

September 2010

Universities Superannuation Scheme

Actuarial report as at 31 March 2010

MERCER



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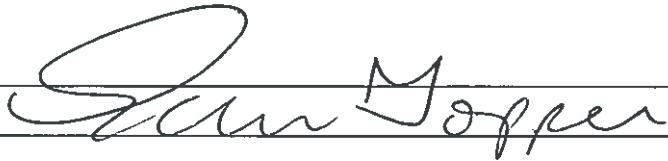
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Summary

1. Based on a methodology and assumptions consistent with the Statement of Funding Principles, the estimated coverage of the Scheme's technical provisions under the Statutory Funding Objective has deteriorated since the 2008 actuarial valuation. The deficit at 31 March 2010 is estimated to be £3,013.1 million, representing a funding level of 91%. This compares with a surplus of £707.3 million and a funding level of 103% at the previous actuarial valuation.
2. Based on the Trustee's historic gilt funding basis the current deficit is £17,390.6 million at 31 March 2010 representing a funding level of 63%. This compares with a deficit of £11,776.6 million and a funding level of 71% at the previous actuarial valuation.
3. If the future service contribution rate was recalculated at 31 March 2010 using the assumptions consistent with those set out in the Statement of Funding Principles, it would have increased to give a net Employer contribution rate of 16.5% of Pensionable Salaries. This is compared with 16% at the previous actuarial valuation.
4. If the technical provisions deficit was to be rectified by contributions alone then in order to correct a deficit of £3,013.1 million in, say, 30 years would require annual contributions of 2.3% per annum of Pensionable Salaries (assuming ongoing progression of pensionable payroll in line with the funding assumptions). This is in addition to the future service contribution rate.
5. The calculations contained in this report are approximate. The statement of funding principles agreed as part of the 2008 valuation does not require the Employer contributions to be reviewed at each actuarial report. The information provided in this paper is therefore for information only although, despite the deterioration over the 2 year period from 2008, I can confirm that I am content with waiting until the 2011 valuation before reviewing or amending the current contribution rates. The Trustee should not make any decisions relating to the funding of the Scheme without further advice from the Scheme Actuary.
6. None of the figures or projections in this actuarial report make any allowance for the changes to benefits and contributions which may come about from April 2011.

Signature



Scheme Actuary

E S Topper

Date of signing

6 October 2010

Qualification

Fellow of the Institute of Actuaries

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The approximate results in this report 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 2008 (updated to reflect changes in market conditions). This report does not contain recommendations of any changes to the method and assumption, contributions or benefit structure. As such, the Board for Actuarial Standards' guidance note GN49 version 1.0 (*Occupational Pension Schemes – Scheme funding matters on which advice of actuary must be obtained*) does not apply, and this report does not need to comply with actuarial guidance note GN9 version 8.1 (*Funding Defined Benefits – Presentation of Actuarial Advice*).

The work has been carried out in accordance with "Technical Actuarial Standard R: Reporting Actuarial Information" issued by the Board for Actuarial Standards and complies with the relevant requirements set out therein. This paper should be read in conjunction with the formal report for the 31 March 2008 actuarial valuation, the actuarial report as at 31 March 2009, the funding updates issued on a quarterly basis; and the mortality analysis completed in June 2010.

This report is addressed to USS Limited, the Trustee Company. The calculations in the report 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 report; nor does Mercer accept liability to the Trustee if the information is used for any purpose other than that stated (for example for company accounting, or corporate mergers or acquisitions).

This report may be disclosed to members and others who have a statutory right to see it. It may also be disclosed to any participating employer and, if the Trustees and Mercer consent, it may be disclosed to other parties.



Introduction

- 1.1 This paper is addressed to the Trustee of the Universities Superannuation Scheme (“the Scheme”). It has been prepared to satisfy the requirements of section 224 of the Pensions Act 2004. It summarises the results of a financial update (known as an “actuarial report”) of the Scheme’s funding position as at 31 March 2010. Under the Pensions Act an actuarial report is mandatory each year, unless an actuarial valuation takes place in that year.
- 1.2 The most recent actuarial valuation was carried out as at 31 March 2008. This was the Scheme’s first actuarial valuation under the Statutory Funding Objective (SFO) regulations.
- 1.3 The purpose of this actuarial report is to provide an approximate update of the funding position of the Scheme. The Trustee Company should then consider whether to commission an early valuation or review and if necessary revise the funding plan.
- 1.4 The results contained in this paper are on a consistent basis with those in the 2008 actuarial valuation and with the statement of funding principles, having been updated to reflect changes in market conditions and actual investment return over the period to 31 March 2010.
- 1.5 The calculations are approximate and intended to give a broad indication of the trend in the Scheme’s financial position over time. The calculations are done on a simplified basis that does not fully reflect changes in the Scheme’s membership profile and does not take account of all aspects of the Scheme’s experience.
- 1.6 This paper also shows the results on alternative bases to illustrate the effect of volatility in the key financial parameters; details possible deficit recovery plans; the level of risk taken within the current funding and investment strategy; and also the probability of achieving this funding target.
- 1.7 The assumptions used are summarised in Appendix A.
- 1.8 The figures calculated for this actuarial 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. As such, they should not

