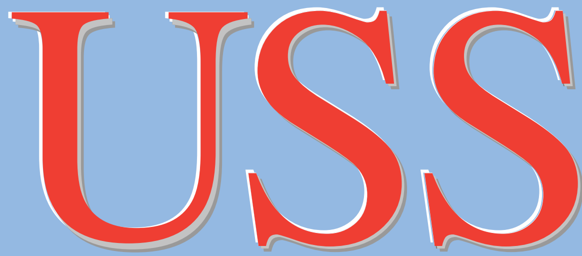

Actuarial Valuation Report

as at 31 March 2005

Universities Superannuation Scheme

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Chief Executive T H Merchant
Chief Investment Officer P G Moon

UNIVERSITIES SUPERANNUATION SCHEME

Actuarial valuation as at 31 March 2005

A triennial actuarial valuation of Universities Superannuation Scheme has been carried out as at 31 March 2005 by the actuary, Mr E S Topper of Mercer Human Resource Consulting Limited.

Mr Topper's report on the 2005 actuarial valuation was accepted by the USS management committee at its meeting on 24 November 2005. The result of the actuarial valuation and the main features of the report were announced to delegates attending the annual meeting of USS institutions on 1 December 2005 (the full report of which can be viewed on the USS website www.usshq.co.uk).

The report on the 2005 actuarial valuation is being made available to all USS institutions and it is printed in full in this booklet. The results of the valuation may be summarised as follows:

1 The employers' contribution rate is maintained at 14% of annual salary and the employees' contribution rate is maintained at 6.35% of annual salary.

2 The assets of the scheme at the valuation date were 77% of the accrued liabilities based on projected pensionable salaries with a past service deficit of £6,568 million.

3 The scheme is 126% funded using the MFR prescribed assumptions introduced by the Pensions Act 1995. The scheme is 110% funded in terms of the PPF regulations introduced by the Pensions Act 2004.

4 The valuation includes a reserve of £800 million to take account of recent promotional salary experience. Further analysis of promotional salary increases will be carried out to determine whether the unexpectedly high rate of increase in 2002-05 has been a temporary phenomenon or represents a genuine long-term trend.

5 The contribution rate will be subject to review at the next actuarial valuation which is due to take place at 31 March 2008. Depending on the analysis of promotional salary increases and other factors referred to below, it may be necessary to consider the contribution rate in advance of the next actuarial valuation.

6 Although not referred to in the valuation report and not a requirement for USS, the actuary has estimated that the funding level at 31 March 2005 using the FRS17 formula was approximately 90%.

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Authorised and regulated by the Financial Services Authority.

As can be seen by the disparity between the MFR and PPF bases of valuation on the one hand and USS's own assumptions on the other hand, the USS assumptions have been and remain conservative. The scope for variation in the funding level is substantial, depending on the various economic circumstances that can arise. For example, increasing the valuation rate of interest by 1% would reduce the liabilities by approximately £4 billion.

However, there are a number of issues which the trustee company, and indeed the sector, will need to address in the coming months which impact on the funding of the scheme. The increase in the promotional salary scale already experienced, the implementation of the new pay spine and the move to a more competitive recruitment market in higher education and the potential for further salary increases arising from the introduction of increased student fees are important factors. Also improving mortality, the introduction of the Pension Protection Fund levy and new statutory funding regulations all put pressure on the funding of the scheme and increase the likelihood of an increase in the contribution rate at some point in the near future. These are issues on which we will be consulting with you during 2006.

The management committee considers that the funding objective, the valuation method and the assumptions underlying the valuation calculations together represent a satisfactory basis for the long-term funding of the benefits provided by USS.

T H Merchant
Chief Executive

January 2006

Highlights

1. Key Results

- After discussion it has been agreed that the Employer contribution rate should remain at 14% of salaries and that the Employee contribution should remain at 6.35% of salaries, pending a review at the next actuarial valuation or sooner;

- The funding level of the Scheme (i.e. the ratio of assets to accrued liabilities) at 31 March 2005 on an ongoing basis was 77% (see Paragraph 1.3) and on a buy-out basis was 74% (see paragraph 1.14). The funding level on the MFR basis was 126% (see paragraph 1.10) and on the PPF basis was 110% (see addendum).

- In light of the considerable swings in markets since the 2002 valuation, the nature of the demographic and financial assumptions used in the ongoing and solvency valuations, the significant positive cash flows and equity oriented investment strategy, I have recommended to the trustee that the ongoing funding deficit can be carried forward until the next valuation (see paragraphs 1.16 and 1.17);

- The trustee has retained the conservative assumptions used in the previous valuation for valuing the past service liabilities (see Section 3 and paragraph 3.12). The scope for variation in the funding level is substantial, depending on the various economic circumstances that could arise. Increasing the valuation rate of interest, for example, by 1% per annum would reduce the liabilities by approximately £4bn.

- Although not relevant to this valuation, the trustee has given consideration to the new statutory funding regulations (see addendum) which will apply to the Scheme from the date of the next valuation in 2008. Although full details of the new regulations have not yet been finalised, the Pensions Regulator's initial guidance

has provided an indication of the kind of funding which would generally be considered acceptable. On the basis of this I have advised the trustee that I believe the Scheme funding programme should prove acceptable when the new requirements come into effect.

2. **Valuation Basis**

Using the valuation basis that I have agreed with the Trustee Company:

- the total (i.e. Employer and Employee) contribution rate required in respect of future service only (the "normal contribution") is 20.65% of salaries (see paragraph 1.2). Given the minimal impact of a small revision in the contribution rate, no change is proposed to either the Employer or the Employee contribution rate;

- on the assumption that the Scheme continues, the assets of the Scheme at the valuation date were 77% of the accrued liabilities based on projected Pensionable Salaries (see paragraph 1.3);

- there is a past service deficit of £6,568m (although there is a surplus of £56m in respect of the Supplementary Section);

3. **Minimum funding check**

Contributions to the Scheme must be sufficient to satisfy the Minimum Funding Requirement (MFR) introduced by the Pensions Act 1995. The Scheme was 126% funded at the valuation date using the MFR prescribed assumptions and methodology (see paragraph 1.10). I confirm that, on signing this report, I will be able to certify an MFR Schedule of Contributions based on the current rate of contributions unless there are significant changes to financial conditions in the interim.

