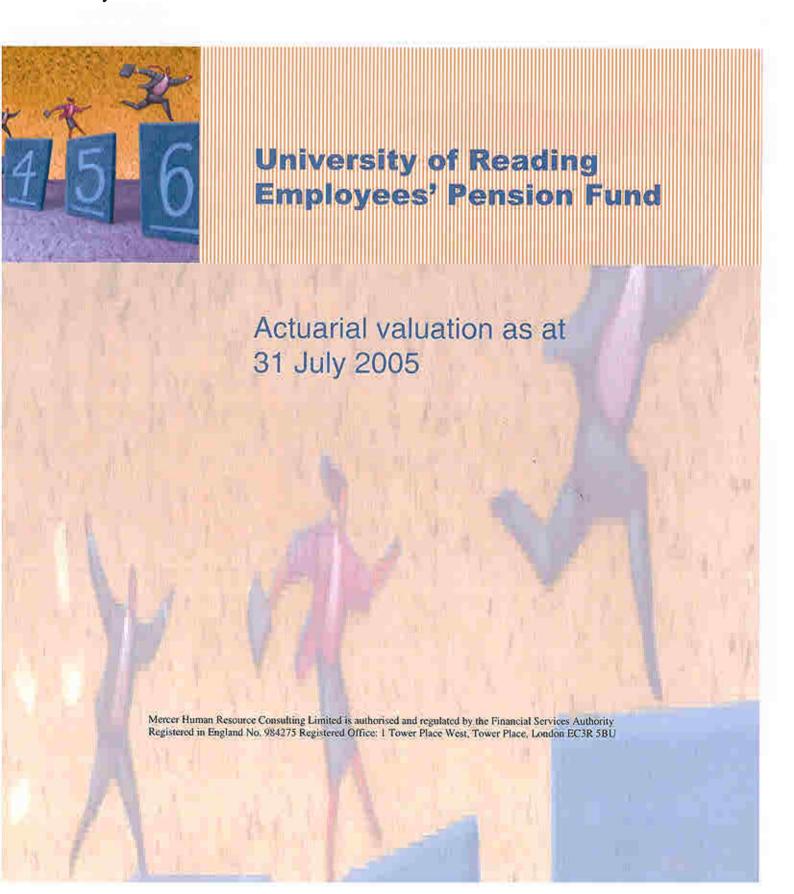
## **MERCER**

**Human Resource Consulting** 

July 2006







An actuarial valuation of the University of Reading Employees' Pension Fund ("the Fund") has been carried out as at 31 July 2005.

The key conclusions from the valuation are:

- if the Fund had been discontinued at the valuation date there would have been insufficient Fund assets to buy out all the accrued benefits with an insurance company. The estimated wind-up funding level at the valuation date was 59%, corresponding to a deficit of £43.9 million;
- considering the Fund on an ongoing basis, there was a deficit of £9.1 million at the valuation date based on the assumptions made. This represents an ongoing funding level of 87%;
- the funding level on the statutory Minimum Funding Requirement (MFR) was 123%, corresponding to a surplus of £11.9 million, at the valuation date;
- based on the assumptions used to assess the ongoing funding level, the cost to the University of the benefits accruing for future service is 20.6% of members' total Salaries;
- the University and the Trustees have agreed that the University will contribute 20.6% of members' total Salaries from 1 August 2006 to cover the cost of future benefit accrual and an additional £1 million per annum from 1 August 2007 to fund the deficit on the ongoing basis. Member contributions, age-related rebates and the PPF levy are payable in addition. Members will contribute as set out in the Fund's Rules;
- based on consistent assumptions as at 30 June 2006, updated to reflect changes in market conditions and known experience to 30 June 2006, we estimate that the deficit had reduced to £5.7 million. If the ongoing assumptions are borne out in practice, the contributions outlined above will eliminate the deficit of £5.7 million on the ongoing funding basis by 31 July 2015;
- a Schedule of Contributions will be able to be certified based on the above contribution pattern unless there are significant changes to financial conditions before certification;
- the funding position and contribution requirements are sensitive to the assumptions adopted and actual experience. The scope for variability is illustrated in Section 7.



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1.	Introduction	1
2.	WIND-UP FUNDING RESULTS	2
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## **Appendices**

- A. 2005 ONGOING ACTUARIAL ASSUMPTIONS
- B. ASSETS AND FINANCIAL TRANSACTIONS
- C. MEMBERSHIP DATA
- D. EVENTS DURING THE INTER-VALUATION PERIOD
- E. BENEFITS

#### Certificates

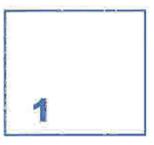
- A. STATEMENT OF FUNDING TARGET COVERAGE
- B. MINIMUM FUNDING REQUIREMENT STATEMENT

This report has been prepared in accordance with version 7.0 of the Institute and Faculty of Actuaries' – "Guidance Note 9: Funding Defined Benefits – Actuarial reports' (not version (8.0) current at the date this report is signed. This is permitted for a valuation date prior to 22 September 2005).

This report is addressed to the Trustees. It may be disclosed to members, who have a statutory right to see it, or to other parties with the consent of the Trustees. It may be used by the University and Fund members as a guide to the Fund's funding position. We do not accept responsibility to third parties for a use of this report not referred to above.

The calculations in the report use methods and assumptions appropriate for reviewing the financial position of the Fund and determining the appropriate University contribution rate to the Fund for the future. It should not be assumed that the figures in the report are also appropriate for other purposes (such as company accounting or corporate mergers/acquisitions).





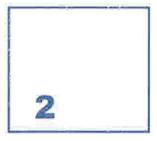
#### Introduction

1.1 This report sets out the results of the actuarial valuation of the University of Reading Employees' Pension Fund ("the Fund") as at 31 July 2005.

