

ACTUARIAL REPORT AS AT 31 MARCH 2016

UNIVERSITIES SUPERANNUATION SCHEME

SEPTEMBER 2016

1 Results and Analysis

Introduction

1.1 This paper is commissioned by and addressed to the Trustee of the Universities Superannuation Scheme (“the Scheme”). It summarises the results of a financial update of the Scheme’s funding position as at 31 March 2016, known as an “actuarial report”. It has been prepared to satisfy the requirements of section 224 of the Pensions Act 2004.

Summary of estimated funding position as at 31 March 2016 – technical provisions

1.2 We have calculated an estimate of the Technical Provisions position as at 31 March 2016 and a summary of the position is shown below.

Table 1 shows the Scheme’s estimated funding position on the Technical Provisions basis as at 31 March 2016, as well as that at the 2014 actuarial valuation. (See the Appendix for assumptions.) At 31 March 2016 the Scheme is estimated to have had a shortfall of £10.0 billion, equivalent to a funding level (the ratio of assets to liabilities) of 83%.

Table 1 Funding Position on the Technical Provisions Basis

	As at 31 March 2014 (£bn)	As at 31 March 2016 (£bn)
Liabilities	46.9	59.8
Assets	41.6	49.8
Surplus / (Shortfall)	(5.3)	(10.0)
Funding level	89%	83%

1.3 The liabilities of £59.8 billion have been estimated using the approach set out in the Trustee’s statement of funding principles dated 24 July 2015, with financial assumptions based on market conditions as at 31 March 2016, and take into account the revised benefit structure effective 1 April 2016 consistent with the 2014 valuation results.

Approximate nature of this update

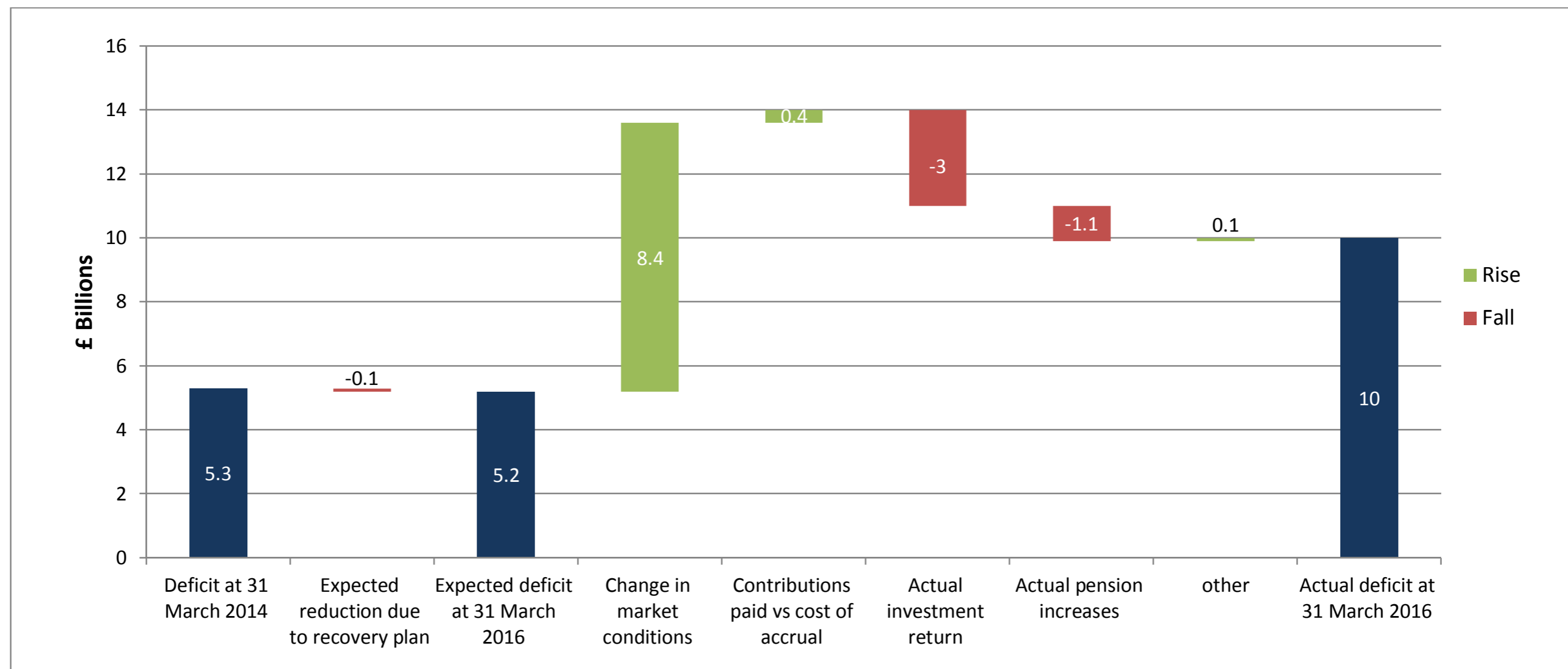
- 1.4 The figures in this report are based on an approximate roll forward of the detailed calculations carried out as part of the Actuarial Valuation as at 31 March 2014. They do not therefore take into account the detailed membership experience (such as retirements and salary increases) since that date, which is therefore implicitly assumed to have been in line with the assumptions made at that time. The full impact of this experience will be reflected in the detailed calculations which are carried out as part of the next formal actuarial valuation. If all of these factors were to be fully recognised then the actual deficit as at 31 March 2016 may be different to the figure shown and this update is therefore intended only to be a guide to the estimated development of the funding position since 31 March 2014. I have, however, made allowance for the actual pension increases granted at 1 April 2015 and 2016, which were lower than assumed in 2014, and overall Scheme level cash-flows over the period. Following the abolition of contracting out with effect from 6 April 2016, pension increases on the Guaranteed Minimum Pensions for members below State Pension Age at 5 April 2016 are now payable in line with non-GMP pension rises. I have made a broad allowance for the impact this has within the estimated liabilities as at 31 March 2016.
- 1.5 The asset value of £49.8 billion is the audited market value of the Scheme's assets at 31 March 2016 (excluding the value of AVCs). This is an increase of £8.2 billion over the two years since the valuation date of 31 March 2014. This increase is equivalent to an average return of c9.2% p.a. which has exceeded the investment return assumptions included within the 2014 valuation recovery plan of 5.7% for 2015 and 5.65% for 2016.

