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ACTUARIAL REPORT AS AT 31 MARCH 2013

UNIVERSITIES SUPERANNUATION SCHEME

OCTOBER 2013

MARSH & McLENNAN COMPANIES

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 2013, known as an "actuarial report". It has been prepared to satisfy the requirements of section 224 of the Pensions Act 2004.

Summary of updated funding position – technical provisions

1.2 We have calculated an estimate of the Technical Provisions position as at 31 March 2013 and a summary of the position is shown below.

Table 1 shows the Scheme's funding position on the Technical Provisions basis as at 31 March 2013, as well as that at the 2011 actuarial valuation. (See the Appendix for assumptions.) At 31 March 2013 the Scheme is estimated to have had a shortfall of £11.5 billion, equivalent to a funding level (the ratio of assets to liabilities) of 77%.

Table 1

	As at 31 March 2011(£bn)	As at 31 March 2013(£bn)
Liabilities	35.3	50.1
Assets	32.4	38.6
Surplus / (Shortfall)	(2.9)	(11.5)
Funding level	92%	77%

1.3 The liabilities of £50.1 billion have been estimated using the approach set out in the Trustee's statement of funding principles dated 15 June 2012, with financial assumptions based on market conditions as at 31 March 2013. I have assumed that the Scheme's demographic experience is in line with the relevant assumptions (for example, the increase in Pensionable Salary of the active members is in line with the general pay growth and salary scale assumptions).

1.4 The asset value of £38.6 billion is the unaudited market value of the Scheme's assets at 31 March 2013. This is an increase of £6.2billion since the valuation date. This increase is equivalent to a return of c8.6% pa which has exceeded the 2011 valuation recovery plan assumption of 6.6% pa. The asset allocation is, effectively, broadly unchanged since the 2011 Actuarial Valuation but is currently under review.

Analysis of Technical Provisions Funding Position

1.5 The deterioration in the Scheme's funding level since the 2011 valuation is due mainly to the effect of falling gilt yields (see Section 2), offset to some degree by higher than expected investment returns on the Scheme's assets.

1.6 An analysis of the movement in deficit can be seen in **table 2** below.

Table 2

Deficit at 31 March 2011	**£2.9 billion**
Interest on deficit	+0.4 billion
Higher than expected investment returns	-1.8 billion
Change in underlying financial conditions	+10.4 billion
Contributions paid versus cost of accrual	-0.4 billion
Deficit at 31 March 2013	**£11.5 billion**

Summary of updated funding position – gilts basis

1.7 We have also carried out an approximate update on a gilts basis. In carrying out the update we have made assumptions in line with the Technical Provisions but made no allowance for any asset out-performance over gilts when setting the discount rate. A summary of the position is set out below.

Table 3 shows the Scheme's funding position on a gilts basis as at 31 March 2013, as well as at the 31 March 2011 actuarial valuation. (See the Appendix for assumptions.) At 31 March 2013 the Scheme is estimated to have had a shortfall of £31.2 billion on the gilts basis, equivalent to a funding level of 55%.

Table 3

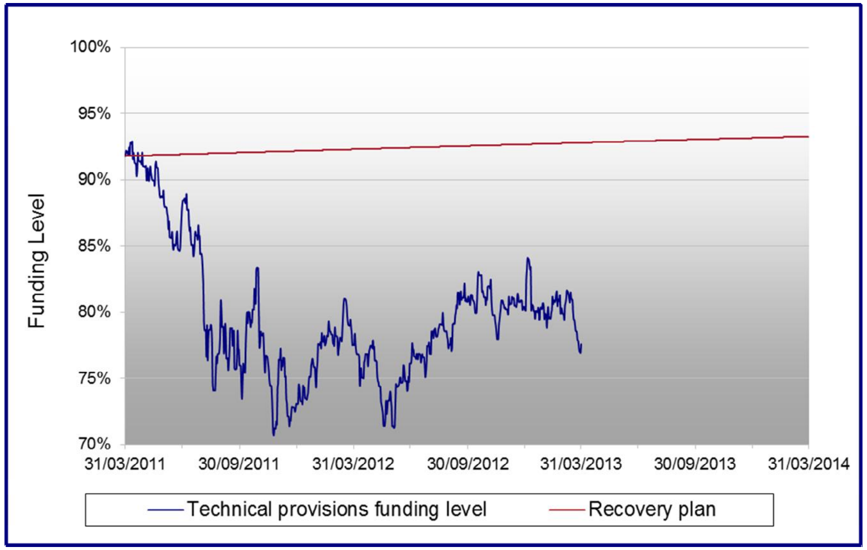
	As at 31 March 2011 (£ billion)	As at 31 March 2013 (£ billion)
Liabilities	47.6	69.8
Assets	32.4	38.6
Surplus / (Shortfall)	(15.2)	(31.2)
Funding level	68%	55%

Progress of Technical Provisions funding level against the Scheme Recovery Plan

1.8 At the 31 March 2011 actuarial valuation, the Trustee put in place a recovery plan setting out the contributions required to remove the shortfall in the Scheme. **Chart 1** shows the approximate funding level (blue line) since the valuation versus the level expected if experience was in line with the assumptions underlying the recovery plan (red line).