#### **Purpose of valuation**

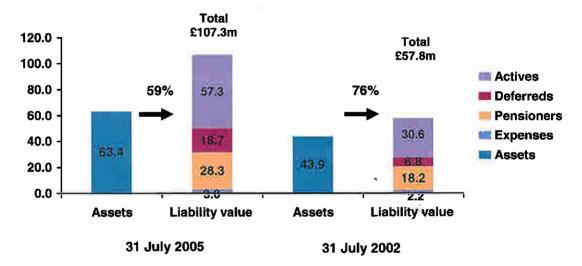
- 1.2 The primary aims of the actuarial valuation are to review the financial position of the Fund and to determine appropriate University contributions to the Fund for the future.
- 1.3 In particular, the valuation aims:
  - to assess whether the Fund would have sufficient resources were it to discontinue;
  - to assess the financial position of the Fund on an ongoing basis;
  - to determine whether the Fund's assets are sufficient to satisfy the statutory Minimum Funding Requirement (MFR);
  - and, taking the above into account, to determine the appropriate future level of University contributions.
- 1.4 Under the provisions of the Trust Deed and Rules, the contribution rate is set by the University with the agreement of the Trustees.
- 1.5 The valuation has been carried out on the instruction of the Trustees, and in accordance with Clause 9 of the Fund's Trust Deed and Rules dated 27 March 1980 and Section 57 of the Pensions Act 1995.
- 1.6 The previous actuarial valuation of the Fund was carried out as at 31 July 2002 by Chris Maggs of Mercer Human Resource Consulting Limited.





## Wind-up funding results

- 2.1 In this section, we consider the Fund's funding if it had been discontinued on the valuation date and the benefits bought out with an insurance company.
- 2.2 In doing this, it is assumed that no further benefits accrue, no further contributions are paid and active members are entitled to benefits on the basis they had left service on the valuation date. There is no allowance for any discretionary benefits being paid in the future.
- 2.3 The wind-up funding level of the Fund at the valuation date has been estimated as 59%. This has deteriorated from 76% since the previous valuation due mainly to the strengthening of the basis used to measure the liabilities.



- 2.4 As the Fund is less than 100% funded on this basis, not all members could have received their full benefits from the Fund's assets had the Fund wound-up on the valuation date.
- 2.5 There is now a liability on employers on wind-up of a scheme based on the cost of meeting benefits in full. The estimated shortfall at the valuation date amounted to £43.9 million.



- 2.6 If the Fund winds-up when the University is insolvent and unable to make sufficient additional contributions, it may be eligible for the Pension Protection Fund (PPF). More detail on the level of benefits provided by the PPF is given in section 5.
- 2.7 Given the Trustees' current investment policy, the wind-up position on a given date may be significantly different from the position estimated at the valuation date.
- The assessments above have been carried out using experience of recent buy-out quotations and understanding of the factors affecting this market. Detailed analysis of the reserves that would need to be held has not been carried out. Approximate allowance has been made for the reserves a provider would maintain to cover the risks involved and the statutory reserving requirements. Thus these results are only a guide to the wind-up position and should not be taken as a quotation. Market changes, both in interest rates and in supply and demand for buy-out business, means that if buy-out were to ultimately proceed, actual quotations may differ. The financial assumptions used are as follows:

Benefits for active and deferred members	% p.a.
Investment return (pre and post retirement)	3.50
Indexation pre retirement	3.10
RPI and 6% LPI pension increases post retirement	3.10
Benefits for current pensioners	% p.a.
Investment return	3.80
RPI and 6% LPI pension increases	2.80

2.9 Mortality assumptions are adopted that reflect our understanding of insurance company mortality bases. These are based on the PA92 tables, with allowance for the recently observed improvements in longevity to be continued in the medium term. The following tables have been used:

Non-retired members	PA92	(year of birth) medium cohort
Retired members	PA92	(year of birth) medium cohort





## **Funding target**

- 3.1 As pension benefits build up in the Fund, assets are also built up from contributions and the investment returns on those contributions. This process of making advance provision to meet the pension benefits that are accruing is known as funding.
- 3.2 The University and Trustees have agreed to a funding target based on the Fund remaining open and active members continuing to accrue benefits.
- 3.3 The agreed funding objective is to reach by 2015, and then maintain, assets equal to 100% of the value of the projected past service liabilities, assessed on an ongoing basis, allowing for future salary increases for active members.
- 3.4 Using the wind-up valuation result described in Section 2 as a starting point, the ongoing valuation result can be reached by making the following adjustments:
  - the reserve is increased to allow for future salary increases for active members. At the same time adjustments are made to bring in the demographic assumptions appropriate for an ongoing valuation. This means that it is no longer assumed that all active members leave the Fund on the valuation date. Instead, allowance is made for active members to withdraw from service at later dates through leaving employment or early retirement;
  - the reserve is reduced in anticipation of future investment returns in excess of the rate assumed in the wind-up valuation basis (which is related to gilt yields);
  - the reserve is reduced to remove insurance company profit margins, contingency margins and expense loadings.



3.5 The transition to the ongoing funding target from the wind-up valuation result is shown in the table below.

	31 July 2005 Emillion
Wind-up valuation	107.3
Add salary increases and additional decrements	6.5
Reduce for anticipated investment returns and removal of margins	(38.3)
Remove expenses	(3.0)
Ongoing valuation (technical provisions)	72.5

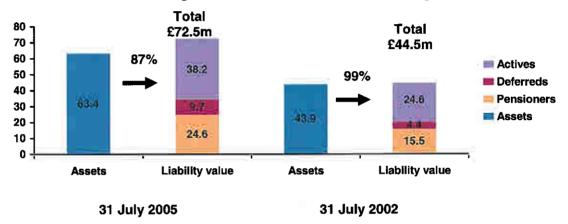
3.6 Further detail on the ongoing valuation result is shown in the next section.





## **Ongoing valuation results**

4.1 The value of the liabilities on the ongoing valuation basis is shown below, compared with the market value of the Fund's assets at the valuation date. The benefits valued are those in respect of pensionable service completed up to 31 July 2005 and allowance is made for future salary increases for active members. The results at the previous valuation are shown for comparison.