Analysis of Technical Provisions Funding Position

- 1.6 The deterioration in the Scheme's funding level since the 2014 valuation is due mainly to the reduced assumption for future investment returns (referred to below as the "change in market conditions"), offset to some degree by higher than expected investment returns on the Scheme's assets over the period and the actual pension increases granted over the last two years.

1.7 Further details in relation to the above are set out in **Section 2** and a high level analysis of the movement in the deficit can be seen in **chart 1** below.

Chart 1



Summary of updated funding position – self-sufficiency basis

- 1.8 We have also carried out an approximate update on the self-sufficiency basis which the Trustee also considers as part of the valuation process. In carrying out the update we have used assumptions in line with those used in the self-sufficiency basis for the 2014 valuation but updated for market conditions as at 31 March 2016. In particular the self-sufficiency basis uses a discount rate of gilts+ 0.5% pa. A summary of the position is set out below.

Table 2 shows the Scheme's funding position on a self-sufficiency basis as at 31 March 2016, as well as at the 31 March 2014 actuarial valuation. (See the Appendix for assumptions.) At 31 March 2016 the Scheme is estimated to have had a shortfall of £22.1 billion on the self-sufficiency basis, equivalent to a funding level of 69%.

Table 2 Funding Position on a Self-Sufficiency Basis

	As at 31 March 2014 (£ billion)	As at 31 March 2016 (£ billion)
Liabilities	56.1	71.9
Assets	41.6	49.8
Surplus / (Shortfall)	(14.5)	(22.1)
Funding level	74%	69%

Progress of Technical Provisions funding level against the Scheme Recovery Plan since the valuation