4. **Buy-out**

If the Scheme had discontinued on the valuation date, the assets would have been approximately 74% of the amount necessary to secure with an insurance company the accrued benefits for members in service and past leavers and the current benefits for pensioners (see paragraph 1.14). This result is based on financial conditions at the date of the calculation only, and should not be used as a measure of the position at any other date. A small change in financial conditions can materially affect this result. In practice, it should be noted that it would be very difficult, if not impossible to actually secure all the USS benefits with an insurance company.

5. **Maximum funding check**

Contributions may have to be restricted if there is an excessive surplus based on the prescribed assumptions under the Income and Corporation Taxes Act 1988 and if the Scheme is to remain fully tax-exempt. The valuation does not reveal an excessive surplus.

6. **Recommendations**

After discussion it has been agreed that the Employer contribution rate should remain at 14% of salaries and that the Employee contribution rate should remain at 6.35% of salaries pending a review at the next actuarial valuation, or sooner. This rate includes the cost of death in service benefits and allows for administrative expenses to be paid from the Scheme.

This recommendation should be re-confirmed at the date of signing the MFR Schedule of Contributions. The next actuarial valuation should have an effective date not more than 3 years from the date of this valuation.

E S Topper
Fellow of the Institute of Actuaries
December 2005

Certification

1. I am the appointed scheme actuary to the Universities Superannuation Scheme ("the Scheme"). This is a report to the Trustee of the Scheme on my actuarial valuation of the assets and liabilities of the Scheme at 31 March 2005. The last actuarial valuation of the Scheme was at 31 March 2002. The purpose of the valuation is to review the Employers' contribution rate, taking account of the Trustee's funding objectives and statutory requirements.

2. This report is made under Section 57 of the Pensions Act 1995.

3. The calculations in the report use methods and bases appropriate for the purpose described above. Figures required for other purposes, such as employer accounting, or corporate mergers, acquisitions and other transfers of business and assets, should be calculated in accordance with the specific requirements for such purposes and it should not be assumed that the figures provided here are appropriate.

4. This report on the funding of the Scheme is intended:

   - to meet the requirement of Regulation 30 of the Occupational Pension Schemes (Minimum Funding Requirement and Actuarial Valuations) Regulations 1996, for an ongoing actuarial valuation,

   - to meet the requirement of Section 57 of the Pensions Act 1995 for a Minimum Funding Requirement valuation, and

   - to meet the requirements of Schedule 22 to the Income and Corporation Taxes Act 1988 for surplus funding valuation.

5. Although addressed to the Trustee, this report may be disclosed to other parties with the consent of the Trustee, or to Scheme members in accordance with Regulation 7 of the Occupation Pension Schemes (Disclosure of Information) Regulations 1996. It can be used by the Employers and Scheme members as a guide to the funding position of the scheme. Mercer Human Resource Consulting does not accept liability to any other third parties in respect of the contents of this report.

6. This report complies with the requirements of the appropriate version of Guidance Note 9 - 'Retirement Benefit Schemes - Actuarial Reports' issued jointly by the Institute of Actuaries and the Faculty of Actuaries.

Signature

Scheme Actuary	E S Topper
Date of signing	13 December 2005
Qualification	Fellow of the Institute of Actuaries

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Valuation Results

Funding basis

1.1 I show the results of the valuation below using both:

- actuarial assumptions based on financial market yields on the valuation date ("current yield basis"); and
- the longer-term actuarial assumptions I have used to develop the normal contribution rate ("nominal yield basis").

Future service

1.2 The calculations on the funding basis are used to determine the contributions required to satisfy the Trustee's long-term funding objective, ignoring statutory minimum and maximum funding restrictions.

	Nominal Yield Basis %
Contribution rate for:	
a. Projected pension benefits based on service for the year following the valuation (including life assurance costs)	20.40
b. Allowance for the cost of administrative expenses paid from the Scheme	0.25
Total contribution rate	20.65
Employee contribution rate	6.35
Employer normal contribution	14.30

Past service

1.3 The next step is to consider the imbalance between the assets of the Scheme and the Trustee's funding target.

	Current Yield Basis
Funding target:	£m
a. members in service	16,237.3
b. deferred pensioners	2,159.3
c. pensioners	9,911.5
All members	28,308.1
Actuarial value of assets	21,739.7
Deficit	6,568.4
Funding level	77%

1.4 Of the deficit identified, £6,624m is in respect of the Main Section, offset by a surplus of £56m in respect of the Supplementary Section.

1.5 It is highly likely that future financial developments will not follow our assumptions, especially in the short term. The scope for variation in the funding level – and resulting contribution requirements – is substantial, depending on the various economic circumstances that could arise. Increasing the valuation rate of interest, for example, by 1% per annum would reduce the liabilities by approximately £4bn. The analysis shown in Appendix E illustrates the scope for variation in the past service funding position of the Scheme over the next three years based on the current investment strategy.

1.6 As the funding basis is prudent and the statutory minimum levels of funding adequately covered, short term changes in financial markets can be considered over a longer time horizon. The funding level and Employer contribution rate should, however be monitored and subject to review at 31 March 2008, or sooner if requested by the Trustee.

1.7 If this deficit was to be made good by employer contributions alone it would require additional contributions as shown below:

Recovery period	Additional contributions
10 years	18.3
15 years	12.4
20 years	9.4
25 years	7.6
30 years	6.5

In addition a further increase of 0.3% would be required on account of the difference between the current 14% institution contribution rate and the 14.3% Normal Cost contribution rate.

Reconciliation to previous valuation

1.8 The previous actuarial valuation was carried out at 31 March 2002. On an ongoing basis, the value of the assets exceeded the value of the accrued liabilities, after making allowance for projected salaries and there was therefore a surplus in the Scheme of £162m.