1.9 The deterioration in the Scheme's funding position compared to that expected is due to the effect of falling gilt yields offset to a small extent by the higher than expected investment returns.

Chart 1



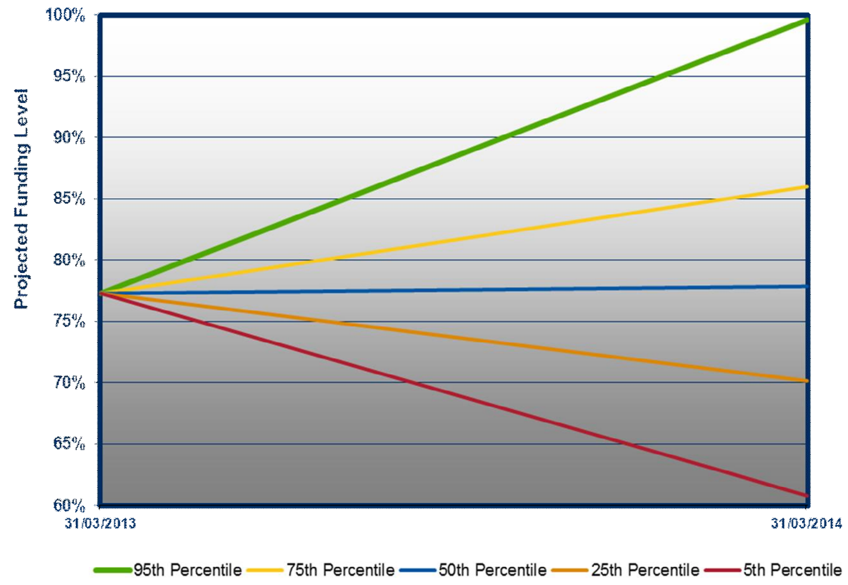
Volatility and risk

1.10 To help the Trustee understand the financial risk associated with the Scheme, **Chart 2** projects this financial update forward one year using approximations and broad assumptions about future experience, allowing for volatility in investment performance. The figures are based on probability techniques known as a value-at-risk (VaR) approach. The representation here does not allow for all the sources of volatility within the Scheme (for example, member experience) and does not illustrate the most extreme outcomes produced by the VaR model. The VaR analysis shown here is intended as a broad guide to the level of risk within the Scheme. Further advice would be needed to assess accurately the risk and consider potential actions arising.

1.11 **Chart 2** shows the funnel of doubt funding level progression over the next year to 31 March 2014. It illustrates the range and uncertainty in the future progression of the funding level relative to the funding target adopted at the 2011 valuation. Using a simplified VaR model, the chart shows the probability of exceeding a certain funding level. For example, the top green line shows the 95th percentile level (i.e. there is a 5% chance of the funding level at each point in time being better than the funding level shown, and a 95% chance of the funding level being lower).

1.12 To quantify this, there is a 5% chance in one year's time, (at 31 March 2014), that the funding level could be higher than 99% with a deficit of £0.6 billion. Alternatively, there is also a 5% chance that the funding level could be less than 60% with a deficit of more than £20.9 billion.

Chart 2



Summary of future service contribution rate

1.13 We have calculated an estimate of the future service contribution rates for both sections of the Scheme allowing for updated market conditions as at 31 March 2013 and the results are shown below.

1.14 **Table 4** shows both the Final Salary (FS) Section and the Career Revalued Benefit (CRB) Section future service contribution rates that would apply at 31 March 2013 if the rates were to be reassessed in line with the 2011 valuation approach. The 2011 actuarial valuation rates are shown for comparison (See the Appendix for assumptions).

1.15 Based on the contributions rates quoted in the table the estimated combined/blended rate of contribution to cover the cost of future accrual over the period from 1 April 2013 to 31 March 2014 is 25.8% per annum.

1.16 The future service rates have increased substantially on account of lower prevailing gilt yields compared with 2011 valuation market conditions. The employers are currently paying 16% of payroll. The future service contribution rate will be reviewed and agreed again at the next actuarial valuation; it is shown here for information only.

Table 4

	As at 31 March 2011		As at 31 March 2013	
	FS	CRB	FS	CRB
Total Employer and member future service contribution rate (% of Pensionable Salary)	20.3	11.7	26.7	19.1

2 Market conditions as at 31 March 2013 and subsequent developments

2.1 The key driver leading to the deterioration in the funding position and the increased cost of future accruals is the fall in yields (or expected returns) obtainable on both nominal and real gilts. The Scheme's Technical Provisions funding basis assumes that these reductions in expected returns on gilts is also reflected in the expected future returns on the other asset classes in which the Scheme invests its assets. **Table 5** below compares the fixed interest gilt yields, index-linked gilt yields and the implied market rate of inflation at 31 March 2013 with previous years. The quoted gilt yields are the liability weighted average of the respective yield curve based on the Scheme's projected liability profile.