be relied upon for decisions relating to the Scheme without further advice from the Scheme Actuary.

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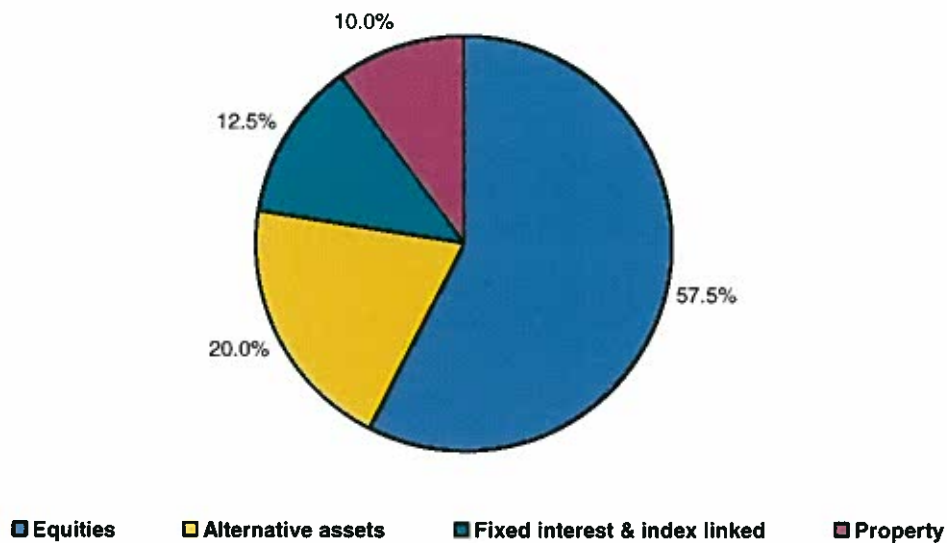
Funding objective

- 2.1 The Pensions Act 2004 and the Scheme Funding Regulations issued in 2005 require schemes to adopt the Statutory Funding Objective – to have sufficient and appropriate assets to cover their ‘technical provisions’. The 2008 actuarial valuation was the first valuation under this régime.
- 2.2 The ‘technical provisions’ are an estimate of the assets needed to make provision for benefits already accrued under a scheme.
- 2.3 The Trustee has decided on the funding objectives. These are set out in the Statement of Funding Principles dated 4 February 2009.
- 2.4 In summary, the agreed funding objective is to build up an asset base sufficient to cover the Scheme’s present benefit commitments as they fall due, together with those that will accrue in due course from future service, with appropriate allowance for, inter alia, the effect of future salary increases on the Scheme’s liabilities.
- 2.5 Under legislation, the assumptions underlying the technical provisions are set by the Trustee after consultation with the Employers. The assumptions include margins for prudence that the Trustee considers appropriate given the Employer’s willingness and ability to support the Scheme (the “employer covenant”).
- 2.6 The assumptions adopted for this review are in line with the Statement of Funding Principles updated in line with current market conditions as at 31 March 2010.

Assets

- 2.7 The market value of the Scheme’s assets (excluding additional voluntary contributions (AVCs) which are separately invested) was £29,738.4 million.

2.8 The Scheme's target strategic asset allocation is set out below:



2.9 During the period from the 2008 valuation to 31 March 2010 the investment return has been +2.2%.

2.10 Following the 2008 valuation it was agreed that the Employers would pay a contribution rate of 16% of Pensionable Salaries to the Scheme from 1 October 2009. Members' contributions and AVCs were payable in addition.

