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London Pensions Fund Authority Pension Fund

Actuarial valuation as at 31 March 2016

Valuation report

24 March 2017

Introduction

In accordance with Regulation 62 of the Local Government Pension Scheme (LGPS) Regulations 2013 (as amended), we have been asked by London Pensions Fund Authority to prepare an actuarial valuation of the London Pensions Fund Authority Pension Fund (the Fund) as at 31 March 2016 as part of their role as the Administering Authority to the Fund.

The purpose of the valuation is to review the financial position of the Fund and to set appropriate contribution rates for each employer in the Fund for the period from 1 April 2017 to 31 March 2020. Contributions are set to cover any shortfall between the assumed cost of providing benefits built up by members at the valuation date and the assets held by the Fund and to also cover the cost of benefits that active members will build up in the future.

This report is provided further to earlier advice dated 22 September 2016 which set out the background to the valuation and explains the proposed underlying methods and assumptions derivation.

This report summarises the results of the valuation and is addressed to the Administering Authority of the Fund. It is not intended to assist any user other than the Administering Authority in making decisions or for any other purpose and neither we nor Barnett Waddingham LLP accept liability to third parties in relation to this advice.

This advice is subject to and complies with Technical Actuarial Standards (TASs) issued by the Financial Reporting Council (namely, the Pensions TAS and generic TASs relating to reporting, data and modelling).

We would be pleased to discuss any aspect of this report in more detail.

Contents

1 Summary of results

A summary of the results of the valuation is as follows:

Funding position

Using the agreed assumptions, the Fund had assets sufficient to cover 96% of the accrued liabilities as at 31 March 2016.

This has increased since 2013.

Changes since 2013

Regulations have changed with the introduction of the Section 13 report. Key focus is to secure **solvency** of the pension fund and **long-term cost efficiency**

Method and assumptions

The resulting method and assumptions are set out in Appendix 2 and we believe are appropriate for the 31 March 2016 valuation.

Employer contributions

Individual employer contributions are set out in separate Rates and Adjustment certificates for each employer to cover the period from 1 April 2017 to 31 March 2020. These have been sent separately to each employer.

The next actuarial valuation should be carried out with an effective date of 31 March 2019 and the contributions payable by the participating employers will be reviewed as part of that valuation.

2 Background to valuation approach

The purpose of the 2016 actuarial valuation is to set appropriate contribution rates for each employer in the Fund for the period from 1 April 2017 to 31 March 2020. This is required under regulation 62 of the LGPS Regulations. The Regulations for actuarial valuations have changed since the 2013 valuation and so has the context surrounding the valuation. Regulation 62 specifies four requirements that the actuary "must have regard to" and are detailed below:

- "the desirability of maintaining as nearly constant a primary rate as possible";
- "the current version of the administering authority's funding strategy statement";
- "the requirement to secure the solvency of the pension fund"; and
- "the long-term cost efficiency of the Scheme (i.e. the LGPS for England and Wales as a whole), so far as relating to the pension fund".

We have considered these changes when providing our advice and choosing the method and assumptions used and a number of reports and discussions have taken place with the Administering Authority before agreeing the final assumptions to calculate the results and set contribution rates In particular:.

- The initial results report dated 22 September 2016 which provides information and results on a whole fund basis as well as more detailed background to the method and a summary of the assumptions. A more detailed derivation of the assumptions is provided in our advice to the Administering Authority dated 15 June 2016.
- The Funding Strategy Statement which will confirm the approach in setting employer contributions.

Note that not all these documents may be in the public domain.

The final assumptions have been agreed with the Administering Authority. We suggest that the Fund's Funding Strategy Statement is reviewed to ensure that it is consistent with this approach as well as complying with the updated version of CIPFA's Funding Strategy Statement guidance.

Membership data

A summary of the membership data used for the valuation is set out in Appendix 1.

The membership data has been checked for reasonableness and we have compared the membership data with information in the Fund accounts. Any missing or inconsistent data has been estimated where necessary. While this should not be seen as a full audit of the data, we are happy that the data is sufficiently accurate for the purposes of the valuation.