1.9 The principal reasons for the change in the funding position between the two valuations are as follows:

2002 Valuation surplus	£162 million
Interest on above surplus	£26 million
Investment returns relative to 2002 assumptions	-£1,850 million
Contractual Pension Age/Preservation rectification cost estimate	-£150 million
Salary inflation relative to 2002 assumptions	-£300 million
Strain on 3 years accrual costs	-£500 million
Change in financial assumptions on falls in gilt yields	-£3,000 million
Changes in demographic assumptions (salary scale)	-£800 million
Membership movements (ill health retirements, withdrawals, rejoiners and deaths) and other miscellaneous items	-£156 million
2005 Valuation Deficit	-£6,568 million

Statutory constraints

Minimum basis

1.10 These calculations are required to ensure that the recommended contribution rate satisfies the minimum funding requirement (MFR) of the Pensions Act 1995.

	Prescribed assumptions £m
Present value of accrued benefits for:	
a. members in service	6,930.1
b. deferred pensioners	966.0
c. pensioners	8,997.0
All members	16,893.1
Expense provision	339.4
Market value of assets	21,739.7
Surplus	4,507.2
Funding level	126%

1.11 As the MFR funding level exceeds 100%, future contributions must be such that (on a specified actuarial basis) the MFR funding level is expected to remain above 100% for the 5 years following certification of the contribution schedule.

1.12 Further details of the MFR calculation are shown in Appendix C.

Maximum basis

1.13 Contributions may have to be restricted if there is an excessive surplus based on the prescribed assumptions under the Income and Corporation Taxes Act 1988. The valuation does not reveal an excessive surplus. A certificate to that effect is included in this report.

Solvency

1.14 The table below shows my estimate of the position if the Scheme had discontinued on the valuation date and the liabilities secured with an insurance company. It must be recognised that this would be very difficult, if not impossible, to achieve for a scheme as large as the USS. Also these figures are based on a snapshot view at the valuation date and should not be used as a measure of the position at any other date. Even small changes in financial conditions and investment markets can materially affect these results. Figures are estimates only and are not based on an actual quotation. An allowance for the expense of winding up the scheme has been included.

	Closed scheme
Present value of projected benefits for:	£m's
a. members in service	15,330.7
b. deferred pensioners	2,522.2
c. pensioners	11,065.3
d. provision for future expenses	628.7
Total	29,546.9
Market value of assets	21,739.7
Surplus/(deficit)	(7,807.2)
Funding level	74%

1.15 Further details of the solvency calculations are in Appendix D.

Treatment of the ongoing/solvency deficits

1.16 In light of the considerable swings in markets since the 2002 valuation, the nature of the demographic and financial assumptions used in my valuation, the significant positive cash flows and equity orientated investment strategy, I believe it is appropriate to carry forward the deficit until the next valuation.

1.17 The Trustees should continue to monitor the funding level regularly and if equity markets stagnate (or worse decline) over prolonged periods, or if interest rates, particularly index-linked gilt yields drop further, then it will become more of an imperative to either re-base the valuation assumptions, re-assess the long-term investment strategy or increase contributions, probably a mixture of all three, if current benefit levels are to be maintained.

Investment strategy

1.18 I have assumed that the Trustee will continue to invest a significant portion of the assets of the Scheme in UK and overseas equities and that these will produce a future investment return that exceeds the current yield available on bonds.

1.19 Alternative investment strategies could be followed that, at least in theory, would minimise the risk of deterioration in one of the measures of the Scheme's funding position. One such strategy would be to invest the assets of the Scheme primarily in long-term fixed and index-linked bonds. This strategy would substantially reduce the risk that changing economic conditions will cause a deterioration in the Scheme's solvency position. It would also tend to produce a more stable contribution rate but at an overall higher level, as it would no longer be appropriate to anticipate the higher investment return that is generally achieved by equity investments (as I have done in assessing the cost of future accruals).

1.20 I understand the Trustee is currently investigating the results of an asset and liability modelling exercise as part of the investment strategy review and if there is a significant change in investment strategy as a result of this, the results and outcome of this valuation may require re-visiting.

1.21 The analysis in Appendix E illustrates the level of risk inherent in the Scheme's current investment strategy.

Valuation Objectives and Method

Valuation objectives

2.1 The valuation has been undertaken on the instructions of the Trustee Company and in accordance with Rule 20.20 of the Scheme's trust deed and rules. Under the Rules of the Scheme the contribution rate is set by the Trustee Company. Their choice of contribution rate may be constrained by the minimum funding requirement or the maximum funding limits. The purpose of the valuation is to review the Employer contribution rate taking account of the Trustee's funding objectives and statutory requirements.

2.2 It is convenient to define a valuation objective in order to monitor the contribution requirement. This usually means setting a long-term funding target and adjusting the funding rate to meet that target (rather than setting a fixed contribution rate and allowing the funding target to vary). The Trustee has agreed to adopt the same target as was used for the 2002 valuation i.e.:

Funding target: assets equal to or above the present value of benefits based on completed service but with provision for the effects of future salary growth and inflation up to the assumed retirement age.

2.3 This valuation objective is designed to represent a balance between giving members a reasonable level of security in respect of accrued pension rights, and ensuring that the Employers' contribution to the Scheme is realistic without being excessive.

2.4 The Employers' contributions must also be at least equal to the minimum required by the Pensions Act 1995 (the "Minimum Funding Requirement"), and must not exceed the amount allowed by the Income and Corporation Taxes Act 1988. These are both statutory funding requirements with specified actuarial bases. While they are not generally appropriate for long-term funding, they may effectively override the long-term funding rate based on the chosen funding target.

Valuation method

2.5 I have continued to use the same actuarial method, namely the Projected Unit method, at this valuation. The Projected Unit method is consistent with the long term funding target and is in common use for funding pension schemes in the United Kingdom.

2.6 The recommended contribution under the Projected Unit method consists of two parts:

2.7 The **normal contribution** required to meet the cost of benefits accruing for service after the valuation. This is calculated as the value of benefits expected to accrue to the membership in respect of one year's service based on projected salaries,

plus

2.8 The **contribution adjustment** required to correct (over an agreed future period) any imbalance between the assets of the Scheme and the funding target.

2.9 For a given set of actuarial assumptions, the method has the following characteristics:

- if the membership profile remains stable in terms of age and sex, then the normal contribution rate (as a percentage of salaries) will remain stable. The method therefore implicitly allows for new entrants;
- if the supply of new entrants to the Scheme is cut off or declines, then the normal contribution rate will tend to rise at future valuations.