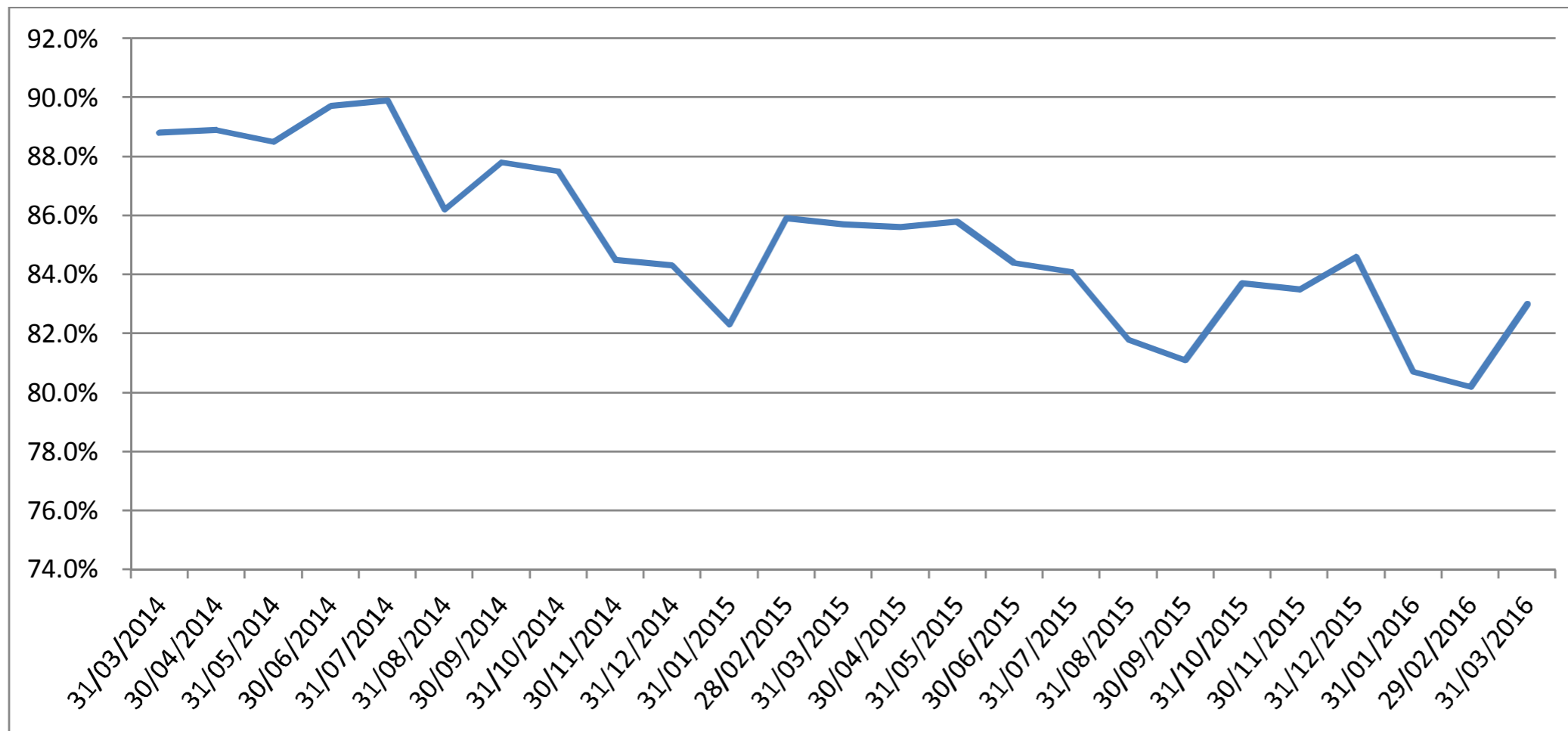
- 1.9 At the 31 March 2014 actuarial valuation, the Trustee put in place a recovery plan setting out the contributions required to remove the shortfall in the Scheme by 31 March 2031. **Chart 2** shows the approximate funding level (purple line) since the valuation.

- 1.10 If the assumptions used for the 31 March 2014 actuarial valuation had been borne out in practice, then, based on the agreed contributions, the deficit would have been expected to have fallen

slightly to £5.2bn at 31 March 2016, equivalent to a funding level of 90% relative to the Technical Provisions.

Chart 2

Funding level progression 31 March 2014 to 31 March 2016



Summary of future service contribution rate

1.11 We have calculated an estimate of the future service contribution rate of the Scheme on the benefit structure as agreed by the JNC on 9 July 2015 and the final DB / DC hybrid element of which will be effective from 1 October 2016. These are based on actuarial assumptions and methodology consistent with those as at 31 March 2014 but updated for market conditions as at 31 March 2016. The calculations are also based on the profile of the active members as at 31 March 2014. The results are shown in **Table 3**.