Benefits

Full details of the benefits being valued are as set out in the Regulations as amended and summarised on the LGPS website and the Fund's membership booklet. We have made no allowance for discretionary benefits.

Assets

Assets have been valued at a six month smoothed market value straddling the valuation date.

We have been provided with the audited Fund accounts for the years ending 31 March 2014,. 31 March 2015 and 31 March 2016.

The market asset valuation as at 31 March 2016 was £4,549,608,000.

The Fund's long-term investment strategy has been taken into consideration in the derivation of the assumptions used. The investment strategy is set out in an Investment Strategy Statement dated October 2016.

3 Results

Previous valuation

The previous valuation was carried out as at 31 March 2013 by Barnett Waddingham. The results are summarised in the valuation report dated 27 March 2014 and show a funding level of 91% corresponding to a deficit of £483m.

Employers' contributions were set based on their own position and funding strategy, with any deficit targeted to be eliminated by no later than 31 March 2030.

Shortfall between assets and liabilities

Using the assumptions summarised in Appendix 2, the results of the valuation at the overall Fund level are set out below.

The contributions payable for each employer are set out in separate Rates and Adjustment certificates for each individual employer, which should be read in conjunction with this valuation report. These are based on the employer's own membership and experience and funding category on the LPFA's funding framework, a summary of which is described in Appendix 2

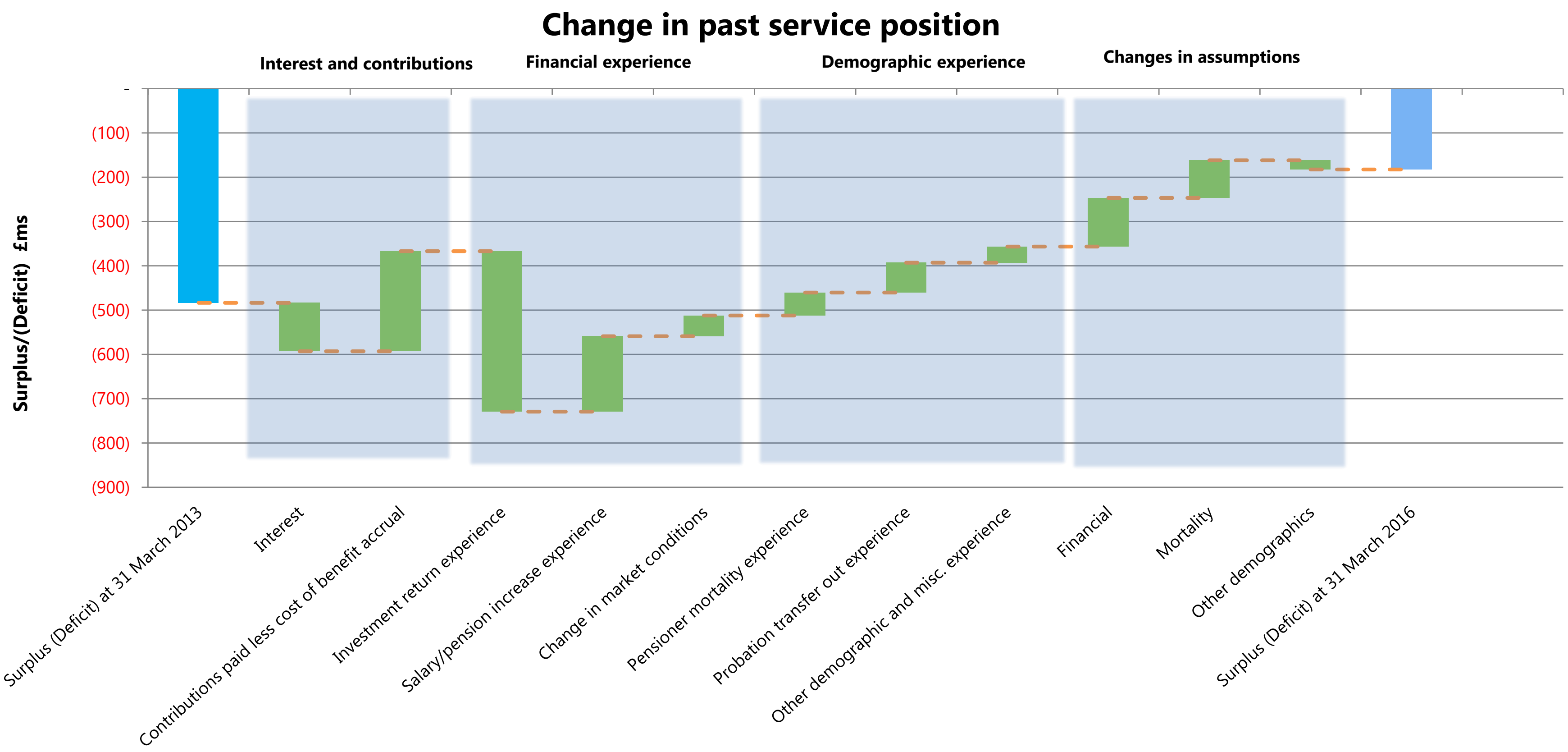
Active members pay contributions to the Fund as a condition of membership in line with the rates required under the Regulations.