Selection of assumptions

Normal contribution

2.10 As described above, the normal contribution to the Scheme is calculated as the value of benefits expected to accrue to the membership in respect of one year's service based on projected salaries. Theoretically, this value should take account of the investment return and other financial conditions at the time the contributions are invested. However, these will not be known at the valuation date and the actuary must make appropriate assumptions.

2.11 There are two general approaches to setting the assumptions to be used for the calculation of the normal contribution:

- use the long-term yield available in the market at the valuation date (“**current yield**”) as a “best estimate” of future market rates
- use a yield (“**nominal yield**”) which is adjusted only gradually to reflect market movements. This may be thought of as an “average long-term yield”.

2.12 I have agreed with the Trustee to use the second approach (nominal yield) since this is likely to produce a smoother funding pattern over the long-term. However, it is important to be aware that the true cost of benefits being earned currently may be more or less than the funding rate calculated using the nominal yield. These cost variations may average out over the long-term. In any event, trends towards higher or lower expected average costs will be taken into account when setting the nominal yield at future valuations.

Contribution adjustment

2.13 As described above, an adjustment can be made to the normal contribution to correct (over an agreed future period) any imbalance between the assets of the Scheme and the funding target (i.e. the present value of benefits based on completed service but with provision for the effects of future salary growth and inflation up to the assumed retirement age). To determine the adjustment, assets and liabilities must be calculated on a consistent basis. Again, there are two general approaches:

- use the current yield to calculate the funding target and measure assets at market value (which is by definition consistent with this yield), or
- use a nominal yield to calculate the funding target and take the assets at a calculated value which is consistent with the nominal yield

2.14 The figures set out in 1.3 use the first of these approaches, as in previous valuations. This has the advantage of using an easily understood value for the assets.

Valuation Assumptions

3.1 The valuation results depend on the assumptions used. There are two broad categories of assumptions -

- financial assumptions - such as the investment return that will be earned in the future and the rates at which earnings and pensions will increase; and
- demographic assumptions - such as rates of mortality, retirement, and withdrawal from the Scheme.

3.2 The financial and demographic assumptions are considered separately below. A number of changes have been made to the assumptions used for the last actuarial valuation. These have been noted below.

Financial assumptions

3.3 I have derived the financial assumptions from the long-term yield on Government bonds in the market at the valuation date (the "**current yield**").

3.4 In setting any actuarial basis, it is important to appreciate that the differences between the financial assumptions, i.e. the real return above price and salary inflation, are more significant for the valuation result than the absolute rate of investment return or salary growth.

Current yield basis

3.5 The table below compares the key market yields on the valuation date with the corresponding yields at the last valuation:

	Valuation date	Previous valuation
Annualised yield on long-dated fixed gilts	4.5%	5.0%
Annualised yield on long-dated index-linked gilts	1.6%	2.2%
Long term expectation for annual inflation	2.9%	2.7%

Investment return

3.6 In considering the current investment return assumption I have taken into account:

- The return available on long dated gilts of 4.5% per annum.
- The expected out-performance over gilts in the long term from other asset classes, such as equities, held by the Scheme. It is a matter of judgement what the expected out-performance relative to gilts should be.
- For the purpose of determining the past service liabilities, the assumed out-performance over gilts has been taken as nil. This is consistent with the approach taken for the 2002 valuation and so represents the same degree of prudence relative to market conditions as in 2002.
- For the purpose of assessing the normal contribution rate for future service liabilities I have taken account of the fact that contributions will be invested on terms applying at future dates which are not directly linked to market conditions at the valuation date. I consider it appropriate, for future service, to make some allowance for expected out-performance over gilts. Taking a simplified and cautious approach I have allowed for out performance of 1.7% per annum in setting the investment return assumption for future service. Combined with my assumptions on future inflation, this maintains the same assumptions as regards the future **real** investment returns over salary and price inflation as were used at the 2002 valuation.

3.7 In summary, the investment return has been assumed to be 4.5% per annum in respect of past service liabilities and 6.2% per annum in respect of future service liabilities.

Pension increases

3.8 In respect of the Main Section, the Scheme guarantees to increase the pension in payment (in excess of the GMP) in line with the provisions of the Pensions (Increase) Act (as modified by the Social Security Pensions Act 1975). [Statutory increases are also provided on the Guaranteed Minimum Pension (GMP)]. For the purpose of this valuation I have assumed that all pension increases (in excess of GMP) would be granted in line with price inflation. Current price inflation has been assumed to be the long-term rate implied by the market, i.e. 2.9% per annum. Statutory increases have been allowed for on the GMP elements.

3.9 Pension increases in the Supplementary Section are discretionary. However, as in 2002, the same allowance for pension increases has been made as for the Main Section.

Pensionable salary increases

3.10 I have assumed that increases in salaries will be 1.0% per annum above the assumed increase in price inflation of 2.9% per annum i.e. a total increase of 3.9% per annum.

3.11 I have also allowed for a salary scale to reflect age and promotional increases in addition to general salary escalation.

This is covered in more detail in Section 3.29 – 3.30.

Current yield basis summary

3.12 In summary, the current financial assumptions adopted for the valuation (compared with those adopted for the previous valuation) are as follows:

	Valuation date	Previous valuation
Investment return – past service	4.5% pa	5.0% pa
Investment return – future service	6.2% pa	6.0% pa
Pensionable salary increases	3.9% pa	3.7% pa
Pension increases	2.9% pa	2.7% pa
Price inflation	2.9% pa	2.7% pa

The real returns over salary and pension increases have therefore been assumed to reduce by 0.7% pa for the purposes of the past service liability assessments, but have been held at 2.3% and 3.3% respectively when calculating the costs of future accrual.

Demographic assumptions

3.13 As well as the financial assumptions, it is necessary to make a number of assumptions regarding membership movements such as retirements and deaths and other matters. Similar assumptions to those adopted for the previous valuation have been adopted for this valuation although some changes have been made to reflect the inter-valuation experience of the Scheme. The most important demographic assumptions, and the changes made, are discussed below.

Assumed retirement age

3.14 For funding purposes it has been assumed in previous valuations that active members would retire on average at age 60, with no reduction to their benefits being applied. Deferred pensioners are also assumed to retire at age 60 but allowing for the appropriate reductions to benefits which would apply for members retiring at that age. Allowance has been included for deferred members shown in the valuation data with a Contractual Pension Age prior to age 65 as required in accordance with the "Contractual Pension Age/Preservation" judgement.