- 4.2 The deficit on this basis is £9.1 million at 31 July 2005 as against £0.5 million (before rounding) at 31 July 2002. This represents a funding level on the ongoing basis of 87%. The value of the liabilities of £72.5 million will be known as the 'technical provisions' under the new Statutory Funding Objective.
- 4.3 The main financial and demographic assumptions on which these results are based are set out overleaf.



	· ·	2005 Wind up Valuation(1)	2005 Ongoing Valuation	2002 Ongoing Valuation
-	Investment return pre-retirement	3.50% p.a.	6.50% p.a.	7.00% p.a.
•	Investment return post-retirement	3.50%/3.80% p.a. <sup>(P)</sup>	5.00% p.a.	5.50% p.a.
•	RPI price inflation increases	3.10%/2.80% p.a. <sup>(P)</sup>	2.75% p.a.	2.50% p.a.
-	Salary increases	3.10% p.a. <sup>(2)</sup>	4.25% p.a.	4.00% p.a.
•	Pension increases in payment	3.10%/2.80% p.a. <sup>(P)</sup>	2.75% p.a.	2.50% p.a.
	Non-retired members' mortality	PA92 (YOB) MC	PA92 (YOB ) MC	PA92 Base - 3 years
•	Retired members' mortality	PA92 (YOB) MC	PA92 (YOB ) MC	PA92 Base - 1 year

- (1) Some of the assumptions differ for pensioners and non-pensioners. Those marked (P) relate to pensioners.
- (2) In the wind-up valuation, all members are assumed to leave service, so this is the rate of revaluation of deferred pensions.
- As an illustration of the mortality rates included in the above table, the assumed average ages at death for a male at age 65 are shown below:

	PA92(YOB) MC	PA92 Base -
Non-retired members' mortality		3 years
	87.7 years*	84.4 years
	PA92(YOB) MC	PA92 Base
Retired members' mortality	27 18	1 year
	86.1 years**	82.8 years

<sup>\*</sup> based on the average year of birth (YOB) for non-retired members in the Fund.

- 4.5 The financial assumptions have been derived from the long term yield on Government bonds in the market at the valuation date.
- 4.6 The table below sets out a summary of the market yields at the valuation date, together with the yields at the date of the previous valuation:

	31 July 2005	31 July 2002
Yield on 20 year Government fixed interest stock	4.38%	4.90%
Yield on over 5 year Government index- linked stock assuming 3% inflation	1.59%	2.42%
Market expectation for inflation (long-term)	2.75%	2.42%

<sup>\*\*</sup> based on the average year of birth (YOB) for retired members in the Fund.





- 4.7 In the wind-up valuation, the liabilities are valued by discounting at rates of return derived from yields available in the gilt market at the valuation, reduced to include in the liability value an approximate reserve for the risk that the benefits will not be met by the investments.
- 4.8 The investments that most closely match pension liabilities are gilts. However, the Fund invests in other assets, in the expectation that these will provide higher returns (and hence reduce contribution requirements). There is, of course, no guarantee that higher returns will be achieved over any particular period. The potential excess returns will depend on the investment strategy adopted.
- 4.9 As at 31 July 2005 the Fund's investments were split approximately 22% in gilts and cash, and 78% in equities and property. Consideration should be given to the assumed rate of out-performance of the investment portfolio relative to gilts.
- 4.10 It is a matter of judgment what the expected out-performance relative to gilts should be. For members not yet retired, it is reasonable to consider the potential for added value from the equity investments held by the Trustees. A reasonable expectation of outperformance may be 2% to 2.5% above the return on gilts. The Trustees have agreed that taking credit for outperformance of 2.1% per annum is appropriate over the long term. This is on the basis that the potential for substantial under and out performance on a yearly basis is acknowledged. Post retirement, the assumption is that members' benefits are funded by bonds. However, the actual assets held for post-retirement are a mixture of gilts and equities. The Trustees have therefore agreed to take advanced credit for outperformance of 0.6% per annum over gilts. Again the potential volatility and impact on funding is acknowledged. In Section 7 we illustrate the sensitivity of the past service liabilities and contribution requirements to the assumed out performance relative to gilts.

#### Inflation

4.11 As shown in the table in 4.6, the market expectation for inflation in the long-term is currently 2.75% p.a. For the purpose of the valuation, inflation is assumed to be at this rate.

#### Salary increases

4.12 The wind-up calculations do not include allowance for future salary increases for active members. For the ongoing basis, following discussions with the University, the assumption for future real salary increases (i.e. salary increases in excess of price inflation) is 1.5% p.a. i.e. a total increase of 4.25% p.a..



#### Pension increases

- 4.13 The Fund guarantees to increase all pensions in payment, in excess of the Guaranteed Minimum Pension, in line with RPI subject to a maximum of 6% p.a. (6% LPI). Though possible, it appears unlikely at present that there will be significant periods of inflation above 6%. Therefore, pensions in payment in excess of the Guaranteed Minimum Pension are assumed to increase in line with RPI at 2.75% p.a..
- 4.14 A summary of the above assumptions and the remaining assumptions used in valuing the liabilities is set out in Appendix A.
- 4.15 The basis of valuing the assets (at market value) is consistent with that of valuing the liabilities. Details of the assets held at the valuation date are given in Appendix B.

#### Analysis of change in funding position

4.16 The key factors influencing the change in the ongoing funding position since the previous valuation in 2002 are shown below.

