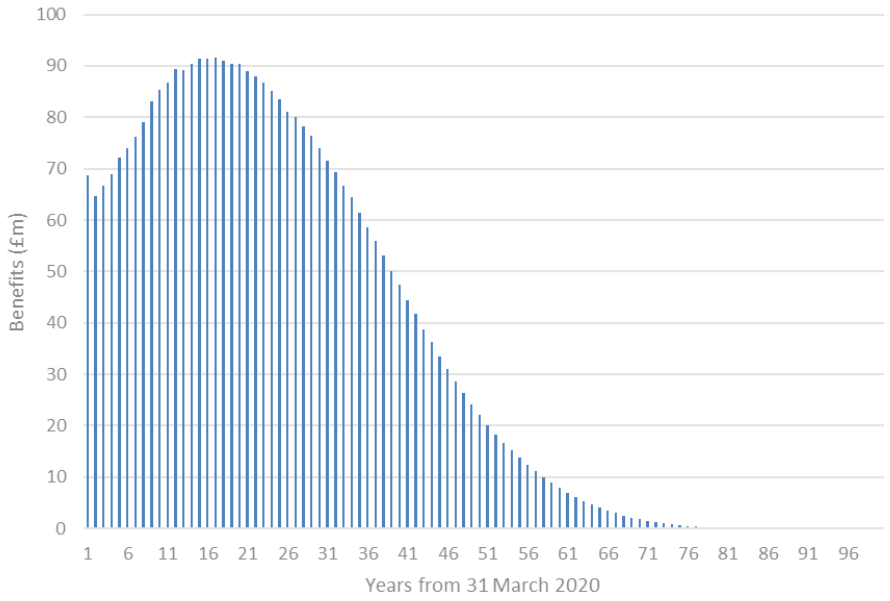
Funding position as at 31 March 2020

The funding position is a summary statistic often quoted to give an indication of the health of the fund. It is limited as it provides only a snapshot in time and is based on a single set of assumptions about the future.

To measure the funding position at 31 March 2020, we compare the value of the Fund's assets on that date against the expected cost (including an

allowance for future investment returns) of all the future benefit payments accrued up to the valuation date (the liabilities).

The chart below details the projected future benefit payments based on the membership data summarised in Appendix 1 and the demographic, salary and benefit increases assumptions summarised in Appendix 2.

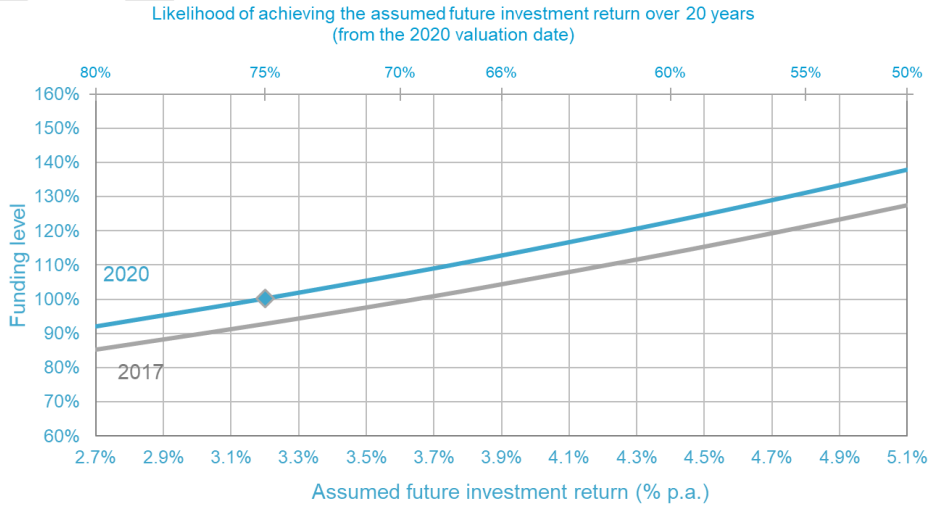


Using an assumption about the future investment return generated from the Fund's assets then allows a value to be placed on these payments in today's money; the liabilities. The higher the assumed investment return, the lower the liability value and therefore the higher the funding level.