2.11 The detailed asset information is shown below:

Market value at review date	£millions
Equities:	
UK	8,366.2
Overseas	11,349.3
Bonds:	
UK Fixed interest	894.0
Overseas bonds	1,905.5
Property	1,999.7
Alternatives	3,234.7
Cash deposits/Other	1,989.0
Total	29,738.4

3**Past service funding position**

- 3.1 This section compares the value of the Scheme's assets with the value of the members' benefits in respect of completed pensionable service.
- 3.2 The 2008 actuarial valuation considered various measures of the Scheme's funding position:

Technical provisions coverage	103%
Trustee's historic gilt basis	71%
FRS17 coverage	104%
Wind-up funding level	79%
Pension Protection Fund (PPF) coverage	107%

We have updated each of the above funding levels, allowing for actual investment return and changes in market conditions over the period to 31 March 2010 and the results are detailed below.

Funding target coverage – technical provisions

- 3.3 The Scheme's technical provisions are calculated on the basis that it remains ongoing and benefits are paid as they fall due. In accordance with the agreed Statement of Funding Principles, the technical provisions include an allowance for future salary increases and take credit for anticipated investment out-performance by equities, relative to gilts and bonds. Further detail on the assumptions used to calculate the technical provisions is set out in Appendix A.
- 3.4 The table overleaf shows the estimated technical provisions at 31 March 2010 with the results of the 2009 actuarial report and the 2008 actuarial valuation shown for comparison purposes.

Funding target coverage (past service)	31 March 2010 £millions	31 March 2009 £millions	31 March 2008 £millions
Market value of assets	29,738.4	21,407.3	28,842.6
Value of liabilities	32,751.5	28,543.1	28,135.3
Past service surplus/(deficit)	(3,013.1)	(7,135.8)	707.3
Funding level	91%	75%	103%

At 31 March 2010 there is now a deficit of £3,013.1 million against the Scheme's technical provisions.

- 3.5 The table below shows how the surplus on the technical provisions basis at 31 March 2010 has changed from that revealed in the 2008 actuarial valuation.

Analysis of change in funding target coverage	£bn
Surplus at 31 March 2008	0.7
Interest on surplus	0.1
Lower than expected investment returns	(3.1)
Employer contributions versus the cost of benefit accrual	(0)
Change in market conditions	(0.6)
Miscellaneous	(0.1)
Deficit at 31 March 2010	(3.0)

The deterioration in the Scheme's funding position compared with that expected is mainly due to the investment return on the Scheme's assets being lower than expected.

Funding target coverage – trustee's historic gilts basis

- 3.6 The table below shows the results on the Trustee's historic gilts basis at 31 March 2010 with the results at the 2009 actuarial report and the 2008 actuarial valuation for comparison purposes.

Funding target coverage (past service)	31 March 2010 £millions	31 March 2009 £millions	31 March 2008 £millions
Market value of assets	29,738.4	21,407.3	28,842.6
Value of liabilities	47,129.0	41,167.9	40,619.2
Past service surplus/(deficit)	(17,390.6)	(19,760.6)	(11,776.6)
Funding level	63%	52%	71%

- 3.7 The table below shows how the surplus on the Trustee's historic gilts basis at

31 March 2010 has changed from that revealed in the 2008 actuarial valuation.

Analysis of change in funding target coverage	£bn
Deficit at 31 March 2008	11.8
Interest on deficit	1.1
Lower than expected investment returns	1.8
Employer contributions versus the cost of benefit accrual	1.2
Change in market conditions	0.9
Miscellaneous	0.6
Deficit at 31 March 2010	17.4

The deterioration in the Scheme's funding position compared with that expected is mainly due to the investment return on the Scheme's assets being lower than expected.

- 3.8 Several other factors (in addition to those analysed above) can affect the Scheme's funding position, such as the actual salary increases received by active members and the number of members leaving, retiring or dying compared with the assumptions made. For the purpose of this update these effects are assumed to be neutral.

Sensitivity to financial parameters

- 3.9 Gilt yields and the implied inflation rate can impact significantly on the funding position of the Scheme. The following table illustrates the sensitivity to variations in these key parameters using the 31 March 2010 historic funding basis results in section 3.6 as a starting point.

Change in assumption (each change considered in isolation)	Increase in past service liabilities at 31 March 2010
Valuation rate of interest decreased by 0.5% p.a.	£4.1bn
Real Salary growth inflation increased by 0.5% p.a.	£1.6bn
Pension increases, for pensions in payment, increased by 0.5% p.a.	£2.6bn

- 3.10 A change in the assumptions in the opposite direction would decrease the value of the past service liabilities by a similar amount.

Sensitivity to life expectancy

- 3.11 The actuarial profession continues to examine the trends in life expectancy as further investigations are carried out. Discussions are ongoing as to the rate of future improvements that should be allowed for in future mortality projections. An in-depth analysis of the Scheme's experience was completed in June this year which concluded that the base table and medium cohort projection incorporated at the last valuation may be still be appropriate. It was advised however to move to the new SAPS L model table. In addition the report also suggested introducing an improvement floor of 1% per annum.