Analysis of movement in deficit	£million
Surplus/(Deficit) at 31 July 2002	(0.5)
Interest on deficit	(0.1)
Higher than expected investment returns	7.8
Higher than expected salary increases	(1.5)
Contributions less than cost of benefit accrual	(0.3)
Change in underlying financial assumptions	(7.1)
Impact of improved longevity expectations	(7.2)
Miscellaneous	(0.2)
Surplus/(Deficit) at 31 July 2005	° (9.1)





## Other funding measures

#### Minimum Funding Requirement (MFR)

- 5.1 Although the MFR will be replaced by the Statutory Funding Objective for future valuations, this valuation is still subject to its requirements.
- 5.2 If a scheme is not sufficiently well funded to meet the MFR test, additional contributions must be paid to redress the shortfall over timescales laid down by legislation.
- 5.3 At the valuation date the MFR funding level was assessed as 123%.
- 5.4 Whilst the MFR is not generally appropriate for long term funding, it may for some schemes effectively override the contribution pattern used purely on the funding target selected by the Trustees.
- 5.5 The above funding level means that it is unlikely that the MFR test will influence the University contribution rate, which is considered in Section 6.
- 5.6 The financial and demographic assumptions used to value the liabilities are set down by legislation.
- 5.7 The MFR funding level is calculated as the ratio of the market value of the Fund's assets to the value of its accrued liabilities at the valuation date. The benefits valued are those built up prior to 31 July 2005; active members are assumed to have left the Fund on this date. No allowance is made in the liability valuation for discretionary benefits.
- 5.8 As the MFR funding level is more than 100%, future contributions must be such that it is expected to remain above 100% for the five years following the Schedule of Contributions being put in place.



### 5.9 The detail of the MFR funding assessment is shown below:

active members' benefits	23.1 5.9
	5.0
deferred pensioners' benefits	5.5
pensioners' benefits	20.5
expense provision	2.0
Total	51.5
Market value of assets	63.4
Surplus/(deficit)	11.9
MFR Funding level	123%

5.10 An MFR statement certifying the MFR funding level is included at the end of the report.

#### Pension Protection Fund (PPF)

- 5.11 The benefits that the PPF could provide would be broadly 100% of pension for members over pension age and 90% for members under pension age. Under the current PPF provisions:
  - pension increases are granted at the rate of 2.5% LPI in respect of post April 1997 service only. Pre April 1997 accrued pensions are not increased;
  - all deferred pensions will be revalued over the period to retirement in line with the increases in the RPI over the same period, or 5% per annum if less;
  - spouse's pensions are 50% of the member's PPF benefit;
  - the pensions of members aged less than their scheme's normal pension age when the scheme enters the PPF will be capped. The cap depends on the scheme's normal pension age and will increase in line with earnings. For example, in 2005/06 the cap is £27,778 at age 65 or £24,444 at age 60 (before application of the 90% referred to above).
- 5.12 Based on the PPF benefits, and the financial and demographic assumptions prescribed for valuations carried out for the purposes of determining the funding level for the PPF levy, the Fund is estimated to be 84% funded as at 31 July 2005.



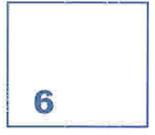
#### 5.13 The results of the PPF valuation are shown below.

Valuation details	£million	
Total assets	63.4	
Present value of:		
pensioners' benefits	21.6	
deferred pensioners' benefits	11.3	
active members' benefits	39.7	
expense provision	2.9	
Total liabilities	75.5	
Surplus/(Deficit)	(12.1)	
PPF funding level	84%	

- 5.14 At the valuation date the Fund had insufficient assets to cover the PPF benefits.

  On wind-up at that date, without additional contributions from the University, the Fund would have entered the PPF if the University was insolvent.
- 5.15 In this case, after meeting the expenses of winding-up and money purchase AVCs, the assets would be used to meet the benefits that would be covered under the PPF. Only once this had been done would the remaining assets, if any, go towards meeting benefits and benefit increases above those covered by the PPF. Benefits secured by AVC added years are only partly protected by the PPF in line with other defined benefits.





## **Contribution requirement**

6.1 Following the previous valuation at 31 July 2002, the University agreed to contribute at the following rates as a percentage of members' total Salaries.

Year ending	Contribution rate (%)	
31 July 2003	8.5	
31 July 2004	14.0	
31 July 2005	16.0	
31 July 2006	18.0	
31 July 2007	20.0	

- 6.2 The contributions payable looking forward are made up of three elements:
  - a contribution to cover the cost of the future service accrual (including the cost of death in service benefits and expenses) over the year;
  - an adjustment to address the deficit in respect of past service (the £9.1 million revealed in 4.1);
  - the levy to the Pension Protection Fund (PPF).
- 6.3 The table below shows the first of these, the cost of the benefits being accrued over the year commencing 1 August 2005, together with the cost at the previous valuation for comparison. This cost is calculated as the value of benefits expected to accrue to the membership in respect of one year's service based on projected Pensionable Salaries. The figures are expressed as percentages of members' total Salaries.

	2005 %	2002
Contribution rate for:		
<ul><li>pension and death in service benefits</li><li>age related rebates</li><li>administrative expenses</li></ul>	27.65 (3.40) 2.60	20.75 (3.40) 2.00
Total contribution rate	26.85	19.35
Member contribution rate	(6.25)	(6.25)
University contribution rate	20.60	13.10



#### Analysis of change in University normal contribution

6.4 The key factors influencing the change in the University normal contribution since the previous valuation in 2002 are shown below.

Analysis of movement in normal cost	%
University normal contribution at 31 July 2002	13.1
Change in financial assumptions	3.2
Change in mortality assumption	2.6
Change in expense allowance	0.6
Change in average age of membership	0.6
Miscellaneous	0.5
University normal contribution at 31 July 2005	20.6

#### Stability of contribution rates

- 6.5 The actuarial method used to calculate the costs shown in the table in 6.3 is known as the Projected Unit method. This is the same as the method used at the previous valuation.
- 6.6 If the membership profile remains stable in terms of age and sex, and the assumptions are borne out, then the normal contribution rate (as a percentage of members' total Salaries) will remain stable. The method implicitly allows for new entrants replacing leavers.

#### Additional contributions to address deficit

- As noted in 6.2, the contributions that will need to be paid by the University comprise the cost of the benefits being accrued over the year, plus amounts to address the past service deficit and meet the PPF levy. Thus far, only the first of these has been considered.
- 6.8 The table below sets out the additional contributions required were the shortfall to be met over a 5, 10 and 15 year period. These contributions are assumed to take effect from 31 July 2006. It should be noted that the Pension Regulator has indicated that spreading deficits over periods longer than 10 years is likely to trigger further scrutiny.