Past service funding position		31 March 2016 £m
Smoothed asset value		4,515
Past service liabilities		
	Actives	1,075
	Deferred pensioners	1,025
	Pensioners	2,598
	Total	4,698
Surplus (Deficit)		(183)
Funding level		96%

There was a deficit of £183m in the Fund at the valuation date, and the Fund's assets were sufficient to cover 96% of its liabilities, on the assumptions set out in Appendix 2.

Reconciliation to previous valuation

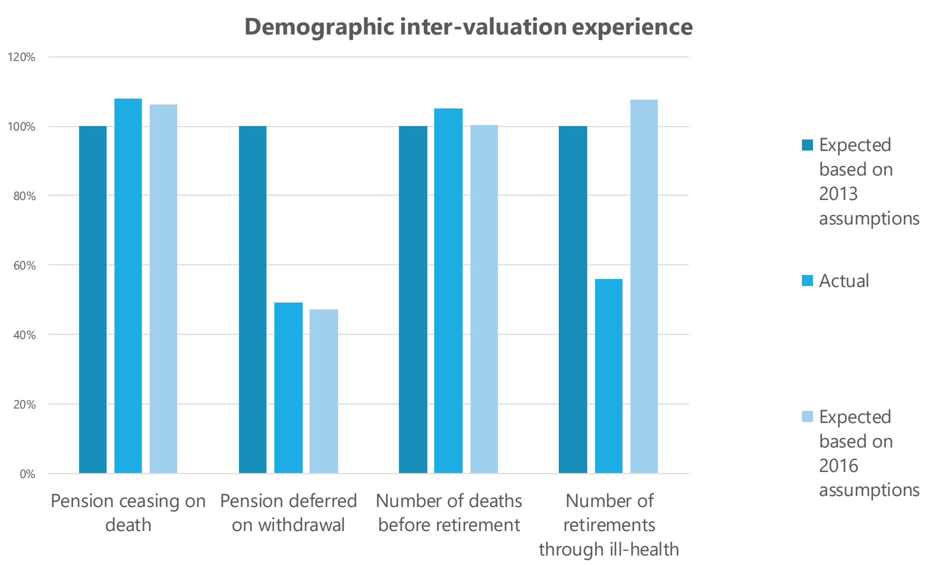
The key factors that have influenced the funding level of the Fund over the intervaluation period shown in the chart below:



The key positive items of surplus/deficit in the inter-valuation period are payment of contributions compared to benefit accrual (mostly through payment of contributions to fund the deficit) and positive salary and pension increase experience (in particular, inflation was lower over the three years than projected at the previous valuation). The main negative item of surplus/deficit in the inter-valuation period is lower than assumed investment returns.