1.12 **Table 3** shows the future service contribution rate that would apply at 31 March 2016 if the rates were to be reassessed in line with the 2014 valuation approach updated for changes in market conditions to 31 March 2016. The 2014 actuarial valuation rates are shown for comparison (See the Appendix for assumptions).

1.13 The future service rates have increased substantially on account of lower prevailing gilt yields compared with 2014 valuation market conditions. With effect from 1 April 2016, the employers are paying 18% of payroll and this includes a provision for the correction of the past service deficit as at 31 March 2014. **Table 3** indicates that this contribution rate (18%) is inadequate to cover the cost of benefits accruing. The total contribution rate will be reviewed at the next actuarial valuation (currently scheduled for 31 March 2017); it is only applicable once the hybrid element of the Scheme is in place, from 1 October 2016.

Table 3

	31 March 2014 Once DB salary threshold and DC section introduced % of salaries p.a.	31 March 2016 Once DB salary threshold and DC section introduced % of salaries p.a.
Total normal cost of DB pension benefits (including life assurance)	20.1	25.6
Allowance for expenses	0.4	0.4
Total Employers cost of DC benefits	2.5	2.5
Less members' contribution in respect of DB benefits ¹	(7.1)	(7.1)
Employer future service rate	15.9	21.4

From 31 March 2016 future service benefits and accrued benefits will no longer be linked to salary. For the period from 31 March 2016 to 30 September 2016 the 1/75ths CRB benefit accrual will apply to full salary and on this basis, the Employer future service rate for the period between 31 March 2016 and 30 September 2016 is calculated to be 21.2% of total salaries.

¹ 8% of pay up to the salary threshold expressed as a proportion of total salaries

2 Market Commentary

- 2.1 The funding position and contribution rates established as a result of the 31 March 2014 Valuation were based on achieving a level of out-performance above the expected long-term gilt yields as at that date.
- 2.2 The return on the Scheme’s investments has been higher than the assumption made - the fund returned an average of 9.2% p.a. over the two year period to 31 March 2016. This has therefore been a positive aspect of the Scheme’s experience. **Chart 3** shows the returns on the FTSE 100, nominal long-dated gilts and index-linked gilts over the period from 31 March 2014 to 31 March 2016.
- 2.3 However the expected long term gilt yields have reduced over the period 31 March 2014 to 31 March 2016 – see **Chart 4** overleaf. Correspondingly the assumption for future investment returns from the Scheme’s assets over the long-term has also reduced. As a result the calculation of the Scheme’s liabilities has increased by more than the assets and resulted in an increase in the estimated deficit.
- 2.4 The long term nature of the Trustee’s investment strategy means that it is inevitable that the funding level could be expected to be volatile over short periods. The Trustee’s overall approach to funding is underpinned by an over-

arching Financial Management Plan (FMP) which takes into account funding, investment strategy and the strength of the covenant provided by the employers to be able to respond to variations in the funding position against the long-term plan. The FMP includes a long-term aim to reduce the level of potential variability in the funding position and the Trustee has a risk monitoring framework which covers all aspects of the FMP.