The value placed on the liabilities is extremely sensitive to the investment return assumption. Based on the Fund's current investment strategy (detailed in Appendix 1) and the same model used in the contribution rate calculations, it is estimated that:

- There is a 50% likelihood of the Fund's investments achieving at least an annual return of 5.1% p.a. over the next 20 years;
- There is a 75% likelihood of the Fund's investments achieving at least an annual return of 3.2% p.a. over the next 20 years; and
- There is an 80% likelihood of the Fund's investments achieving at least an annual return of 2.7% p.a. over the next 20 years.

The following chart shows how the funding level varies with the future investment return assumption (blue line). For comparison, the funding level associated with the same choice of investment return assumption at the 2017 valuation is also shown (grey line).



From this chart, we can see that:

- The funding position would be 100% if future investment returns are around 3.2% p.a. (at 2017, the investment return would have needed to be 3.6% p.a.). The likelihood of the Fund's assets yielding at least this return is around 75%.
- If future investment returns are 2.7% p.a., then the Fund currently holds sufficient assets to meet 93% of the accrued liabilities. The likelihood of achieving at least this level of future investment return is 80%.
- If future investment returns were 5.1% p.a. then the Fund currently holds sufficient assets to meet 137% of the accrued liabilities. The likelihood of the Fund's assets yielding at least this return is 50%. 137% can therefore be considered the "best estimate" funding position.

It can be seen from the above chart that regardless of the investment return assumption used, the funding position of the Fund has improved since the previous actuarial valuation in 2017.

Reported funding position

The valuation outputs are more meaningful when stakeholders can understand the likelihood, and hence the level of prudence, attached to them. The above chart does this for the measurement of the funding position.

However, there is still a requirement to report a single funding position at 31 March 2020. This reported position must include a margin of prudence.

For the purpose of reporting a funding level and an associated funding surplus/deficit for the 2020 valuation, an investment return of 3.2% p.a. has been used. It is estimated that the Fund's assets have a 75% likelihood of achieving this return.

The resulting funding position is as follows:

Valuation Date	31 March 2017	31 March 2020
Past Service Liabilities	**(£m)**	**(£m)**
Employees	749	782
Deferred Pensioners	275	301
Pensioners	731	803
Total Liabilities	**1,755**	**1,887**
Assets	**1,768**	**1,892**
Surplus / (Deficit)	**13**	**6**
Funding Level	**101%**	**100%**

Please note that figures may not sum due to rounding

There has been a slight reduction in the reported funding level since 31 March 2017 from 101% to 100% and a small decrease in the funding surplus from £13m to £6m.

A breakdown of the key factors that have influenced the reported funding position from 31 March 2017 to 31 March 2020 are detailed overleaf.

Change in the surplus/deficit position	Assets (£m)	Liabilities (£m)	Surplus / (Deficit) (£m)
Last valuation at 31 March 2017	**1,768**	**1,755**	**13**
Cashflows			
Employer contributions paid in	131		131
Employee contributions paid in	40		40
Benefits paid out	(174)	(174)	0
Net transfers into / out of the Fund*	0		0
Other cashflows (e.g. Fund expenses)	(5)		(5)
Expected changes in membership			
Interest on benefits already accrued		204	(204)
Accrual of new benefits		226	(226)
Membership experience vs expectations			
Salary increases greater than expected		4	(4)
Benefit increases greater than expected		1	(1)
Early retirement strain (and contributions)	1	1	0
Ill health retirement gain		(2)	2
Early leavers greater than expected		(14)	14
Pensions ceasing greater than expected		(4)	4
Commutation less than expected		2	(2)
Other membership experience		18	(18)
Changes in market conditions			
Investment returns on the Fund's assets	131		131
Changes in future inflation expectations		(218)	218
Changes in actuarial assumptions			
Change in demographic assumptions (excl. longevity)		(19)	19
Change in longevity assumptions		(62)	62
Change in benefit increases assumption		25	
Change in salary increase assumption		(3)	3
Change in future investment return assumption		147	(147)
This valuation at 31 March 2020	**1,892**	**1,887**	**6**

* We have insufficient data to value the impact on the liabilities as a result of transfers in/out

Please note, the other membership experience item also includes the associated impact of GMP indexation and McCloud judgement. Further details of the individual breakdown of each item are available on request.