- 3.12 Allowing for the 1% floor would add circa £1 billion or more to the historic gilts

basis liabilities or alternatively, moving to long cohort future improvements would add about £2.7 billion.

FRS17 funding position

- 3.13 We estimate that if the liabilities were valued using a basis consistent with the Company's accounting results under the accounting standard FRS17, the Scheme would have a funding level of approximately 81% equating to a deficit of £7,112.1 million as at 31 March 2010.
- 3.14 The FRS17 liability is one of the triggers used by the Pensions Regulator when assessing the adequacy of technical provisions.

Wind-up funding level

- 3.15 This measure looks at the Scheme's funding position on the assumption that it had been discontinued on the calculation date and the benefits bought out with an insurance company. There is now a liability on employers on the wind-up of a scheme, based on the cost of meeting benefits in full.
- 3.16 It is estimated that since the 2008 actuarial valuation, the Scheme's funding level on a wind-up basis has deteriorated to around 57% as at 31 March 2010, giving an estimated shortfall of £21,980.5 million.
- 3.17 This deterioration is primarily due to the return on the Scheme's assets being lower than assumed, and the fact that relatively more cautious assumptions, primarily discount rates, are now being adopted by insurers.
- 3.18 As the Scheme is less than 100% funded on this basis, not all members could have received their full benefits had the Scheme wound up on the date of this funding review.

Pension Protection Fund (PPF)

- 3.19 If the Scheme winds up when the Employer is insolvent and the PPF benefits are not covered, it may be eligible for the PPF. Based on the PPF benefits, and the financial and demographic assumptions prescribed for the PPF, the Scheme is estimated to be 112% funded equating to a surplus of £3,186.3 million at 31 March 2010. The PPF liability is one of the triggers used by the Pensions Regulator when assessing the adequacy of technical provisions.

4

Contribution requirements

- 4.1 The Employers' contribution rate is typically made up of the contribution for future service (the "normal contribution") and an adjustment to address any past service deficit.
- 4.2 The contributions have been estimated using a method and assumptions consistent with those used at the last valuation. They are shown for information only. Any further discussion of these will require further advice from the Scheme Actuary.
- 4.3 If the future service contribution rates were calculated on the historic basis at 31 March 2010 using the assumptions set out in the Statement of Funding Principles (summarised in Appendix A), they would be as follows.

	% of Pensionable Salaries		
	31 March 2010	31 March 2009	31 March 2008
Pension benefits (including life assurance costs)	22.55%	21.05%	22.05%
Administration expenses/levies	0.30%	0.30%	0.30%
Total	22.85%	21.35%	22.35%
Less members' contributions	(6.35%)	(6.35%)	(6.35%)
Employers' normal contribution	16.5%	15.00%	16.00%

- 4.4 As shown in section 3.4 the Scheme is now underfunded on its technical provisions therefore if a deficit recovery plan was put in place, additional contributions would need to be paid. For example if the deficit of £3,013.1million was to be recovered over a period of 30 years, additional contributions of 2.3% per annum of Pensionable Salaries would be required. Alternative deficit recovery plans are discussed in more detail in section 5 of this report.

- 4.5 In addition to the contributions discussed above, the Pension Protection Fund (PPF) levy is payable.

Sensitivity to financial parameters

- 4.6 The following table illustrates the sensitivity of the required contributions to variations in gilt yields and implied inflation using the 31 March 2010 results as a starting point.

Change in assumption (each change considered in isolation)	Increase in Employers' normal contribution rate
Valuation rate of interest reduced by 0.5% p.a.	2.3%
Rate of Salary Growth increased by 0.5% p.a.	1.2%
Rate of Pensions in payment increased by 0.5% p.a.	1.4%

- 4.7 As before, a change in the assumptions in the opposite direction would reduce the required contributions by broadly the same amount.