Comparing experience with assumptions

A comparison of the actual demographic experience of members of the Fund over the intervaluation period, with that assumed by the assumptions adopted at the last valuation in 2013 is shown in the graph below. The graph also shows how the assumptions adopted for this valuation would have compared with those adopted at 2013.



In practice, individual mortality tables are assigned to members based on Club Vita analysis but for the analysis of pensioner mortality experience above we compared to representative average tables, namely the S1PA tables for 2013 and S2PA tables for 2016.

Valuations on other bases

The liability value as set out in the previous section is known as the Fund's "funding target" and should be consistent with the Administering Authority's Funding Strategy Statement. However, as part of the valuation, we have also considered an estimate of the liabilities represented with all margins for prudence removed (the "neutral estimate").

Neutral estimate

The neutral basis is set with the main purpose of providing the Administering Authority an idea of the level of prudence contained within the funding basis. The neutral estimate represents our best estimate of the funding position, in other words, we believe that it is equally likely that the Fund will beat or miss the funding target based on the neutral assumptions derived.

For the assumptions used for the funding basis, it is appropriate to include a margin for prudence to protect against the risk of not meeting the funding target and to essentially build a cushion for future adverse experience.

The neutral estimate does not contain any deliberate margins for prudence.

The funding basis includes an allowance for prudence in the discount rate assumption only. The discount rate on the neutral basis is therefore 6.2% p.a. rather than 5.7% p.a. All other assumptions are consistent with the ongoing funding basis.

The funding level on the neutral basis was 103%.

Projected future results

The progression of the funding level over time is influenced by a large number of factors, including the experience of the Fund's membership, the investment return achieved and the contributions paid.

We estimate that three years after the valuation date (i.e. at the next valuation) the funding position on a funding basis will be 100%. This allows for contributions to be paid as described in the Rates and Adjustments Certificates and assumes that investment returns and other experience over the next three years is in line with the assumptions used for the assumptions as set out in Appendix 2.

4 Sensitivity analysis

Liability value sensitivities

The results set out in this report are based on a particular set of assumptions. The actual cost of providing the benefits will depend on the actual experience, which could be significantly better or worse than assumed. The sensitivity of the results to some of the key assumptions is set out in the table below.

Sensitivity analysis - Past service funding position		Discount rate		Inflation		Long-term salary increases		Short-term salary increases		Rate of mortality improvement	
	Valuation basis	-0.1%	+0.1%	-0.1%	+0.1%	-0.1%	+0.1%	1% for 4 years	No short-term allowance	-0.25%	+0.25%
	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m
Smoothed asset value	4,515	4,515	4,515	4,515	4,515	4,515	4,515	4,515	4,515	4,515	4,515
Past service liabilities											
Actives	1,075	1,096	1,055	1,058	1,093	1,068	1,082	1,036	1,118	1,065	1,085
Deferred pensioners	1,025	1,045	1,006	1,006	1,045	1,025	1,025	1,025	1,025	1,016	1,034
Pensioners	2,598	2,623	2,574	2,577	2,621	2,598	2,598	2,598	2,598	2,579	2,618
Total	4,698	4,764	4,635	4,641	4,759	4,690	4,705	4,659	4,741	4,660	4,737
Surplus (Deficit)	(183)	(249)	(119)	(125)	(244)	(175)	(190)	(143)	(226)	(144)	(222)
Funding level	96%	95%	97%	97%	95%	96%	96%	97%	95%	97%	95%

Contribution rate sensitivities

The Fund primary rate required to fund benefits as they are earned from year to year will also be affected by the particular set of assumptions chosen. The Fund primary rate is the weighted average (by payroll) of the individual employers' primary rates. The sensitivity of the Fund primary rate to changes in some key assumptions is shown below.