3.15 USS Limited has informed me that the average age of active members retiring in the three years to 31 March 2005, excluding ill health retirements, was 60 years 3 months. I have therefore retained an assumption of retirements at age 60 for this valuation.

Ill health retirement

3.16 I have calculated the "expected" number of ill health retirements for the period 2002/05, based on the 2002 valuation assumptions and compared this with the actual numbers occurring, as advised by USS Limited. The details are summarised below:

	2002/2005
Actual ill health retirements	397
Expected ill health retirements	703
100% x Actual/Expected	56%

3.17 The scheme rules have recently been amended to introduce new criteria for total and partial incapacity retirement. A lower level of benefit is payable on partial ill health retirement, but it is possible that more members satisfy the partial incapacity criteria than was the case under the previous ill health retirement rules.

3.18 Experience on the incidence of total and partial incapacity retirements will only emerge over time. Ill health retirements tend to cause a strain on the funding reserve and the lower than expected numbers indicates conservatism in our allowance. Based on the above, I have maintained the same assumption as was adopted for the 2002 valuation, subject to review at future valuations.

Pre-Retirement Mortality

3.19 I have examined the mortality experience of current active members over the period 2002/05. The actual number of deaths reasonably mirrors the number "expected" according to the last valuation basis. The financial effects of deaths of active members will depend, however, on the age of the deceased. Deaths at older ages lead to a release of reserves and thus generate surplus. Deaths at younger ages will tend to cause strains.

3.20 Taking into account the actual experience over the last two valuation cycles I have decided to retain the existing pre-retirement mortality assumption to reflect the experience exhibited, even though it is amongst this population that any continued longevity improvements are likely to come through.

3.21 Accordingly standard tables have been used as follows:

Pre-retirement mortality:	PA92 rated down 3 years

Use of this mortality table reasonably reflects the actual USS experience but also provides an element of conservatism in the basis to allow for some further small improvements in pre-retirement mortality rates.

Post-Retirement Mortality

3.22 Analysis of experience over the last 3 years indicates that the total actual number of pensioner deaths was 2,277, which compares with 2,188 "expected" on the basis of the 2002 valuation assumptions. As pensioner deaths result in a release of funding reserves it is prudent not to overstate the number of pensioner deaths in the basis.

3.23 However, whilst further improvements in mortality are now generally anticipated, it is the life expectancy of younger members that is projected to improve most significantly: each generation of pensioners is expected to live longer than the previous generation. For now, whilst the pensioner mortality experience mirrors the valuation basis, I have decided to retain the existing assumption:

Post-retirement mortality:	PA92 (c = 2020) for all retired and non-retired members.

Withdrawals

3.24 This assumption relates to those members who leave the Scheme with an entitlement to a deferred pension or transfer value.

3.25 Higher than anticipated withdrawals (those who leave active service and become deferred pensioners or take a transfer value) generally have a positive financial impact. This is because a reserve held for an active member anticipates future salary increases that are generally more valuable than the benefits available on withdrawal (which are linked to inflation).

3.26 Investigations have shown that the actual number of withdrawals is approximately 45% higher than that assumed at the 2002 valuation.

3.27 The Scheme incurs losses in respect of Club transfers in. It is therefore prudent to restrict the anticipated profits arising on future withdrawals from the Scheme to make an implicit reserve for the losses on Club transfers in.

3.28 As the current assumption contains such a margin for prudence, I have not altered the withdrawal assumption at this valuation.

Promotional salary scale

3.29 An additional allowance has been made for increases in Salaries due to age and promotion, above the general allowance of 1.0% in excess of price inflation. Analysis of salary data from 2002 to 2004 has shown that there has been a more rapid progression of salary increases than that allowed for in the previous valuation's salary scale. The higher than expected increases appear to have been a result of various job regradings and movements between institutions accompanied by a rise in pay. Further analysis of the promotional salary increases will be carried out over coming years to determine whether the 2002-04 experience has been a temporary phenomenon or represents a genuine long term trend

3.30 We have made a cautionary reserve of £800m in the actives' past service liabilities, to take account of the 2002-2004 promotional salary experience, but maintained the previous salary scale for projecting future service accrual costs. If analysis of future years confirms that a steeper salary scale is appropriate, it should be adopted for future service too.

4

Valuation Data and Trends

4.1 The valuation is based on three key items of data:

- the membership of the Scheme at the valuation date;
- the benefits promised by the Scheme as set out in the Trust Deed and Rules and any subsequent amendments; and
- the amount of assets held by the Scheme on the valuation date.

Membership

4.2 Data in relation to members in service, former employees with deferred pensions and current pensioners were provided by USS Limited. I have carried out such reasonableness checks as are practicable on this data.

4.3 The following is a summary of the membership data I have used for processing the valuation calculations, with figures at the previous valuation date, shown for comparison.

4.3.1

Members in service	Valuation date	Previous valuation
Number of members	109,684	94,557
Total Salaries (£m pa)	3,650.4	2,910.4
Average Salary (£ pa)	33,281	30,779
Average age	43.0	42.8

The active membership has increased by approximately 16% since 2002. The average Salary of Scheme members increased by 8% over the period since the last valuation (i.e. just over 2.6% per annum over the period).

4.3.2

Former employees	Valuation date	Previous valuation
Number	62,600	48,050
Total deferred pensions* (£m pa)	122.8	85.6
Average deferred pension* (£ pa)	1,961	1,782

* including 2002/05 pension increase as appropriate

4.3.3

Pensioners and Dependants	Valuation date	Previous valuation
Number of pensioners	34,542	28,833
Annual pensions* (£m pa)	573.9	459.7
Average pension* (£ pa)	16,614	15,942
Number of dependants	6,930	5,633
Annual pensions* (£m pa)	60.3	46.2
Average pension* (£ pa)	8,703	8,201
Number of children	862	698
Annual pensions* (£m pa)	4.4	2.2
Average pension* (£ pa)	5,118	3,119

* including 2002/05 pension increase as appropriate

4.4 Pensions in payment and deferment under the Scheme were increased each year on 1 April at the following rates:

- 2002 – 1.7%
- 2003 – 1.7%
- 2004 – 2.8%
- 2005 – 3.1%

Benefits

4.5 The Scheme commenced on 1 April 1975 and is exempt approved under Chapter I, Part XIV of the Income and Corporation Taxes Act 1988. The Scheme contracted out of the State Earnings Related Pension Scheme (SERPS) and is now contracted out of the State Second Pension. The Trustee has previously been provided with a Reference Scheme Test Certificate (confirming that scheme benefits satisfy the statutory comparison with minimum benefits provided by a reference scheme in accordance with sections 12A and 12B of the Pension Schemes Act 1993). I know of no reason why the Reference Scheme Test Certificate should no longer be valid.