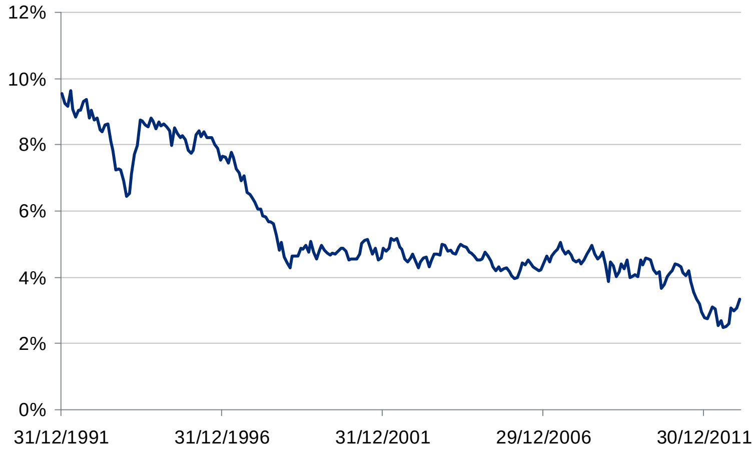
Table 5

% per annum	31 March 2011	31 March 2012	31 March 2013
Fixed interest gilt yield	4.4%	3.4%	3.1%
Index linked gilt yield	0.7%	-0.1%	-0.5%
Implied market rate of inflation	3.7%	3.5%	3.6%

Historic context

2.2 A longer-term history of gilt yields (by reference to the 20 year gilt yield) up to 31 March 2013 is shown in **Chart 3** below.

Chart 3



Commentary and subsequent developments

2.3 A combination of factors, two prominent ones being the UK Government's QE programme and the UK's perceived safe haven status against the background of greater economic uncertainty in Europe, meant that yields fell sharply particularly in the second half of 2011.

2.4 UK and global macro-economic factors continue to generate significant volatility over relatively short periods. For example, index-linked gilt yields have fallen by around 0.5% since the beginning of 2013 and, at the end of March 2013, were negative at most durations. In part the fall over this period was due to the ONS's confirmation in January that it would not be changing the methodology for the RPI calculation (when the consensus market expectation was that there would be a downward change). Both fixed interest and index-linked gilt yields also fell sharply towards the end of March 2013 (and into April 2013) which appeared to be from a combination of the Bank of Japan's announcement on its monetary easement policy, disappointing payroll data from the US and an update of the issuance calendar for index-linked gilts in the UK.

2.5 The volatility in the gilt and stock markets means that the overall funding position of the Scheme has remained volatile since 31 March 2013. As an example of this the Trustee may wish to note that as at 30 June 2013 we estimate that the funding level on a Technical Provisions basis had in fact improved materially to 83% (cf 77% as at 31 March 2013) corresponding to a deficit of £7.9bn (cf £11.5bn as at 31 March 2013).

3 Conclusions

3.1 This paper provides a summary of the Scheme's funding position at 31 March 2013 and a comparison with that expected based on the position at 31 March 2011 together with reasons for the difference. I would be happy to discuss the implications of the revised position with the Trustee.

Signature		**Date of signing**	4 October 2013
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 2011 actuarial valuation, the 2012 Actuarial Report and the quarterly updates as at 30 September 2011, 31 December 2011, 31 March 2012, 30 June 2012, 30 September 2012, 31 December 2012 and 31 March 2013.

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 2011 (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 2011 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 unaudited market value of the Scheme's assets at 31 March 2013 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.

APPENDIX

Funding assumptions

Table 6 below shows the assumptions used for this actuarial report and for the actuarial valuation as at 31 March 2011. The assumptions are based on the methodology set out in the Scheme's statement of funding principles as agreed at the actuarial valuation, but updated to reflect changes in financial conditions at 31 March 2013. The key assumptions are as follows:-

Table 6

Funding assumptions	Actuarial Valuation as at 31 March 2011	Actuarial Report as at 31 March 2013
Investment return - Technical Provisions	6.1% p.a.	4.8% p.a.
Investment return - gilts basis	4.4% p.a.	3.1% p.a.
Inflation – Retail Prices Index (RPI)	3.4% p.a.	3.3% p.a.
Inflation – Consumer Prices Index (CPI)	2.6% p.a.	2.5% p.a.
Salary growth	4.4% p.a.	4.3% p.a.
Deferred revaluation	2.6% p.a.	2.5% p.a.
Pension increases	2.6% p.a.	2.5% p.a.
Mortality – base table	S1NA "light" year of birth tables adjusted down 1 year for females	
Mortality – future improvements	CMI 2009 Projections with 1.25% p.a. long term rate	

The assumption shown above for CPI-linked inflation is based on the RPI assumption less 0.8%, which Mercer considers is generally appropriate at the most recent valuation date. However, as part of the next actuarial valuation, due as 31 March 2014, the Trustee will need to consider an appropriate assumption for CPI based on further actuarial advice.

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