Sensitivity analysis Fund primary rate		Discount rate		Inflation		Long-term salary increases		Short-term salary increases		Rate of mortality improvement	
	Valuation basis	-0.1%	+0.1%	-0.1%	+0.1%	-0.1%	+0.1%	1% for 4 years	No short-term allowance	-0.25%	+0.25%
	% of payroll	% of payroll	% of payroll							% of payroll	% of payroll
Total future service rate	21.3%	21.8%	20.8%	20.8%	21.8%	21.2%	21.3%	21.0%	21.6%	21.0%	21.5%
less Employee contribution rate	(7.3%)	(7.3%)	(7.3%)	(7.3%)	(7.3%)	(7.3%)	(7.3%)	(7.3%)	(7.3%)	(7.3%)	(7.3%)
Total primary rate	**14.0%**	**14.5%**	**13.5%**	**13.5%**	**14.5%**	**13.9%**	**14.0%**	**13.7%**	**14.3%**	**13.7%**	**14.2%**

5 Final comments

Funding Strategy Statement

The assumptions used for the valuation must be documented in a revised Funding Strategy Statement to be agreed between the Fund Actuary and the Administering Authority. We are able to help the Fund to prepare the Funding Strategy Statement using the latest guidance issued by CIPFA.

Risks

There are many factors that affect the Fund's funding position and could lead to the Fund's funding objectives not being met within the timescales expected. Some of the key risks that could have a material impact on the Fund are:

- Employer covenant risk
- Investment risk
- Inflation risk
- Mortality risk
- Member options risk
- Legislative risk

Sensitivity to some of these risks were set out in section 4. Please note that this is not an exhaustive list. Further information on these risks and more can be found in our initial results report and will be set out in greater detail in the Funding Strategy Statement.

Rates and Adjustment Certificate

The contributions payable in respect of benefit accrual, expenses and any deficit contributions under each employer's recovery period have been set out in separate Rates and Adjustments Certificates for each individual employer in the Fund, in accordance with Regulation 62 of the Regulations. These certificates should be read in conjunction with this valuation report. In these certificates no allowance will be made for additional costs arising which need to be met by additional contributions by the employer such as non-ill health early retirements.

The contributions as set out in the Rates and Adjustment Certificates are set so that each employer's assets (including future contributions) are projected to be sufficient to cover the benefit payments for their members. Where there is currently a deficit for an individual employer, this is targeted in line with the Fund's Funding Strategy Statement and all employers are projected to be fully funded in a maximum of 14 years..

These documents have been agreed between the Administering Authority and the Fund Actuary. Contributions have been set that in our opinion meet the regulatory requirements and the funding objectives set out in the Fund's Funding Strategy Statement.

The next formal valuation is due to be carried out as at 31 March 2019 however we would recommend that the financial position of the Fund is monitored regularly during the period leading up to the next formal valuation.

Graeme D Muir FFA **Mark Norquay FFA**

Barnett Waddingham LLP

Appendix 1 Summary of membership data

A summary of the membership data used in the valuation is as follows. The membership data from the previous valuation is also shown for comparison.

Actives	Number		Pensionable pay				Average age	
			Total £000		Average £			
	2016	2013	2016	2013	2016	2013	2016	2013
Males	6,790	6,715	223,855	234,770	32,968	34,962	44.6	46.4
Females	9,693	9,746	249,553	277,692	25,746	28,493	43.5	45.0
Total	16,483	16,461	473,408	512,462	28,721	31,132	43.9	45.6

Deferred pensioners (including "undecideds")	Number		Annual pensions current				Average age	
			Total £000		Average £			
	2016	2013	2016	2013	2016	2013	2016	2013
Males	11,080	10,476	31,642	30,642	2,856	2,925	47.0	47.6
Females	17,823	17,034	40,246	39,571	2,258	2,323	46.2	46.6
Total	28,903	27,510	71,888	70,213	2,487	2,552	46.5	47.0

Pensioners	Number		Annual pensions current				Average age	
			Total £000		Average £			
	2016	2013	2016	2013	2016	2013	2016	2013
Males	12,827	13,177	110,659	113,310	8,627	8,599	72.7	72.1
Females	15,271	15,662	79,150	81,191	5,183	5,184	72.9	72.1
Dependants	5,690	5,932	21,858	19,998	3,841	3,371	77.3	76.4
Total	33,788	34,771	211,667	214,499	6,265	6,169	73.6	73.8

- The numbers relate to the number of records and so will include members in receipt of, or potentially in receipt of, more than one benefit.
- Annual pensions are funded items only and include pension increases up to and including the 2016 pension increase order.
- Pensionable Pay is actual earnings.