4.6 The benefits valued are those provided by the Scheme as set out in the Trust Deed and Rules. A summary of Scheme benefits is included as Appendix A.

4.7 UK and European law require 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. It is consequently possible that additional funding will be required for equalisation once the law has been clarified. I recommend that the Trustee seeks further professional advice if they are concerned about this issue.

Assets

4.8 Details of the assets held by the Scheme and audited accounts covering the period ended 31 March 2005 were supplied by USS Limited. A summary of the assets held is shown in Appendix B.

4.9 Following the last valuation it was agreed that the Employers would pay a contribution rate of 14% of Salaries to the Scheme. Members’ contributions are payable in addition. The audited accounts confirm that contributions have been paid at this rate.

4.10 The Scheme's assets are invested in equities and bonds in both UK and overseas markets using investment managers who invest either directly in stocks or via pooled funds investing in such stocks. The Scheme also holds other investments such as property.

4.11 During the period, the investment return achieved by the Scheme has been approximately 2.0% per annum which compares with 5.0% per annum assumed at the last valuation.

4.12 The Scheme has an additional voluntary contribution (AVC) facility with the Prudential to which members may choose to pay additional contributions to secure additional benefits under the Scheme. As the assets under this arrangement are used solely to meet (and match precisely) the AVC liabilities, they have been ignored for the purposes of this valuation. Where AVC's are paid into the Scheme to secure additional service, the additional liabilities arising have been allowed for as part of this valuation.

Appendix A

Outline of Benefits and Contribution Structure at 31 March 2005

A.1 Eligibility

Employees of the Institutions on 1 April 1975 in academic, senior administrative and comparable occupations who were then members of the Federated Superannuation System for Universities (FSSU), the Teachers Superannuation Scheme (TSS), the National Health Service Superannuation Scheme (NHSSS) or a Local Government Scheme (LGS), were eligible to transfer to USS up to 5 April 1980.

Employees in the above category and where specified by the employer in any other University employment subsequently joining the pensionable service of an Institution are eligible to join USS provided they are not within five years of Normal Retirement Age, although the Trustee Company has power to waive this condition.

A.2 Definitions

(a) NORMAL RETIREMENT AGE means, for both male and female members, age 65.

(b) PENSIONABLE SERVICE is broadly the time during which a member has been engaged in academic or similar employment with an Institution and may include periods of service before the start of USS. Pensionable service is, however, limited to a maximum of forty years.

An employee who transferred before 29 August 1992 from employment in an Institution other than academic or related employment had service in such employment counted in USS on a year-for-year basis.

An employee who transferred before 6 April 1980 from FSSU, TSS, NHSSS or a LGS had pensionable service in that scheme transferred to USS on a year-for-year basis.

(c) SCHEME SERVICE is the total period of Pensionable Service which the member would have completed if the member had remained in the employment of the Institution until Normal Retirement Age.

(d) SALARY is the total annual fixed salary of the member, including fixed allowances but subject to the Finance Act 1989 cap for those joining the Scheme after 31 May 1989. With the agreement of the Trustee Company, the Institution can determine that fluctuating emoluments be included in Salary.

(e) PENSIONABLE SALARY is normally the member's highest Salary, as defined above, received for a period of twelve months during the last three years before Normal Retirement Age or before leaving service (whichever is the earlier) or, if greater, the highest yearly average of the member's total Salary for any three year period ending in the last ten years. For this purpose, Salary for any year, except the last before the date of calculation, is increased in proportion to the rise in the Index of Retail Prices from the last day of that year up to the date of calculation.

A.3 Contributions

Members pay contributions at the rate of 6.35 per cent of Salary.

Members may, within certain limits, pay additional voluntary contributions in order to secure additional benefits.

Members cease contributions on reaching Normal Retirement Age or completing forty years' Pensionable Service, whichever occurs first, provided that if the member has not completed forty years' Pensionable Service at Normal Retirement Age and remains in service, contributions may be continued so as to provide further benefits on actual retirement.

The balance of the cost of the benefits is met by the Institutions which pay such rate of contribution as the Trustee determines based on actuarial advice. This has been 14.0 per cent of Salaries since 1 January 1997.

A.4 Pension payable on Normal Retirement Age

On retirement at Normal Retirement Age, or after age 63½, a pension is payable to the member at the rate of one-eightieth of Pensionable Salary for each year of Pensionable Service with allowance for completed days.

A.5 Retirement before Normal Retirement Age on grounds of ill-health or incapacity

On retirement due to full incapacity, provided two years' Pensionable Service has been completed, a member is normally entitled to an immediate pension calculated as one-eightieth of Pensionable Salary for each year of Scheme Service.

If the member retires due to partial incapacity, the Pensionable Service rather than Scheme Service would be used.

If an ill-health withdrawal takes place after less than two years' Pensionable Service has been completed then the member is entitled to normal leaving service benefits as outlined in paragraph A14.

A.6 Retirement before Normal Retirement Age on grounds other than ill-health or incapacity

A member who has reached age 50 and completed five years' Pensionable Service and who retires before Normal Retirement Age either at the request of the employing Institution or on account of redundancy or a member who has reached age 60 and completed five years' Pensionable Service and who retires with the consent of his Institution receives an immediate pension. The amount of the pension is one-eightieth of Pensionable Salary for each year of Pensionable Service up to the date of retirement.

A.7 Retirement after Normal Retirement Age

On retirement after Normal Retirement Age a member is entitled to the pension which would have been received at Normal Retirement Age, increased by such an amount as the Trustee Company, acting on actuarial advice, decides is appropriate.