Sensitivity to life expectancy

- 4.8 Including a more prudent assumption of, say, moving to long cohort future improvements and including an improvement underpin of 1% p.a. will serve to increase the Employer normal contribution rates by:

Change in assumption (each change considered in isolation)	Increase in Employers' normal contribution rate
Moving to medium cohort with underpin	0.5%
Moving to long cohort	0.8%
Moving to long cohort with 1% underpin	1.2%

5

Deficit Recovery Plan

- 5.1 At the 31 March 2008 valuation date, USS was adequately funded against its technical provisions such that no recovery plan was implemented as part of the 2008 valuation. The position has deteriorated since that time and at the present time the Scheme shows a shortfall of £3,013.1 million against its technical provisions as at 31 March 2010.
- 5.2 If it were to be decided to put a recovery plan in place, then the assumptions for the deficit recovery plan as well as the length of the recovery plan would need to be agreed and documented.
- 5.3 The key aspect is whether the recovery plan assumptions could or should be different to the assumptions adopted for determining the technical provisions. The Pension Regulator's guidance refers to using "appropriate" assumptions for the scheme.
- 5.4 A ten year period is a natural length for consideration, as this is the Regulator's trigger point when assessing the length of recovery plans. That does not preclude the Trustee agreeing a shorter or longer recovery plan period although a longer plan would certainly fall under greater scrutiny/enquiry from the Regulator as to the reasons for such a decision. We have concentrated on recovery lengths of 10, 20 and 30 years in this report.
- 5.5 The traditional approach adopted by USS for levying contributions is expressing deficit recovery contributions as a percentage of pensionable payroll for the participating institutions as a single group. However, there is a large range of options for determining deficit contributions which would merit further exploration and these were highlighted in my papers dated March 2009 and February 2010.
- 5.6 The table overleaf sets out the potential **additional** contribution requirements for a recovery plan in respect of the current deficit of £3,013.1 million, based on the percentage of payroll approach. The table shows the additional percentage of payroll which would apply adopting a variety of recovery periods and also alternative values for the asset out-performance assumption assumed for growth on the assets and future contributions, starting from the 2% basis built in to the technical provisions. The figures at this stage assume no changes are made to the current benefits and employee contribution levels.

Additional Recovery Plan Contributions (% of payroll)

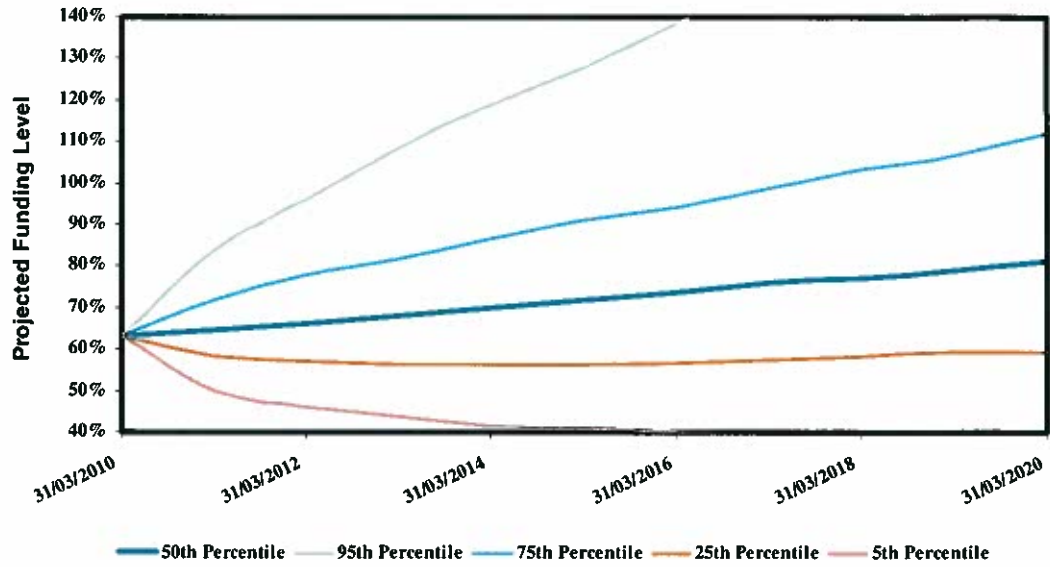
Length of recovery plan	Asset outperformance assumptions			
	2% per annum	2.5% per annum	3% per annum	3.5% per annum
10 years	5.7%	3%	0.3%	-2.3%
20 years	3.1%	0.2%	-2.7%	-5.6%
30 years	2.3%	-0.9%	-4.0%	-7.1%

- 5.7 For example it will take an additional 2.3% per annum of Pensionable Salary to be paid over 30 years to recover the deficit, assuming an asset out performance of 2% per annum is achieved on the assets. If 3% out-performance were to be built into the calculations a 30 year recovery plan would necessitate no extra contribution input.