Note that figures may not sum due to rounding

Since the previous valuation, various events have taken place which affect the value placed on the liabilities, including:

- There is an interest cost of £204m. This is broadly three years of compound interest at 3.7% p.a. applied to the previous valuation liability value of £1,755m. The benefits that have been accrued to the valuation date are three years closer to payment at 31 March 2020 than they were at 31 March 2017, meaning there is less opportunity for future investment returns to help meet this cost. This serves to increase the value placed on the liabilities;
- The areas of membership experience that have had the greatest impact on the surplus/deficit position of the Fund are set out below, together with their impact on the liabilities

	Expected	Actual	Difference	Impact on Liabilities
Pre-retirement experience				
Early leavers (no of lives)	1,482	4,511	3,029	Positive
Ill health retirements (no of lives)	189	197	8	Positive
Salary increases (p.a.)	3.9%	4.1%	0.2%	Negative
Post-retirement experience				
Benefit increases (p.a.)	2.4%	2.4%	0.0%	Broadly neutral
Pensions ceasing (£000)	3,056	3,415	359	Positive

- The changes to the longevity assumptions used for the valuation have resulted in a modest reduction in life expectancies. This has served to reduce the liabilities by £62m;
- The assumed rate of future CPI inflation has decreased from 2.4% p.a. at 31 March 2017 to 1.7% p.a. at 31 March 2020. This has decreased the value of the liabilities by £218m;
- The assumed rate of future investment returns has decreased from 3.7% p.a. to 3.2% p.a.. This has increased the value of the liabilities by £147m.

There has been an increase in the value of the Fund's assets since the previous valuation because:

- The investment return on the Fund's assets for the period 31 March 2017 to 31 March 2020 was 8.2%. This has increased the value of the assets by £131m;
- Net cashflows into the Fund for the period 31 March 2017 to 31 March 2020 were an outflow of £7m, reducing the value of the assets.

Projection of the funding position

The progression of the funding position will depend on various factors including future asset performance, economic conditions and membership movements. If the financial and demographic assumptions made at this valuation are borne out in practice, the Fund's assets return 5.1% p.a. and there are no changes to the valuation assumptions, we project that the funding level at the 2024 valuation date will be approximately 103%. If the Fund's assets return 3.2% p.a., the projected funding level would be 98%. This allows for contributions to be paid as described in Appendix 3.

4 Sensitivity analysis

The results set out in this report are based on assumptions about the future. The actual cost of providing the benefits will depend on the actual experience of the Fund, which could be significantly better or worse than assumed. This section discusses the sensitivity of the results to some of the key assumptions.

Sensitivity of contribution rates to changes in assumptions

The approach to setting employer contribution rates mitigates the limitation of relying on one particular set of assumptions about the future by recognising the uncertainty around future investment returns and inflation. Therefore, there is no need to carry out additional analysis of the sensitivity of contribution rates to changes in financial assumptions.

The contribution rates are sensitive to changes in demographic assumptions. The results in this section in relation to the funding position can be broadly applied to the contribution rates.

Sensitivity of the funding position to changes in assumptions

The reported valuation funding position is based on one set of actuarial assumptions about the future of the Fund. If all of the assumptions made were exactly borne out in practice then the liability value presented in this report would represent the actual cost of providing benefits from the Fund as it stands at 31 March 2020.

Sensitivity of the funding position to future investment returns

The chart in Section 3 details how the funding position varies with the future assumed investment return.

Sensitivity of the funding position to future inflation

Pensions (both in payment and in deferment) in the LGPS increase annually in line with CPI. Furthermore, benefits accrued in the CARE scheme are revalued annually in line with CPI. If future CPI inflation is higher than the assumed rate of 1.7% p.a. then the cost of the benefits at 31 March 2020 will be higher than we have set out in Section 3.

The table quantifies the impact on the funding position at 31 March 2020 of varying the benefit increases and CARE revaluation (CPI) assumption below.

CPI Assumption	Surplus/(Deficit)	Funding Level
% pa	(£m)	%
1.5%	53	103%
1.7%	6	100%
1.9%	(44)	98%

Sensitivity of the funding position to life expectancy

The main area of demographic risk is people living longer than expected. If long term mortality rates fall at a rate of 1.75% p.a. (compared to the assumed 1.5% p.a.) then members will live slightly longer than we have assumed in this valuation. The impact on the funding position is detailed below.

Long term rate of improvement	Surplus/(Deficit)	Funding Level
% pa	(£m)	%
1.50%	6	100%
1.75%	(9)	100%

Other demographic risks to consider

There are other risk factors which would have an impact on the funding position. Examples of these include the level of ill health retirements, withdrawals from the scheme and take up of the 50:50 option. These are probably unlikely to change in such a way that would rank them as amongst the highest risks facing the Fund and therefore there has been no further quantification of their risk.