Chart 3

Total Market returns from 31 March 2014 to 31 March 2016

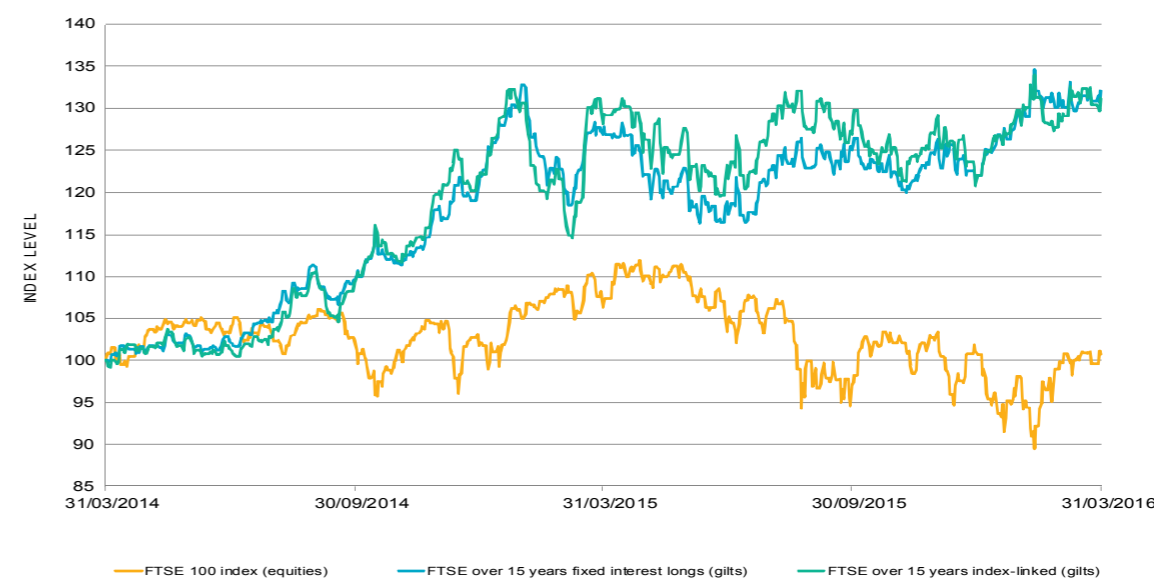
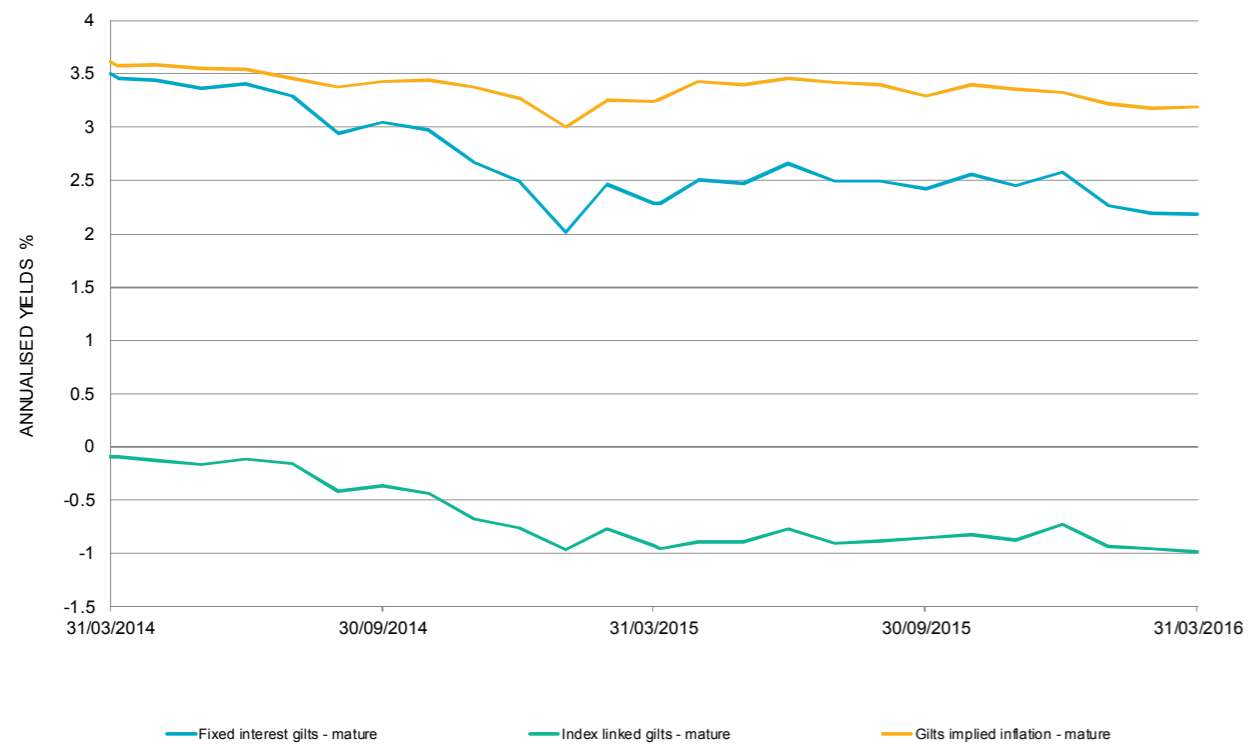



Chart 4

Market yields (yields below are the average equivalent rates based on the approximate duration of the scheme's liability) from 31 March 2014 to 31 March 2016



3 Conclusions

3.1 This paper provides a summary of the Scheme's funding position at 31 March 2016 and a comparison with that expected based on the position at 31 March 2014 together with reasons for the difference.