In the table below we have set out the number of members who are assumed to reach retirement age over the period from 1 April 2017 to 31 March 2020 as required under the Rates and Adjustment Certificate.

Members may retire for a number of reasons including reaching normal retirement age, retiring through ill health or redundancy. The amounts set out in the table below are the new retirement benefit amounts, as at the current valuation date that are assumed to come into payment in each of the inter-valuation years.

Projected new benefits		
Year to	Number of members	Retirement benefits £m's
31/03/2017	1,372	26
31/03/2018	1,307	27
31/03/2019	1,406	27
31/03/2020	1,420	27

Appendix 2 Actuarial assumptions

The significant assumptions with the exception of the discount rate are the same for all employers and these are set out in the table below:

		31 March 2016	31 March 2013
Discount rate		5.7% at Fund level 2.2% - 5.7% at Employer level	5.9% at Fund level 3.1% - 5.9% at Employer level
Pension increases		2.4% p.a.	2.7% p.a.
Salary increases	Long-term	3.9% p.a.	4.5% p.a.
	Short-term	CPI for period from 31 March 2016 to 31 March 2020	In line with CPI for period from 31 March 2013 to 31 March 2015
Post-retirement mortality (member) - base table		2016 Club Vita tables	2013 Club Vita tables
Allowance for improvements in life expectancy		2015 CMI Model with a long-term rate of improvement of 1.5% p.a.	2012 CMI Model with a long-term rate of improvement of 1.5% p.a.
Retirement assumption		Weighted average	Weighted average
Pre-retirement decrements		GAD updated	GAD scheme reform exercise
50:50 assumption		Member data	0%
Commutation		50% of max	50% of max
Family statistics			
	Age difference	3 years	3 years
	Proportion with dependant	75% (males) and 70% (females)	80% (males) and 70% (females)
Pension increases on GMP		Funds will pay limited increases for members that have reached SPA by 6 April 2016, with the Government providing the remainder of the inflationary increase. For members that reach SPA after this date, we have assumed that Funds will be required to pay the entire inflationary increases.	Funds pay statutory limited increases for all members.

Employer-level discount rates

At the 2016 valuation, each active employer in the Fund was put into one of seven categories, each with different funding strategies, as shown in the table below. The classification of each employer was determined by the Administering Authority.

Category	Types of employers	Discount rate at 31 March 2016	Discount rate at 31 March 2013
A-Open	Employers with tax-raising powers Employers with a government guarantee Employers that provided substantial security above 70% of cessation deficit Schools/Academies Transferee admission bodies pre-2013 or with a category A letting authority (at time of transfer)	5.7% p.a.	5.9% p.a.
B-Open	Employers that provide LPFA with significant security between 40% and 69% of cessation deficit Employers that provide a legally valid/credible parent company guarantee Employers that receive implicit support from the government with strong financial statements Further & Higher Education and Housing bodies with strong financial statements Transferee admission bodies post-2013 with a category B letting authority (at time of transfer)	5.4% p.a.	5.6% p.a.
B-Projected Cessation	As per B-Open but projected to exit the Fund with no support after exit	5.4% p.a. until projected exit date, 2.2% thereafter	5.6% p.a. until projected exit date, 3.1% thereafter
C1	Employers with no security/guarantees/assurances that are financially stable Transferee admission bodies post-2013 with a category C1 letting authority (at time of transfer)	4.8% p.a.	5.2% p.a.
C2	Employers with no security/guarantees/assurances with identified risk	4.0% p.a.	4.5% p.a.
C3-Projected Cessation	As C1 but projected to exit the Fund with no support after exit	4.8% p.a. until projected exit date, 2.2% thereafter	5.2% p.a. until projected exit date, 3.1% thereafter
C4-Projected Cessation	As C2 but projected to exit the Fund with no support after exit	4.0% p.a. until projected exit date, 2.2% thereafter	4.5% p.a. until projected exit date, 3.1% thereafter