6

Risk Management

- 6.1 Value at Risk (VaR) is a measure that can be used to help understand the significance and potential impact of the pension fund risks. The level of VaR shows the financial loss over the next 12 months that might be expected only 5% of the time – in essence a 1 in 20 worst case outcome. This is equivalent to saying that there is a 5% chance that the Scheme will experience a loss greater than the VaR in the coming year.
- 6.2 Based on a simplified model, focussing on certain key risks, we are able to provide a figure for the VaR. The particular risks modelled here are changing levels of assets based on the current investment strategy and changing levels of liabilities due to interest rates and longevity. Further detail on the model, including the underlying assumptions, is given in Appendix C.
- 6.3 Based on a deficit of £3,013.1 million as at 31 March 2010 there is a 5% chance that the deficit could exceed £9.8 billion in one year's time. There is also a 5% chance that there will be a surplus of more than £6.5 billion in one year's time. The upside potential is, of course, acceptable but the Trustee and sponsor may like to consider how the 5% downside risk might be managed. If this figure is outside the tolerance zone in terms of affordability, perhaps through increased contributions and stretches the required asset out-performance too far if no extra contributions are paid, then there may be mileage in discussing risk-reducing investment strategies or other methods of risk mitigation.
- 6.4 The following “funnel of doubt” chart demonstrates the range and uncertainty in the future progression of the funding level over the next 10 years, based on the current funding strategy and the funding position on the Trustee's historic gilt basis as at 31 March 2010. The various lines represent the probability of the funding level exceeding that point. For example, the 95th percentile line means that there is a 95% chance that future funding levels will be beneath this line, i.e. there is a 5% chance that the funding level will exceed this line at a point in time. The 50th percentile is the line whereby future funding levels are equally likely to be above or below the line – in other words this can be thought of as the “best estimate” for the future funding progression, based on the assumptions used. The projections assume continuation of the Employers and employee contributions over the period.



6.5 It can be seen therefore that there is a wide range of uncertainty in expected funding levels at any future review.

7

Tolerance Testing

- 7.1 Tolerance testing is based around probabilities and likelihoods. Rather than simply adjusting contributions in response to different funding positions, tolerance testing allows for other factors to be considered. Using this approach we can investigate factors such as:
- the overall probability that a funding plan will be successful (i.e. reach 100% funded by the end of the recovery period);
 - the additional contributions required over and above the current planned contributions such that full funding is targeted at the end of the recovery period on a best estimate basis;
 - what impact an increase in contribution rates might have on the actual chances of achieving full funding.
- 7.2 Equally, we can consider what level of investment performance would be required to achieve an acceptable probability of success.
- 7.3 Analysis in this way is in keeping with the long term outlook of the funding objective. Furthermore, the Trustee is responsible for monitoring the progress of the funding strategy and adjusting it if necessary. This tolerance testing approach helps provide the objective rationale for any decisions taken, whilst also demonstrating good oversight of the funding strategy.
- 7.4 On the Trustee's historic gilts basis, at the 2008 valuation the probability of reaching 100% funded in 20 years was 47%. This fell to 34% at 31 March 2009.
- 7.5 As at 31 March 2010 the funding level on the Trustee's historic gilts basis is now 63%, representing a funding deficit of £17,390.6 million. Recalculating the above probability based on these results reveals that the probability of success has now fallen to 42% as at 31 March 2010.
- 7.6 On the basis of central best estimate projections (as discussed in Appendix C) the funding target would now be expected (on a 50/50 probability basis) to be met by the end of 20 years by additional contributions approximately 6.5% of Pensionable Salary higher than the current planned contributions as implemented following the 2008 valuation (i.e. a total of 22.5% of pay

compared with 16% of pay). In other words, additional contributions of the order of 6.5% of payroll would be required to improve the current probability of success factor shown in paragraph 7.5 above to a minimum of 50%.

- 7.7 The model being used in this analysis is of course dependent on the input parameters. If these inputs to the model are adjusted (for example the anticipated investment returns, or the contributions paid by Employers, etc) then the projections are altered, as is the assessed overall probability of success. The table on the next page shows how the probability of success figures change for increasing levels of Employer contributions (left to right) and various levels of expected asset out-performance relative to gilts (top to bottom).
- 7.8 This analysis enables consideration of a number of important questions around the funding strategy. Does an acceptable probability of success come from a reasonable level of asset performance? Should contributions be increased if the required returns from assets are not considered to be reasonably achievable? Does the probability of success increase sufficiently for any affordable level of contribution increase to make such an increase worthwhile?