Additional annual contributions over	% Members' total Salaries	Fixed amount £000s
5 years	13.6	2,260
10 years	7.2	1,310
15 years	5.0	1,000

6.9 Based on consistent assumptions as at 30 June 2006, updated to reflect changes in market conditions and known experience to 30 June 2006, we estimate that the deficit had reduced to £5.7 million.



6.10 The University has agreed with the Trustees to contribute 20.6% of members' total Salaries from 1 August 2006 to cover the cost of future benefit accrual and an additional £1 million per annum from 1 August 2007 to fund the deficit on the ongoing basis by 2015. These contributions will continue until 1 August 2015, subject to review at future valuations. Member contributions, age related rebates and the PPF levy are payable in addition.

#### **Pension Protection Fund**

- 6.11 Further contributions are required to pay the levy for the PPF introduced by the 2004 Pensions Act. For the year ended 31 March 2006 this was around £25,000, being based on flat rates per member. For the year ending 31 March 2007, the risk-based element proposed by the Government has been introduced so the levy will depend critically on the University's D&B rating.
- 6.12 We understand that the University has an excellent D&B rating (around 99) in which case there is unlikely to be a significant change in the PPF levy payable during the year ending 31 March 2007. The PPF levy is payable in addition to the contribution programme set out in 6.10 above.

#### Impact on wind-up position

- 6.13 Although the funding target is not explicitly wind-up-related, it is important to consider how the wind-up funding level could move over time, given the particular pattern of University contributions ultimately agreed upon.
- 6.14 As an illustration, the contributions required on the ongoing basis over 3 years, with additional contributions of £1 million in year 2007/8, would be expected to improve the wind-up funding level by around 3% up to the next actuarial valuation in 2008.
- 6.15 This assessment has been based on the 2005 ongoing valuation assumptions in 4.3 being borne out during this period.

...<sub>.</sub>





## Understanding the scope for variability

- 7.1 The University contributions illustrated in the previous section are based on the valuation results set out in sections 4.1 and 6.3. These in turn depend on the financial and demographic assumptions set out in Appendix A.
- 7.2 It is likely, especially in the short-term, that these assumptions will not be borne out in practice. It is therefore important to consider the potential impact on the University contribution rate of actual experience differing from what has been assumed.

#### Sensitivity to key assumptions

7.3 Investment return, inflation, salary increase and life expectancy assumptions impact significantly on the funding position and the following table illustrates the sensitivity to variations in these key assumptions over the long term. The figures in the table are approximate but give an indication of the change in past service liabilities. The base point is the ongoing liability value of £72.5 million shown in section 4.1. Each row of the table considers one change in isolation, with all other assumptions being unaltered. The same change in the assumption in the opposite direction would decrease the liability value by broadly an equivalent amount.

Change in assumptions	Increase in past service liabilities at 31 July 2005 £million
Pre-retirement investment return reduced by 0.25% p.a.	+ 1.0
Post-retirement investment return reduced by 0.25% p.a.	+ 2.1
RPI price inflation increased by 0.25% p.a.	+ 2.9
Real salary growth increased by 0.25% p.a.	+ 0.7
Life expectancy increased by one year	+ 2.2

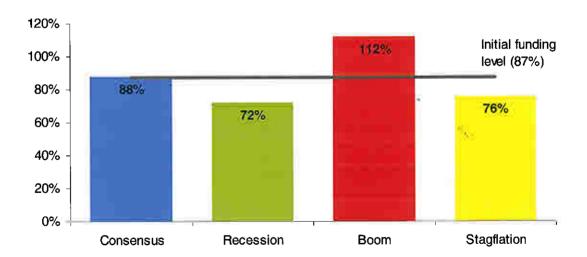
7.4 Similarly these assumptions impact significantly on the cost of the benefits accruing over the year. The following table illustrates the sensitivity to variations in these key assumptions over the long term. The starting point here is the University normal cost of 20.6% shown in section 6.3. Each row of the table considers one change in isolation, with all other assumptions being unaltered. As before, the same change in the assumption in the opposite direction would give rise to a decrease in the University normal contribution of a broadly equivalent amount.



Change in assumptions	Increase in
	<b>University normal</b>
	contribution rate
	at 31 July 2005
	% members' total
<u> </u>	Salaries
Pre-retirement investment return reduced by 0.25% p.a.	+ 0.6
Post-retirement investment return reduced by 0.25% p.a.	+ 0.8
RPI price inflation increased by 0.25% p.a.	+ 1.4
Real salary growth increased by 0.25% p.a.	+ 0.6
Life expectancy increased by one year	+ 0.8

## Scenario analysis

7.5 Scenario analysis shows the potential impact of a range of possible economic outcomes on the past service funding position and the normal contribution rate (on the ongoing basis) over the three years to 31 July 2008. The following chart shows the Fund's approximate funding level at 31 July 2008 under each scenario. It assumes that the University contributes 20.6% of members' total Salaries from 1 August 2006 to cover the cost of future benefit accrual and no changes to investment strategy. It does not allow for the additional £1 million in 2007/8 to meet the past service deficit.

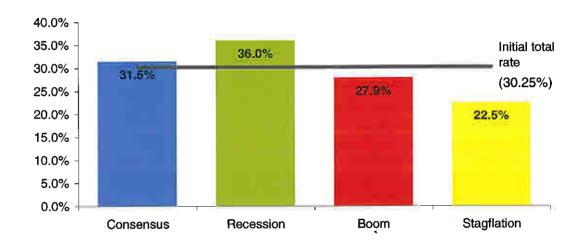




- 7.6 The scenarios investigated are designed to form a broad spectrum of possible outcomes; they do not represent extremes nor are they all equally likely to occur. In summary, the four scenarios considered are:
  - Consensus (moderate growth, low inflation);
  - Recession (low growth, low inflation);
  - Boom (high growth, moderate inflation);
  - Stagflation (low growth, high inflation).

Full details of the financial assumptions underlying each scenario can be provided if required.

7.7 The cost of future benefit accrual also differs under each scenario, and the following chart shows the normal contribution rate (i.e. before adjustment for surplus or deficit) at 31 July 2008. The rates include an allowance for expenses of 2.6% and are before the deduction of age-related rebates.