Demographic assumptions – sample rates

The following tables set out some sample rates of the demographic assumptions used in the calculations. These are the same as those used by the Government Actuary's Department when LGPS reforms were designed and based on analysis of incidence of death retirement and withdrawal for Local Authority Funds saved here: http://www.lgpsregs.org/index.php/dclg-publications/dclg-other

Allowance for ill health early retirements (GAD table b6.1)

A small proportion of members are assumed to retire early due to ill health. In the table below we set out an extract of some sample rates from our decrement table used:

Age	Leaving p.a. (M)	Leaving p.a. (F)
25	0.01%	0.00%
30	0.01%	0.01%
35	0.02%	0.02%
40	0.05%	0.03%
45	0.10%	0.07%
50	0.20%	0.15%
55	0.41%	0.33%
60	0.84%	0.71%
65	1.72%	1.53%

The proportion of ill health early retirements falling into each tier category has been assumed to be as follows for both males and females:

Tier 1	Tier 2	Tier 3
75%	15%	10%

Death before retirement for all members (GAD table b8)

A small number of members are assumed to die before reaching retirement age. In the table below we set out an extract of some sample rates from our decrement table used:

Age	Males	Females
25	0.03%	0.01%
30	0.04%	0.02%
35	0.05%	0.02%
40	0.06%	0.03%
45	0.09%	0.05%
50	0.13%	0.08%
55	0.21%	0.13%
60	0.32%	0.20%
65	0.51%	0.30%

Allowance for withdrawals (GAD table b7)

This assumption is regarding active members who leave service to move to deferred member status or take a transfer out but do not yet retire. Active members are assumed to leave service at the following sample rates:

Age	Leaving p.a. (M)	Leaving p.a. (F)
25	8.10%	9.08%
30	6.38%	7.20%
35	5.02%	5.71%
40	3.95%	4.53%
45	3.11%	3.59%
50	2.44%	2.85%
55	1.92%	2.26%
60	1.51%	1.79%
65	1.19%	1.42%

Promotional salary scale (using GAD table b9)

In addition to the assumption made about annual salary increases, we have also included an allowance for a promotional salary scale which applies at each age and some sample rates are set out in the table below:

Age	Males	Females
25	1.0368	1.0165
30	1.1177	1.0526
35	1.1741	1.0820
40	1.2137	1.1033
45	1.2472	1.1040
50	1.2715	1.1043
55	1.2716	1.1044
60	1.2717	1.1045

Appendix 3 **Contributions**

The primary and secondary contributions payable for each employer are set out in separate Rates and Adjustments Certificiates, which should be read in conjunction with this valuation report.

Primary rate

The primary rate for each employer is that employer's future service contribution rate, which is the contribution rate required to meet the cost of the future accrual of benefits, expressed as percentage of pensionable pay, ignoring any past service surplus or deficit, but allowing for any employer specific circumstances, such as the membership profile of that employer, the funding strategy adopted for that employer, the actuarial method chosen and/or the employer's covenant.

The primary rate for the whole Fund is the weighted average (by payroll) of the individual employers' primary rates, and for this valuation, is 14.0% of payroll. This is not directly comparable to the contribution rate disclosed in the 2013 valuation report, which showed contribution rates based on the Fund-level discount rate.

Secondary rate

In addition, each employer pays a secondary contribution as required under Regulation 62-(7) that when combined with the primary rate results in the minimum total contributions payable.

We are required to disclose the secondary rates across the entire Fund, expressed as both the expected percentage of payroll and the expected cash amounts, in each of three years in the period 1 April 2017 to 31 March 2020 and these are set out in the table below.

Secondary contributions	2017/18	2018/19	2019/20
Average as a % of payroll	6.9%	6.9%	6.9%
Total monetary amounts	£34.6m	£35.3m	£36.1m