Probability of success – 10 year period starting 63% funded at 31 March 2010 (Trustee's historic gilts basis)

Outperformance over gilts from return-seeking assets	Outperformance from total assets (overall AOA)	Changes to employer Contributions					
		No adjustments to certified amounts	+1% of Pensionable Salary	+2% of Pensionable Salary	+3% of Pensionable Salary	+4% of Pensionable Salary	+5% of Pensionable Salary
2.5%	2.3%	22%	23%	24%	25%	26%	26%
2.75%	2.5%	23%	24%	25%	26%	26%	27%
3.0%	2.7%	25%	26%	26%	27%	28%	29%
3.25%	2.9%	26%	27%	28%	28%	29%	30%
3.5%	3.2%	27%	28%	29%	29%	30%	31%
3.75%	3.4%	28%	29%	30%	31%	32%	32%
4.0%	3.6%	30%	31%	31%	32%	33%	34%
4.25%	3.8%	31%	32%	33%	33%	34%	36%
4.5%	4.1%	32%	33%	34%	35%	36%	37%

The probabilities are quite sensitive to the starting point and length of recovery period. We table on the following page the comparable numbers based on a 20 year recovery period. These charts broadly indicate that a 50% probability of "success" (which one would expect on a "best estimate set of assumptions) is more achievable over 20 years. Significant de-risking of the investment portfolio, however, would clearly reduce the probabilities in all scenarios.

Probability of success – 20 year period, starting 63% funded at 31 March 2010 (Trustee's historic gilts basis)

Outperformance over gilts from return-seeking assets	Outperformance from total assets (overall AOA)	Changes to employer Contributions					
		No adjustments to certified amounts	+1% of Pensionable Salary	+2% of Pensionable Salary	+3% of Pensionable Salary	+4% of Pensionable Salary	+5% of Pensionable Salary
2.5%	2.3%	34%	35%	36%	38%	39%	40%
2.75%	2.5%	36%	37%	39%	40%	41%	42%
3.0%	2.7%	38%	40%	41%	42%	43%	44%
3.25%	2.9%	41%	41%	43%	44%	45%	46%
3.5%	3.2%	42%	44%	45%	46%	47%	49%
3.75%	3.4%	45%	46%	47%	48%	49%	50%
4.0%	3.6%	47%	48%	49%	50%	52%	53%
4.25%	3.8%	49%	50%	51%	53%	54%	55%
4.5%	4.1%	51%	53%	54%	55%	56%	57%

Appendix A

Assumptions

- A.1 The assumptions used for the calculation of the Scheme's technical provisions are set out in the Statement of Funding Principles agreed as part of the 2008 actuarial valuation. They assume that the investment return both before and after retirement would be 2.0% per annum above gilt yields. This is to reflect that the Trustee also holds corporate bonds, property and equities and alternatives on which it is expected, over the long term, to achieve greater returns than would be achieved from a purely gilt portfolio. The historic gilts basis did not anticipate this out-performance when valuing past service liabilities but did make a 1.7% p.a. allowance in calculating the future service costs of accrual.
- A.2 The assumptions used in this actuarial report are consistent with those set out in the Statement of Funding Principles, updated to reflect market conditions at 31 March 2010.
- A.3 The relevant yield and the market's view of long-term inflation are:

	31 March 2010	31 March 2009	31 March 2008
Fixed interest gilt yield	4.5%	4.3%	4.4%
Inflation implied by market	3.8%	3.3%	3.6%

- A.4 The assumptions used for assessing coverage against the Trustee's funding target can therefore be summarised as follows:

Financial	31 March 2010	31 March 2009	31 March 2008
Discount rate – past and future service - technical provisions basis	6.5% p.a.	6.3% p.a.	6.4% p.a.

Financial	31 March 2010	31 March 2009	31 March 2008
Discount rate –past service-historic basis	4.5% p.a.	4.3% p.a.	4.4% p.a.
Discount rate – future service – historic basis	6.2% p.a.	6.0% p.a.	6.1% p.a.
Salary increases	4.5% p.a.	4.0% p.a.	4.3% p.a.
Inflation Risk Premium	0.3% p.a.	0.3% p.a.	0.3% p.a.
Price inflation (inclusive of inflation risk premium)	3.5% p.a.	3.0% p.a.	3.3% p.a.
Pension increases	3.5% p.a.	3.0% p.a.	3.3% p.a.
Demographic			
Mortality – base table	PA92 (tables using year of birth and adjusted by -1 year for male members, and no adjustment for female members)		
Mortality – future improvements	Medium cohort projections		
Other demographic assumptions are in line with those used in the 2008 actuarial valuation			

Appendix B

Actuarial Report as at 31 March 2010

This paper is addressed to the Trustee of the Universities Superannuation Scheme (“the Scheme”). It summarises the results of a financial update (known as an “actuarial report”) of the Scheme’s funding position as at 31 March 2010. It has been prepared to satisfy the requirements of section 224 of the Pensions Act 2004. An actuarial report must be prepared each year, unless an actuarial valuation takes place in that year.