A.8 Lump sum benefits on retirement

On retirement on pension a lump sum retirement benefit also becomes payable. The usual scale for this benefit is three times the annual amount of the pension. A member may request that a higher or lower amount should be payable, in which case the member's pension is reduced or increased appropriately.

A.9 Lump sum benefits on death in service

On the death of a member in service before Normal Retirement Age a lump sum is payable equal to three times the Salary being paid to the member at the date of death.

A.10 Spouses' pensions payable on death in service

On the death of a member, a spouse's pension is payable at the same rate as the deceased member's Pensionable Salary at the date of death but reducing after three months' payments have been made to one-half of the pension which would have been payable had the member retired because of ill-health on the day before the death.

The pension is payable until the death of the spouse. Where the member does not leave a spouse, the Trustee Company has discretion to pay the pension to a dependant.

A.11 Spouses' pensions payable on death after retirement

On the death of a member after retirement whilst in receipt of a pension leaving a spouse, a spouse's pension is payable at the same rate as that previously payable to the member (before any reduction because of an allocation to provide an additional dependant's annuity) but reducing to one half that amount (before any adjustment because of a conversion of pension for lump sum or vice versa at retirement) after three months' payments have been made. The pension is payable until the spouse's death. Where the member does not leave a spouse, the Trustee Company has discretion to pay the pension to a dependant.

A.12 Children's allowances on the death of a member before or after retirement

In addition to spouses' pensions, children's allowances are payable in respect of each qualifying child subject to a maximum of two (as defined in the rules) on the death of a member in service. The children's allowance for each qualifying child is calculated at the rate of three-eighths of the pension that would have been payable to the member on ill-health retirement on the day before the death. Where, however, there is no spouse's pension payable then the rate of the children's allowance is one-half (instead of three-eighths) of the corresponding member's pension.

When a member dies after retirement, children's allowances are payable at the same rates as apply for a member dying in service, as described above, except that reference to the member's ill-health pension is to be taken as referring to the member's actual pension (before any adjustment because of a conversion of pension for lump sum or vice versa at retirement or because of the provision by allocation of an additional dependant's annuity).

A.13 Lump sum benefits payable on death after retirement

On the death of a pensioner there is a lump sum payable normally calculated as the excess, if any, of the amount payable if the member had died in service less, except in the case of ill-health retirees, the actual amounts received by the member by way of pension and lump sum retirement benefits.

A.14 Benefits on leaving service

Where a member withdraws from service before Normal Retirement Age without becoming entitled to an immediate pension but having completed two years' qualifying service, the member will be entitled to a deferred pension payable from Normal Retirement Age. This is calculated as one-eightieth of Pensionable Salary for each year of Pensionable Service to the date of leaving. There will also be a lump sum payable at eventual retirement on the scale set out in paragraph A.8.

A member who leaves with less than two years' qualifying service may take a refund of contributions plus interest subject to certain deductions. Alternatively, such a member may elect to take a deferred pension and lump sum retirement benefit equal in value to the contributions, with interest, less the member's share of the cost of the Contributions Equivalent Premium which is payable to the State.

On the death of a former member with a deferred pension before the pension starts to be paid, a lump sum of three times the annual rate of the deferred pension is payable, together with a spouse's pension, if applicable, of one-half of the amount of the deferred pension and children's allowances calculated by the same method as for a member who continues in service. In such a case, once the pension has started to be paid, benefits will be payable on the scales set out in paragraphs A.11, A.12 and A.13.

In lieu of the benefits described above, the Trustee Company is able to pay a transfer value to another pension scheme which is empowered to accept such transfers or a "buy-out" policy issued under the provisions of Section 591(2)(g) of the Income and Corporation Taxes Act 1988 or a personal pension scheme.

A.15 Premature retirement terms

In accordance with Rule 8.2(g) an employer may pay additional contributions in order to grant a member additional benefits on premature retirement. The additional contribution is determined in accordance with tables approved by the Trustee Company.

A.16 Pension increases

Pensions in payment from the Main Section of the Scheme (see A.18 below) and in the period of deferment and pensions from annuities are increased in line with the provisions of the Pensions (Increase) Acts as modified by the Social Security Pensions Act 1975. Pensions in payment from the Supplementary Section of the Scheme have in practice been increased to the same extent.

A.17 Pension Schemes Act 1993

From 6 April 1978 to 5 April 1997, the members of USS have been contracted-out of the State Earnings-Related Pension Scheme (SERPS). As a consequence the appropriate benefits are guaranteed to be not less than the Guaranteed Minimum Pension (GMP) or the spouse's GMP as the case may be. With effect from 6 April 1997 members have been contracted-out on the Reference Scheme Test basis.

As the State Pension Scheme will pay all or part of the pension increases (as provided for under the legislation) on both the GMP and the spouse's GMP, the pension increases required in USS under the Pensions (Increase) Acts will be correspondingly reduced.

A.18 Main and supplementary Sections

The levels of benefits described above are the total benefits from the Scheme. The principal benefits are provided under the Main Section whilst the Supplementary Section provides additional benefits payable when a member retires on the grounds of ill-health or incapacity or dies in service. From the member's contribution of 6.35 per cent of Salary (referred to in paragraph A.3) 6 per cent is paid to the Main Section and 0.35 per cent to the Supplementary Section. The whole of the contributions payable by the Institutions is paid to the Main Section.

Appendix B

Asset Value Summary

	£m	%
Equities:		
UK-listed	8,226.2	37.8
Overseas-listed	9,103.4	41.9
Bonds:		
UK Fixed Interest	1,147.2	5.3
Overseas Fixed Interest	559.8	2.6
Pooled investment vehicles	461.4	2.1
Property	1,799.6	8.3
Cash including stockbroker balances	385.7	1.8
Net current assets	56.4	0.2
Total	£21,739.7m	100.0

Note: Money Purchase AVC investments are excluded from the above figures.

Appendix C

Minimum Funding Requirement

C.1 The Pensions Act 1995 introduced the Minimum Funding Requirement (MFR). The Trustee is obliged to obtain regular actuarial valuations using the MFR methodology and assumptions as set down in regulations and is also required to obtain regular funding certificates.