- 7.8 In these analyses, it has been assumed that the Trustees will continue to invest a significant proportion of the Fund's assets in equities, and that these will produce a future investment return that exceeds the current yield available on bonds.
- 7.9 Alternative investment strategies could be followed that would minimise the risk of deterioration in one of the measures of the Fund's funding position. In particular, consideration should be given to raising the proportion of bond investment. This strategy would reduce the risk that changing economic conditions will cause deterioration in the Fund's ongoing and wind-up funding positions. It would also tend to produce a more stable contribution rate but at a higher overall level than indicated in section 6.
- 7.10 We recommend that the Trustees and University keep the investment strategy under review and satisfy themselves that the level of risk in their investment strategy is appropriate.





#### Conclusions and recommendation

- 8.1 The agreed University contributions are as follows:
  - 20.6% of members' total Salaries from 1 August 2006 to cover the cost of the future service accrual (including the cost of death in service benefits and expenses);
  - £1 million per annum from 1 August 2007 to address the past service deficit;
  - the PPF levy is payable in addition.
- 8.2 No further contributions are required from the University to meet Fund expenses or death in service benefits as allowance for these is included in the amounts above. Member contributions (including any additional voluntary contributions) and age-related rebates are payable in addition to the above rates.
- 8.3 Contributions will generally be paid monthly in arrears with each payment due by the 19th of each month.
- 8.4 This pattern of contributions is consistent with the funding target and my recommendations, for the period to the next formal actuarial valuation.
- 8.5 A Schedule of Contributions will be prepared based on the contributions described in this section although it should be noted that the contributions are subject to validation based on market conditions at the date of certification of the Schedule. This validation should be a straightforward exercise unless there are significant changes to financial conditions before the date of certification.
- 8.6 The next valuation should be carried out no later than 31 July 2008 or earlier if the Trustees feel the financial position of the University or Fund has changed so higher contributions can be afforded or are required. The next valuation will be carried out under the new funding regime introduced under the Pensions Act 2004.

Qualification

Fellow of the Institute of Actuaries



Signature	In Gal
Scheme Actuary	Iain Johnson
Date of signing	21 July 2006





## 2005 ongoing actuarial assumptions

The key assumptions used in 2005 and 2002 are shown below. Apart from mortality, where the tables have been updated to reflect projected improvements in life expectancy indicated by recent studies, the demographic assumptions are the same as those used in 2002.

#### **Financial Assumptions**

	Valuation at 31 July 2005 (% p.a.)	Valuation at 31 July 2002 (% p.a.)
Pre-retirement investment return	6.50	7.00
Post-retirement investment return	5.00	5.50
Salary increases	4.25	4.00
Price inflation	2.75	2.50
Post-retirement pension increases	2.75	2.50

#### **Demographic assumptions**

Mortality			
The following mortality table	es were used:	e used:	
	Valuation at 31 July 2005	Valuation at 31 July 2002	
Non-retired members	PMA92 (yob) mc for males	PMA92 Base - 3 for males	
	PFA92 (yob) mc for females	PFA92 Base - 3 for females	
Retired members	PMA92 (yob) mc for males	PMA92 Base - 1 for males	
	PFA92 (yob) mc for females	PFA92 Base - 1 for females	

#### **Early retirement**

For members who joined the Fund before 1 April 1988 (or female entrants between 1 April and 31 October 1988 who elected for a pension age of 60) it has been assumed that 50% of males and 100% of females will retire at age 60 with an unreduced pension. The remaining members are assumed to retire at age 65.



#### III-health retirement

On early retirement by reason of ill-health after five years' Pensionable Service, and with the consent of the University, an immediate pension becomes payable unreduced for early payment. It is based on Pensionable Salary at the date of early retirement and Pensionable Service completed plus half the period from the date of retirement to the date on which Pension Age will be attained.

It is assumed that ill-health retirements will occur in accordance with a table from which the following is an extract:

	Retirements per yea	r per 10,000 members
Age	Males	Females
30	1	2
35	4	7
40	8	20
45	19	40
50	37	92
55	66	186
60	128	380

#### Withdrawal rates

	% leaving	each year
Age	Males	Females
25	5.3	17.1
30	4.4	14.2
35	3.4	10.1
40	2.4	6.4
45	1.4	3.4
50	0.6	1.2
55 and over	0	.· O

#### Proportions married and age difference

At age 65, for example, it is assumed that in 90% of death cases a dependant's pension will be payable. The proportion varies according to a table depending on the member's age. It is assumed that wives are, on average, three years younger than their husbands.

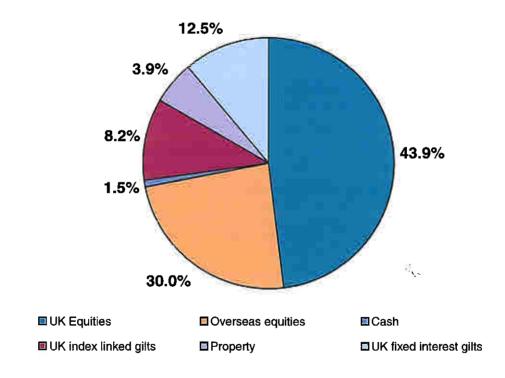
#### Commutation

There is no allowance for pension to be commuted for a cash sum at retirement.



#### Assets and financial transactions

- B.1 The market value of the Fund's assets taken from the audited accounts (excluding additional voluntary contributions (AVCs) which are separately invested) was £63.4 million, on the valuation date.
- B.2 The distribution of the assets (excluding AVCs and net current assets of £0.5 million) by asset class is shown below:



- B.3 During the inter-valuation period, the investment return has been approximately 11.8% per annum.
- B.4 Details of the assets at the valuation date and the financial transactions during the inter-valuation period have been obtained from the audited accounts for the Fund.



B.5 Following the previous valuation it was agreed that the University would pay contributions to the Fund as set out in 6.1. Members' contributions, age-related rebates and AVCs were payable in addition. The audited accounts confirm that contributions have been paid at the agreed rates.