Comment on sensitivity analysis

Note that the tables above show the effect of changes to each assumption in isolation. In reality, it is perfectly possible for the experience of the Fund to deviate from more than one of the assumptions simultaneously and so the precise effect on the funding position is therefore more complex. Furthermore, the range of assumptions shown here is by no means exhaustive and should not be considered as the limits of how extreme experience could actually be.

Other risks to consider

Regulatory, Administration and Governance risks

As well as financial and demographic risks, the Fund also faces:

- Regulatory risks – central government legislation could significantly change the cost of the scheme in the future; and
- Administration and governance risk – failures in administration processes could lead to incorrect data and inaccuracies in the actuarial calculations.

These risks are considered and monitored by the Fund as part of its ongoing risk management framework.

Resource and environment risks

The Fund is exposed to risks relating to future resource constraints and environmental changes. These risks may prove to be material.

Climate change is a complex issue for the Fund. Adverse future climate change outcomes will have an impact on future longevity, inflation, government and corporate bond yields and equity returns.

Whilst there has been no explicit increase in certified employer contributions related to climate change, these risks may be considered by the Administering Authority when assessing the output from strategy modelling work.

Risk management

Employers participating in the Fund are exposed to a number of risks. These include, but are not limited to:

- Investment risk;
- Market risks;
- Demographic risks;
- Regulatory risks;
- Administration and Governance risks;
- Resource and Environmental risks.

The Funding Strategy Statement has further details about these risks and what actions the Fund takes to monitor, mitigate and manage each one.

5 Post valuation events

Post valuation market conditions

At the end of February 2021, we estimate that the whole fund investment return since 31 March 2020, would be in the region of c.22%. All else being equal, the funding level at the time of writing will be higher than that reported as at 31 March 2020.

This experience may be of interest to employers in the Fund who are due to leave the Fund in the short-term and are required to ensure full funding at exit. Given that this positive investment performance would not directly feed through to employer contribution rates due to the long-term approach taken when setting rates, post valuation experience is not of material concern.

Goodwin ruling

In June 2020, an employment tribunal ruled that a subset of male survivors of female pensioners were discriminated against in the Teacher's Pension Scheme on ground of sexual orientation.

Whilst this ruling was only tested in the Teachers' Pension Scheme, it is expected to apply to other public sector pension schemes, including the LGPS, due to the similarity in benefits.

The remedy will involve increases in benefits to affected male survivors. However, as we expect the impact of this rectification to be very minor in terms of overall liabilities, no allowance has been made for the Goodwin ruling at the 2020 valuation.

6 Final comments

The Fund's valuation operates within a broader framework, and this document should therefore be considered alongside the following:

- the Funding Strategy Statement, which in particular highlights how different types of employer in different circumstances have their contributions calculated;
- the Statement of Investment Principles, which sets out the investment strategy for the Fund;
- the general governance of the Fund, such as meetings of the Pensions Committee and Local Pension Board, decisions delegated to officers, the Fund's business plan, etc;
- the Fund's risk register; and
- the information the Fund holds about the participating employers.

Intervaluation employer events

New employers joining the Fund

Any new employers or admission bodies joining the Fund should be referred to the Fund Actuary to assess the required level of contribution. Depending on the number of transferring members the ceding employer's rate may also need to be reviewed.

Cessations and bulk transfers

Any employer who ceases to participate in the Fund should be referred to us in accordance with Regulation 61 of the LGPS regulations.

Any bulk movement of scheme members:

- involving 10 or more scheme members being transferred from or to another LGPS fund; or
- involving 2 or more scheme members being transferred from or to a non-LGPS pension arrangement;

should be referred to us to consider the impact on the Fund.

Valuation frequency

Under the provisions of the LGPS regulations, the next formal valuation of the Fund is due to be carried out as at 31 March 2023 where contribution rates payable from 1 April 2024 will be set.

Robert Bilton Richard Warden

Fellows of the Institute and Faculty of Actuaries

For and on behalf of Hymans Robertson LLP

9 March 2021

Appendices

Appendix 1 – Data

Membership data as at 31 March 2020

A summary of the membership data provided by the Administering Authority for the purposes of the valuation at 31 March 2020 is shown below. The corresponding membership data from the previous valuation is also shown for reference.