The most recent actuarial valuation was carried out as at 31 March 2008. At that date the Scheme showed a surplus of £707.3 million relative to its technical provisions, equivalent to a funding level of 103%.

If the assumptions used for the 2008 actuarial valuation had been borne out in practice, then based on the agreed contributions, we would have expected the surplus of £707.3 million as at 31 March 2008 to have increased to £797 million at 31 March 2010, equivalent to a funding level of 102% relative to its technical provisions.

Our updated calculations show that at 31 March 2010 the deficit was £3,013.1 million, equivalent to a funding level of 91%.

The deterioration in the Scheme’s funding position compared with that expected is largely due to the investment return on the Scheme’s assets being lower than expected.

The market value of the Scheme’s assets at 31 March 2010 was £29,738.4 million, an increase of £895.8 million since the valuation date.

The figures calculated for this actuarial 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 2008 actuarial valuation.)

Signature**Scheme Actuary**

E S Topper

Date of signing

6 October 2010

Qualification

Fellow of the Institute of Actuaries

The approximate results in this report 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 2008 (updated to reflect changes in market conditions). This report does not contain recommendations of any changes to the method and assumption, contributions or benefit structure. As such, the Board for Actuarial Standards' guidance note GN49 version 1.0 (*Occupational Pension Schemes – Scheme funding matters on which advice of actuary must be obtained*) does not apply, and this report does not need to comply with actuarial guidance note GN9 version 8.1 (*Funding Defined Benefits – Presentation of Actuarial Advice*).

The work has been carried out in accordance with "Technical Actuarial Standard R: Reporting Actuarial Information" issued by the Board for Actuarial Standards and complies with the relevant requirements set out therein. This paper should be read in conjunction with the formal report for the 31 March 2008 actuarial valuation, the actuarial report as at 31 March 2009, the funding updates issued on a quarterly basis; and the mortality analysis completed in June 2010.

This report is addressed to USS Limited, the Trustee Company. The calculations in the report 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 report; nor does Mercer accept liability to the Trustee if the information is used for any purpose other than that stated (for example for company accounting, or corporate mergers or acquisitions).

This report may be disclosed to members and others who have a statutory right to see it. It may also be disclosed to any participating employer and, if the Trustees and Mercer consent, it may be disclosed to other parties.

Appendix C

Pension Risk Model Summary

The model allows for indicative analysis of investment risk in relation to scheme funding, using a simplified approach rather than the more complex modelling required for detailed accuracy. More sophisticated tools are available and should be used in particular for any review of investment strategy, for example involving Risk Budgeting and Asset-Liability modelling.

The model allows for two asset classes – “Return Seeking” and “Liability Hedging”. We have taken account of the Scheme’s investment strategy and apportioned each actual asset class into one of the two asset classes for the purposes of the model.

The return seeking assets are assumed to have an expected “outperformance” of 3.5% per annum i.e. on average the risk seeking assets will produce returns at a level of 3.5% per annum in excess of the liability hedging assets. This figure represents the return seeking assets’ level of β (beta), i.e. the general asset performance expected from the “return seeking” assets due to the performance of the market in general. No allowance has been made for α (alpha), e.g. due to manager outperformance. Whilst it is relatively easy to observe an historic level of outperformance, the expected level of future asset out-performance is open to debate and opinions may vary. The approach adopted by Mercer to determine a figure for this assumption is based on economic fundamentals. The figure of 3.5% p.a. is broadly in the middle of the range suggested by academic research and is in line with that being used by other industry practitioners.

The model allows for the risk of the assumptions not being in line with expectations. Three risks are allowed for:

- Return-seeking assets against liabilities – the volatility of returns achieved on the return-seeking assets compared with the risk-hedging assets.
- Interest rate – the volatility of the present value of the liabilities relative to a holding of cash.
- * Longevity – the uncertainty surrounding the future mortality assumptions.

The modelling software generates 2,500 sets of results assuming the above risks follow lognormal distributions and the risks and probabilities are derived from these results. For the first two risks, a market-consistent measure of volatility can be derived by analysing option prices. The relative levels of volatility for these two risks are taken as

18% and 13% respectively. The longevity risk is the least significant of the three and so the exact level of volatility is less critical. In this model, longevity volatility is assumed to be of the order of 3%.

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