## Membership data

C.1 The membership data is summarised below, with figures at the previous valuation shown for comparison.

Active members	31 July 2005	31 July 2002
Number	823	920
Total Salaries (£000s p.a.)	14,668	12,107
Average Salary (£ p.a.)	17,822	13,160
Average age	50	49
Average past service	8.6	7.9

In 2005, for part-timers, full-time equivalent salaries are shown whereas in 2002 actual part-time salaries are shown. In 2002, salaries were estimated for 34 members whose salaries were not given in the data.

Deferred pensioners	31 July 2005	31 July 2002
Number	655	449
Total deferred pensions (£000s p.a.) (including revaluation to date of valuation)	772	453
Average deferred pension (£ p.a.)	1,179	1,009
Average age	47	45

In 2005, for a few members whose deferred pension was not given in the data an average pension was assumed.

Pensioners	31 July 2005	31 July 2002
Number	603	526
Total pensions payable (£000s p.a.)	1,547	1,200
Average pension (£ p.a.)	2,565	2,281
Average age	72	71

In 2005, for 3 members whose pension was not given in the data, an average pension was assumed.

C.2 The average Salary increase for the Fund members who were in service for the whole of the inter-valuation period was 5.8% per annum (based on full-time equivalent salaries for part-timers).



C.3 During the intervaluation period pensions in payment in excess of Guaranteed Minimum Pensions (GMPs) were increased as guaranteed under the Fund Rules as follows:

1 April 2003	1.7%
1 April 2004	2.8%
1 April 2005	3.1%

- C.4 Membership data was supplied by Gissings. The accuracy of the data provided has been relied upon, although it has been checked for general reasonableness.
- C.5 The number of members valued (2,081) does not agree with the number (2,065) shown in the Trustees' Report & Accounts for the year ended 31 July 2005. There are discrepancies in each category of beneficiary although the overall difference of 16 is not material in the context of the valuation results. Also, there are still some outstanding data queries which have not been answered satisfactorily by Gissings. However, we do not believe any data amendments resulting from these queries will have a material impact on the results.





## Events during the inter-valuation period

- D.1 Since the actuarial valuation as at 31 July 2002, the following benefit changes have occurred:
  - Spouses' Pensions A dependant's pension was introduced which applies to all categories of member and is only payable if there is no legal spouse. The "death bed marriage" rule was removed.
  - Salary disregard
    The salary disregard was extended to apply to anyone whose salary has
    been reduced due to infirmity or ill-health within 5 years of leaving or
    death, irrespective of age. The current salary applicable to the member's
    former grade before reduction took place should be used in salary
    disregard cases and salary should include payments for working unsocial
    hours.
- D.2 A number of changes have been made to benefits post the valuation date relating to Civil Partners and changes to Revenue Rules effective 6 April 2006. These are not material to the valuation results.





#### Benefits

- E.1 The benefits valued are as set out in the Trust Deed and Rules dated 27 March 1980 and subsequent amending deeds. Minor benefit changes since 31 July 2002 are detailed in Appendix D.
- E.2 The benefits that will emerge from money purchase AVCs paid by members have been excluded from the valuation, as have the corresponding assets, because the value of these liabilities is exactly matched by these assets. Defined benefit AVCs are included in the valuation assets and liabilities.
- E.3 The key benefits that applied to members in service at the valuation date are described below:

**Definitions** 

**Pension Age:** 

65<sup>th</sup> birthday for most members.

Pensionable Service:

Means the number of years (complete months counting pro rata) of contributory membership in the Fund up to Pension Age or earlier retirement or leaving service, together with any other periods credited in respect of a transfer payment or for other reasons. Pensionable Service completed whilst a part-time employee is reduced to reflect the proportion of full-time hours worked.

Salary:

Means basic annual salary. This includes unsocial hours payments and non-residential supplement but excludes overtime and other fluctuating items. For a part-timer, salary is up-rated to its full-time equivalent.

Pensionable Salary:

Means Salary averaged over the last 12 complete calendar months to Pension Age or the earlier date of leaving. The average over any 12 consecutive calendar months from the last 36 complete months will be taken if this gives a higher amount.



#### **Eligibility**

Non-academic staff are eligible to join the Fund provided they are over age 16 but under age 60, are not temporary or casual workers and are not otherwise pensionable in respect of earnings from the University. A member of staff who does not join the Fund on entering employment may do so at any time during the first 3 years' service if still eligible to do so. After this time entry is subject to the consent of the University.

#### **Benefits on retirement**

- (a) At Pension Age a member is entitled to a pension calculated as 1/60 of Pensionable Salary for each year of Pensionable Service. Members who, in 1972, chose not to contribute at the new rate have their benefit for Pensionable Service prior to 1 April 1978 based on an accrual rate of 1/80.
- (b) On early retirement by reason of ill-health after 5 years' Pensionable Service and with the consent of the University, an immediate pension becomes payable calculated as in (a), based on Pensionable Salary at the date of early retirement and Pensionable Service completed plus half the period from the date of retirement to the date on which Pension Age will be attained.
- (c) Members may retire early in circumstances other than ill-health with the University's consent provided they have attained age 50. In this event, the pension calculated as in (a) above is reduced to reflect its early commencement. The reduction does not apply on retirement at or after age 60 in respect of a member who joined the Fund before 1 April 1988 or a female entrant between 1 April and 31 October 1988 who elected for a Pension Age of 60.
- (d) With the consent of the University a member may remain in service after Pension Age. In this case a member may cease to contribute and accrue benefit after Pension Age. At Pension Age the benefit is calculated using the normal formula and, on eventual retirement, it is then increased to reflect the period by which payment is postponed. Alternatively, it may be possible to continue contributing and accruing benefit in the normal way.
- (e) A retiring member may commute part of his pension for a lump sum or for an additional spouse's pension payable after his death. In both cases the terms of conversion are on a basis advised by the actuary.



#### Benefit on death after retirement

In this event a spouse's pension normally becomes payable until death equal to half the pension to which the member was entitled at retirement (before commuting part for a lump sum). When a pension is payable, it will be at a reduced rate if the member is more than 10 years older than the spouse. If death occurs within 5 years of retirement a lump sum is also paid, under discretionary trusts, which represents the balance of the first 5 years' pension payments.