Whole Fund Membership Data	Last Valuation 31 March 2017	This Valuation 31 March 2020
Employee members		
Number	12,264	12,617
Total Actual Pay (£000)	204,604	227,515
Total Accrued Pension (£000) (80ths)	15,163	12,954
Total Accrued Pension (£000) (60ths)	14,169	12,732
Total Accrued Pension (£000) (CARE)	7,649	18,865
Average Age (liability weighted)	51.8	53.0
Future Working Lifetime (years)	11.8	8.7
Deferred pensioners		
Number	12,312	11,918
Total Accrued Pension (£000)	13,424	16,848
Average Age (liability weighted)	50.8	51.8
Pensioners		
Number	9,151	10,497
Total pensions in payment (£000)	41,569	49,396
Average Age (liability weighted)	67.0	67.9
Average duration of liabilities	18.7	17.5

Benchmark investment strategy

The following investment strategy, extracted from the Fund's Statement of Investment Principles, has been used to assess employer contribution rates and to set the future investment return assumption as at 31 March 2020:

% allocation	Current strategy
UK equities	21.5%
Overseas equities	34.5%
Private equity	5%
Total growth assets	61%
Fixed interest gilts	7%
Index-linked gilts	1%
UK Corporate bonds	4%
Total protection assets	12%
Property	10%
Infrastructure	4%
Absolute Return	5%
Alternatives	8%
Total income generating assets	27%
Grand total	100%

Other data used in this valuation

We have also relied upon asset and accounting data from the Fund's published 2017/18, 2018/19 and 2019/20 Annual Report and Accounts. Employer level cashflow data was provided by the Administering Authority and reconciled against the information shown in these documents.

Comment on data quality

The results of the valuation are dependent on the quality of the data provided to us by the Administering Authority for the specific purpose of this valuation. We have carried out validations on the membership data provided to ensure it is fit for the purpose of the valuation. Further details can be found in our report issued to the Administering Authority entitled "2020 valuation: Membership Data Report", dated 1 October 2020. We believe the membership data is fit for the purposes of this valuation.

Appendix 2 – Assumptions

Financial assumptions used to set employer contribution rates

Projection of assets and benefit payments

The approach to setting employer contribution rates does not rely on a single set of assumptions but involves the projection of an employer's future benefit payments, contributions and investment returns under 5,000 future economic scenarios. In this modelling, inflation (and therefore benefit payments) and investment returns for each asset class (and employer asset values) are variables and take different values in each projection.

The model underlying these projections is Hymans Robertson's proprietary economic model, the Economic Scenario Service (ESS). The ESS is a complex model to reflect the interactions and correlations between different asset classes and wider economic variables. The table below shows the calibration of the model as at 30 June 2020. All returns are shown net of fees and are the annualised total returns over 5, 10 and 20 years, except for the yields which refer to simulated yields at that time horizon.

		Annualised total returns							Inflation	17 year real yield	17 year yield
		Cash	Index Linked Gilts (medium)	Fixed Interest Gilts (medium)	UK Equity	Overseas Equity	Property	CorpMedium A			
5 years	16th %ile	-0.8%	-3.2%	-3.2%	-4.9%	-4.7%	-3.9%	-3.0%	1.4%	-3.2%	0.0%
	50th %ile	0.0%	-0.3%	-0.5%	3.6%	3.7%	1.9%	0.1%	2.8%	-2.3%	1.1%
	84th %ile	0.8%	2.7%	2.3%	12.6%	12.2%	8.4%	3.2%	4.4%	-1.4%	2.3%
10 years	16th %ile	-0.6%	-2.8%	-2.3%	-2.0%	-1.9%	-2.0%	-1.9%	1.5%	-2.5%	0.4%
	50th %ile	0.4%	-0.7%	-0.7%	4.0%	4.1%	2.3%	0.0%	3.1%	-1.3%	1.8%
	84th %ile	1.6%	1.3%	0.8%	10.3%	10.0%	7.0%	1.7%	4.8%	-0.1%	3.7%
20 years	16th %ile	0.1%	-2.0%	-0.8%	0.6%	0.7%	0.1%	-0.2%	1.5%	-1.6%	1.2%
	50th %ile	1.5%	-0.3%	0.0%	5.1%	5.2%	3.4%	0.8%	3.1%	0.1%	3.1%
	84th %ile	3.2%	1.4%	0.7%	9.7%	9.7%	7.3%	1.8%	4.7%	1.8%	5.7%
	Volatility (Disp) (1 yr)	0%	7%	8%	21%	20%	14%	9%	1%		