Signature		Date of signing	30 September 2016
Scheme Actuary	Ali Tayyebi	Qualification	Fellow of the Institute and Faculty of Actuaries

The advice set out in this paper and accompanying documents is covered by and compliant with the following Technical Actuarial Standards (TAS) issued by the Financial Reporting Council: *TAS R – Reporting Actuarial Information*; *TAS D – Data*; *TAS M – Modelling*; and *Pensions TAS*. It should be read in conjunction with the formal report for the 31 March 2014 actuarial valuation and the 2015 Actuarial Report.

The approximate results in this paper have been calculated using the method and assumptions set out in the statement of funding principles agreed as part of the actuarial valuation at 31 March 2014 (updated to reflect changes in market conditions). The figures calculated for this report are not as accurate as those that would arise from a full actuarial valuation as some approximations have been made and individual member data has not been used (it is based on the membership data supplied for the 31 March 2014 actuarial valuation). This paper does not contain recommendations of any changes to the method and assumptions, or the contribution/ benefit structure. Further advice is likely to be needed if decisions are to be taken in relation to contributions, the method and assumptions in the statement of funding principles, or the level of benefit provision.

The audited market value of the Scheme's assets at 31 March 2016 has been provided by the Trustee.

The calculations in the paper use methods and assumptions appropriate for the purpose of reviewing the financial position of the Scheme. Mercer does not accept liability to any third party in respect of this paper; nor do we accept liability to the Trustee if the information is used for any purpose other than that stated. The contents of the report are confidential and should not be disclosed, in whole or in part, to any third party (except as specified in this note) without Mercer's prior written consent, other than as required by any law or order of a court or regulatory body.

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APPENDIX

Funding assumptions

Table 5 below shows the assumptions used for this actuarial report and for the actuarial valuation as at 31 March 2014. The assumptions are based on the methodology set out in the Trustee's statement of funding principles as agreed at the actuarial valuation, but updated to reflect changes in financial conditions at 31 March 2016. The key assumptions are as follows:-

Table 5

Principal actuarial assumptions	31 March 2014	31 March 2016
Investment return	5.2% in year 1, decreasing linearly to 4.7% p.a. over 20 years	3.84% in year 1 ¹ , decreasing linearly to 3.4% p.a. over the next 18 years
Market derived price inflation	3.6% p.a.	3.15% p.a.
Inflation risk premium	0.2% in year 1, decreasing linearly to 0.1% p.a. over 20 years	0.19% p.a. in year 1, decreasing to 0.1% p.a. over the next 18 years
Price inflation – Retail Prices Index	Market derived price inflation less inflation risk premium	Market derived price inflation less inflation risk premium
RPI / CPI gap	0.8% p.a.	0.8% p.a.
Price inflation – Consumer Prices Index	RPI assumption less RPI / CPI gap	RPI assumption less RPI / CPI gap

¹ The year 1 discount rate allows for two year's de-risking, a reduction of 0.05% to the initial yield.

Principal actuarial assumptions	31 March 2014	31 March 2016
Salary increases		
1) General pay growth	CPI in year 1, CPI +1% in year 2 and RPI + 1.0% p.a. thereafter	RPI + 1% p.a. ¹
2) Salary scale for past service	Scale adopted (in first two years) reflecting recent experience	N/A
Pension increases in payment	CPI assumption (for both pre and post 2011 benefits)	CPI assumption (for both pre and post 2011 benefits)
Mortality base table	98% of SAPS S1NA "light" YOB unadjusted for males and 99% of SAPS S1NA "light" YOB with a -1 year adjustment for females	98% of SAPS S1NA "light" YOB unadjusted for males and 99% of SAPS S1NA "light" YOB with a -1 year adjustment for females
Future improvements to mortality	CMI_2014 with a long term rate of 1.5% p.a.	CMI_2014 with a long term rate of 1.5% p.a.

The self-sufficiency basis uses the same assumptions as above, where applicable, except the investment return is 2.7% p.a. (4.0% p.a. at 2014) and there is no allowance for an inflation risk premium.

¹ From 31 March 2016, the assumption is only needed in the calculation of the deficit contribution rate



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