Children's pensions may also become payable, as in (a)(iii) under death in service (see below).

#### Death in service benefit

- (a) On death in service before Pension Age and before leaving the Fund the following benefits become payable in respect of a contributory member:
  - (i) A lump sum, paid under discretionary trusts, equal to the member's contributions (plus interest at 2.5% p.a.) together with three times the member's salary averaged over the 12 months before death.
  - (ii) A spouse's pension equal to 1/120 of Pensionable Salary for each year of Pensionable Service. The pension is payable at a reduced rate if the member is more than 10 years older than the spouse. It ceases on death.
  - (iii) A further pension in respect of a child under age 18 (for up to two such children). The child's pension is 1/240 of Pensionable Salary for each year of Pensionable Service. It is doubled if no pension becomes payable under (ii) above.
- (b) On death in service after Pension Age a member is treated as having retired immediately before death.

#### Benefits available on leaving the Fund

A member who leaves the Fund is entitled to a deferred pension, payable from Pension Age, calculated as for retirement at Pension Age. This pension increases during deferment as required by legislation. As an alternative to this pension a member may have its cash equivalent transferred to another approved scheme or an appropriate insurance policy.

A member who withdraws from the Fund whilst remaining in service receives benefits as above. A member who withdraws is not permitted to rejoin unless the University agrees and the member is in good health.



#### **Contributions**

Members contribute 6.25% of Salary to the Fund for normal benefits. They may also pay additional voluntary contributions to the Fund either to secure further Pensionable Service or into an external arrangement.

The University meets the balance of cost of the Fund, as assessed at regular actuarial valuations.

#### Pension increases

Part of the pension represents the Guaranteed Minimum Pension. This is increased according to statutory requirements. Any excess is increased each year by the rate of increase in the Retail Prices Index subject to a maximum of 6%.

#### Benefit and contribution limits

Benefits and contributions are restricted to conform with the limits required to maintain approval of the Fund by HM Revenue & Customs.

Note: the above summary is not comprehensive and definitive details of the Fund's provisions are described in its Trust Deed and Rules.

E.4 UK and European law requires pension schemes to provide equal benefits to men and women in respect of service after 17 May 1990 (the date of the "Barber" judgement). There is still no general agreement on whether this applies to inequalities caused by Guaranteed Minimum Pensions (GMPs) and, if it does, what adjustments have to be made to scheme benefits to correct these inequalities. The valuation makes no allowance for equalisation of these inequalities. Consequently, it is possible that additional funding will be required for equalisation once the law has been clarified. It is recommended that the Trustees seek further professional advice if they are concerned about this issue.





## Statement of funding target coverage

Actuarial Statement made for the purposes of Regulation 30 of the Occupational Pension Schemes (Minimum Funding Requirement and Actuarial Valuations) Regulations 1996

Name of Scheme University of Reading Employees' Pension Fund

Effective date of valuation

31 July 2005

#### 1. Security of prospective rights

In my opinion, the resources of the Scheme are likely in the normal course of events to meet in full the liabilities of the Scheme as they fall due. This statement assumes the Scheme continues and does not mean that should the Scheme wind up there would be sufficient assets to provide the full accrued benefits.

I have made assumptions consistent with market values, prospective investment returns and economic conditions at the effective date. Significant changes in market values of the assets after the effective date may mean that the assumptions and market values on which it is based are no longer appropriate. Depending on the circumstances, alternative assumptions may be appropriate (or contributions may need to be increased at or before the next valuation). It should also be noted that the University's ability to meet future contribution requirements has not been assessed.

In giving this opinion, I have assumed that the following amounts will be paid to the Scheme:

- Member contributions: 6.25% of Salary;
- University contributions: up to 1 August 2006: 18% of members' total Salaries;

from 1 August 2006: 20.6% of members' total Salaries;

from 1 August 2007: 20.6% of members' total Salaries

plus £1 million per annum

subject to review at future actuarial valuations.



## 2. Summary of methods and assumptions used

Valuation method	Projected unit
Investment return pre retirement	6.50% per annum
Investment return post retirement	5.00% per annum
Salary increases	4.25% per annum
Pension increases	2.75% per annum

Further details of the methods and assumptions used are set out in my actuarial valuation addressed to the Trustees dated July 2006.

Signature	Fair John
Name	Iain Johnson
Date of signing	21 July 2006
Address	Mercer Human Resource Consulting Limited Four Brindleyplace Birmingham B1 2JQ
Qualification	Fellow of the Institute of Actuaries





## **Minimum Funding Requirement Statement**

Actuarial Statement made for the purposes of Regulation 14 of the Occupational Pension Schemes (Minimum Funding Requirement and Actuarial Valuations) Regulations 1996

Name of Scheme
University of Reading Employees' Pension Fund

Effective date of valuation

31 July 2005

#### 1. Compliance with Minimum Funding Requirement

In my opinion, on the effective date the value of the assets of the Scheme exceeds 120% of the amount of the liabilities of the Scheme.

#### 2. Valuation principles

The Scheme's assets and liabilities are valued in accordance with section 56(3) of the Pensions Act 1995, the Occupational Pension Schemes (Minimum Funding Requirement and Actuarial Valuations) Regulations 1996 and the mandatory guidelines on Minimum Funding Requirement (GN27), prepared and published by the Institute of Actuaries and the Faculty of Actuaries.

Signature	Tai On
Name	Iain Johnson
Date of signing	21 July 2006
Address	Mercer Human Resource Consulting Limited Four Brindleyplace, Birmingham B1 2JQ
Qualification	Fellow of the Institute of Actuaries

**NOTE:** The valuation of the amount of the liabilities of the Scheme does not reflect the cost of securing those liabilities by the purchase of annuities, if the Scheme were to have been wound up on the effective date of the valuation.

# MERCER Human Resource Consulting

Four Brindleyplace Birmingham B1 2JQ

0121 631 3343 Fax 0121 644 3791