Funding target

At the end of an employer's funding time horizon, an assessment is made – for each of the 5,000 projections – of how the assets held compare to the value of assets required to meet the future benefit payments (the funding target). To value the cost of future benefits, assumptions are made about the following financial factors:

- Benefit increases and CARE revaluation
- Salary growth
- Investment returns (the "discount rate")

Each of the 5,000 projections represents a different prevailing economic environment at the end of the funding time horizon and so a single, fixed value for each assumption is not appropriate for every projection. Therefore, instead of using a fixed value, each assumption is set with reference to an economic indicator. The economic indicators used are:

Assumption	Economic Indicator
Benefit increases	Future CPI inflation expectations
CARE revaluation	Future CPI inflation expectations
Salary increases	As above plus 0.8% p.a.
Future investment returns	Prevailing risk free rate of return plus margin

The Fund has three funding bases which will apply to different employers depending on their type. Each funding basis uses a different margin in the future investment return assumption.

Funding Basis	Margin above risk-free rate
Ongoing participation	1.8%
Contractor exit	Same as used to allocate assets on joining the Fund
Low risk exit	0%

Financial assumptions used to assess the funding position

Salary and Benefit Increases

Financial Assumptions (p.a.)	31 March 2017	31 March 2020
Benefit increases and CARE revaluation (CPI)	2.4%	1.7%
Salary increases	3.4%*	2.5%**

*CPI plus 1.0%

**CPI plus 0.8%

Investment Return

The reported funding position is based on an assumed future investment return of 3.2% p.a.. The derivation of this assumption is set out in Section 3 and based on the calibration of the ESS model on 31 March 2020 which is detailed below.

		Annualised total returns							Inflation	17 year real yield	17 year yield
		Cash	Index Linked Gilts (medium)	Fixed Interest Gilts (medium)	UK Equity	Overseas Equity	Property	A rated Corporate Bonds (medium)			
5 years	16th %'ile	-0.6%	-3.0%	-2.9%	-5.3%	-5.2%	-3.7%	-2.1%	1.3%	-2.7%	0.2%
	50th %'ile	0.2%	0.0%	-0.3%	3.7%	3.9%	2.1%	1.3%	2.8%	-1.8%	1.3%
	84th %'ile	1.0%	3.0%	2.5%	13.6%	13.4%	8.7%	4.5%	4.3%	-0.9%	2.5%
10 years	16th %'ile	-0.4%	-2.5%	-2.0%	-2.1%	-2.1%	-1.8%	-1.1%	1.4%	-2.2%	0.6%
	50th %'ile	0.6%	-0.4%	-0.5%	4.3%	4.3%	2.5%	0.8%	2.9%	-0.9%	2.0%
	84th %'ile	1.7%	1.8%	1.0%	10.7%	10.5%	7.2%	2.6%	4.6%	0.3%	3.8%
20 years	16th %'ile	0.2%	-1.5%	-0.6%	0.6%	0.8%	0.2%	0.2%	1.4%	-1.6%	1.2%
	50th %'ile	1.6%	0.2%	0.2%	5.2%	5.3%	3.6%	1.3%	2.9%	0.1%	3.1%
	84th %'ile	3.3%	1.9%	1.0%	9.9%	10.0%	7.4%	2.4%	4.5%	1.9%	5.7%
	Volatility (Disp) (1 yr)	0%	7%	8%	27%	28%	14%	10%	1%		

The equivalent assumption at the 2017 valuation was 3.7% p.a.. This was derived in a different way, please see the 2017 valuation report for further details.

Demographic assumptions

The same demographic assumptions are used in setting contribution rates and assessing the current funding position.

Longevity

As the fund is a member of Club Vita, the baseline longevity assumptions are a bespoke set of Vita Curves that are tailored to fit the membership profile of the Fund. These curves are based on the data the Fund has provided us with for the purposes of this valuation.

We have also allowed for future improvements in mortality based on the CMI 2019 model with an allowance for smoothing of recent mortality experience and a long term rate of improvement of 1.5% p.a. for both women and men.

Longevity Assumptions	31 March 2017	31 March 2020
Baseline Longevity	Club Vita	Club Vita
Future Improvements	CMI 2016, Peaked, 1.25% p.a. long term	CMI 2019, Smoothed, 1.5% p.a. long term

Full details are available on request.

The longevity assumptions result in the following typical future life expectancies from age 65 (figures for 2017 shown for comparison):

Assumed Life Expectancy	31 March 2017	31 March 2020
Male		
Pensioners	21.9 years	21.0 years
Non-pensioners	23.3 years	22.4 years
Female		
Pensioners	24.3 years	23.5 years
Non-pensioners	26.1 years	25.5 years

Non-pensioners are assumed to be aged 45 at the valuation date

Other demographic assumptions

We are in the unique position of having a very large local authority data set from which to derive our other demographic assumptions. We have analysed the trends and patterns that are present in the membership of local authority

funds and tailored our demographic assumptions to reflect LGPS experience. The resulting demographic assumptions are as follows:

Demographic Assumptions	
Retirements in normal health	We have adopted the retirement age pattern assumption as specified by the Scheme Advisory Board in England & Wales for carrying out their 2016 cost cap valuation. Further details are available on request.
Death in Service	See sample rates below
Retirements in ill health	See sample rates below
Withdrawals	See sample rates below
Promotional salary increases	See sample increases below
Family details	A varying proportion of members are assumed to have a dependant at retirement or on earlier death. For example, at age 60 this is assumed to be 90% for males and 85% for females. The dependant of a male member is assumed to be 3 years younger than him and the dependant of a female member is assumed to be 3 years older than her.
Commutation	50% of future retirements elect to exchange pension for additional tax free cash up to HMRC limits for service to 1 April 2009 (equivalent 75% for service from 1 April 2009).
50:50 option	0.5% of members (uniformly distributed across the age, service and salary range) will choose the 50:50 option.

Sample rates for demographic assumptions

Males

Age	Salary Scale	Incidence per 1000 active members per annum							
		Death Before Retirement	Withdrawals		Ill Health Tier 1		Ill Health Tier 2	
		FT & PT	FT	PT	FT	PT	FT	PT
20	105	0.21	267.99	401.99	0.00	0.00	0.00	0.00
25	117	0.21	177.02	265.53	0.11	0.02	0.13	0.02
30	131	0.26	125.57	188.35	0.21	0.03	0.23	0.03
35	144	0.30	98.09	147.13	0.41	0.14	0.46	0.15
40	150	0.51	78.93	118.39	0.62	0.26	0.69	0.24
45	157	0.86	64.58	96.87	0.99	0.51	1.09	0.49
50	162	1.37	50.03	75.04	1.86	1.31	2.59	1.45
55	162	2.15	48.05	72.08	5.83	4.52	4.67	3.11
60	162	3.86	42.80	64.20	9.91	6.97	3.87	2.65
65	162	6.44	0.00	0.00	18.92	13.49	0.00	0.00

Females

Age	Salary Scale	Incidence per 1000 active members per annum						
		Death Before Retirement	Withdrawals		Ill Health Tier 1		Ill Health Tier 2	
		FT & PT	FT	PT	FT	PT	FT	PT
20	105	0.11	152.97	233.65	0.00	0.00	0.00	0.00
25	117	0.11	102.90	157.17	0.16	0.13	0.09	0.10
30	131	0.16	86.24	131.72	0.21	0.18	0.12	0.13
35	144	0.27	74.38	113.60	0.41	0.34	0.24	0.25
40	150	0.44	61.86	94.49	0.61	0.51	0.36	0.37
45	157	0.71	50.92	77.78	0.82	0.68	0.48	0.50
50	162	1.04	38.80	59.27	1.50	1.23	1.11	1.13
55	162	1.37	36.30	55.44	5.47	4.43	2.32	2.35
60	162	1.75	29.18	44.58	11.52	9.30	2.38	2.40
65	162	2.25	0.00	0.00	20.73	16.76	0.00	0.00

Prudence in assumptions

We are required to include a degree of prudence within the valuation. This has been achieved in both the setting of contributions and assessment of funding position.

Contribution rates

- Employer funding plans have been set such that the likelihood the employer's funding target is met by the end of the funding time horizon is more than 50%. The actual likelihood varies by employer. Further detail is in the Funding Strategy Statement.

Funding position

- The Fund's investments have a 75% likelihood of returning at least the assumed return.

All other assumptions represent our "best estimate" of future experience.

The assumptions used in this valuation have been agreed with the Administering Authority and are set out in the Fund's Funding Strategy Statement.