C.2 If the funding level on the MFR basis is less than 90%, the Employer must make additional contributions so that the MFR coverage is restored to 90% within a 3-year period and then up to 100% over the next 7 years. If the funding level on the MFR basis is between 90% and 100%, future contributions must be such that the MFR funding level is projected (on this specified actuarial basis) to increase to 100% or more within 10 years. If the funding level on the MFR basis exceeds 100%, future contributions must be such that the MFR funding level is projected (on this specified actuarial basis) to remain above 100% for the 5 years following certification of the contribution schedule. In each of these 3 cases, the actual funding level at the end of the relevant period will depend on the experience of the scheme over the period and the conditions prevailing at that date.

C.3 The assumptions are laid out in Regulations and under professional guidance from the Institute and Faculty of Actuaries. The principal assumptions are:

Investment return - before retirement	9.0 % pa
- after retirement	8.0 % pa
Pension increases (other than fixed)	3.5% pa for Limited Price Indexation
Assets	Market value

Market value adjustments (MVAs) are applied to the liabilities based upon how the market conditions at the valuation date compare with the market conditions assumed under MFR. Since the above assumptions were set, there have been substantial changes in long-term market rates of interest as measured by bond yields and the MVAs now have a significant effect on the calculations.

C.4 The liabilities under the MFR test are determined as:

Members in service and deferred pensioners	Value of accrued rights (based on leaving service at the valuation date for members in service), using prescribed assumptions.
Pensioners	Amount needed to secure pensions in payment by matching assets in a closed fund or by purchasing annuities.

C.5 The liabilities exclude any discretionary pension increases and ignore any enhanced benefits only payable with the employer's consent e.g. on early retirement. The liabilities will also include an allowance for the expenses of winding up, which generally are 4.0% of the liabilities but are on a sliding scale the larger the pension fund.

C.6 Assets are based on audited market values (with modifications for insured assets).

C.7 On completion of this valuation, the Trustee and the Employers have twelve weeks to draw up and agree a schedule of contributions. The contributions shown on the schedule must be sufficient to retain (or attain) an MFR funding level of 100% across (or within) the lifetime of the schedule. Importantly, the regulations require the actuary to take into account investment conditions 7 days prior to the date of certification of the schedule of contributions, so the final MFR contribution requirement will not be known for certain until that time.

C.8 The cost of each extra year's service for members in service on the MFR basis is the value of the increase in leaving service benefits during the year. This reflects the extra pension earned from the year's service together with the cost of increasing benefits previously accrued in line with salary growth in the year. The cost on this basis tends to be high for older members with substantial past service and low for young members with little past service.

C.9 The items which are likely to have greatest effect on the MFR position going forward, are:

- how actual asset performance compares with the performance of a notional fund of UK equities and UK long dated gilts in proportions determined by the liability profile.
- how the actual level of dividend income and dividend yield on the FTASI compare with the assumptions underlying the MFR basis.
- how actual contributions compare with the cost of accrual on the MFR assumptions. This cannot be determined fully in advance as it depends on the level of the items referred to above.
- the actual level of salary increases compared with the assumed basis under MFR.
- other general experience items such as early retirements, ill health retirements, deaths, withdrawals and so on.

C.10 The prescribed methodology for determining the minimum contributions does not guarantee that the MFR position will not fall below 100% but does seek to minimise the risk.

Appendix D

Solvency Calculations

D.1 Whilst the Trustee and Employers may have every reason to believe that the Scheme will continue in its current form it is still appropriate to compare the value of the Scheme's assets with the cost of securing the accrued benefits at the valuation date. In this context, "accrued benefits" means the current and deferred pensions of former members in service and their dependants and the leaving service benefits of current members in service. This comparison allows the security of the benefit promise to be assessed and taken into account in the Scheme's funding plan and investment strategy. Such an assessment also ensures that the Trustee can take account of the ability of the Scheme to meet its promises in communication with the members. However, given the Trustee's current investment policy, the solvency position on a given date may be significantly different from the position disclosed in the valuation.

D.2 The option of securing accrued benefits by purchasing non-profit immediate and deferred annuities from an insurance company has been considered. Actual quotations from insurance companies have not been obtained. This would involve providing full data to a selection of companies. This is a costly and time-consuming process. Insurance companies would almost certainly be unwilling to quote for the business because of its size. Instead of obtaining specific quotations, the calculations have been based on our experience of recent buy-out quotations and knowledge of the factors affecting this market. These approximate calculations should not be taken as a quotation.

For the purposes of these solvency calculations, the value of the accrued benefits using the gilt yields discussed in Section 3 has been calculated. However it is necessary in such calculations to include reserves for the risk that the benefits will not be met by investments and, in particular, for the risks arising from the extent

to which it would not be possible for the accrued rights and entitlements to be matched precisely. For the purposes of this valuation, detailed analysis of the risk reserves is not appropriate. Approximate allowance has therefore been made for the necessary reserves by reducing the discount rate used to value the accrued benefits by 0.5% per annum from the long-term gilt yield.

D.3 The assets of the Scheme have been taken at market value in the solvency calculations and allowance has been included for the expenses involved in winding up the scheme – although in practice this introduces a further element of uncertainty. No allowance is made in the solvency calculations for any discretionary increases to benefits.

D.4 The assumptions used may therefore be summarised as follows:

Financial	
Interest rate	4.0% pa
Pre-retirement increases	3.4% pa
Post-retirement increases	2.9% pa
Demographic	
Retirement	All at age 63½
Mortality	PA92 (YOB) Medium Cohort
Commutation	None assumed
Proportion married	LG59/60

D.5 Spouse’s age: Wives three years younger than husbands

Appendix E

Scenario Analysis

E.1 The ongoing valuation of the Scheme has been carried out based on the assumptions set out in section 3 of this report. The actual outcome is likely to be different from these assumptions, especially in the short term. Scenario analysis, carried out as part of the valuation process, shows the potential impact of a range of possible economic outcomes on the past service funding position and normal contribution over the next three years.

E.2 The purpose of this process is two-fold:

- to illustrate the potential variation in the funding level and normal contribution depending on the extent to which experience over the next three years differs from the assumptions; and
- to highlight the risk (and potential rewards) inherent in the current investment strategy.

E.3 The results of the analysis are set out below. At this stage the impact of changing investment strategy has not been considered.

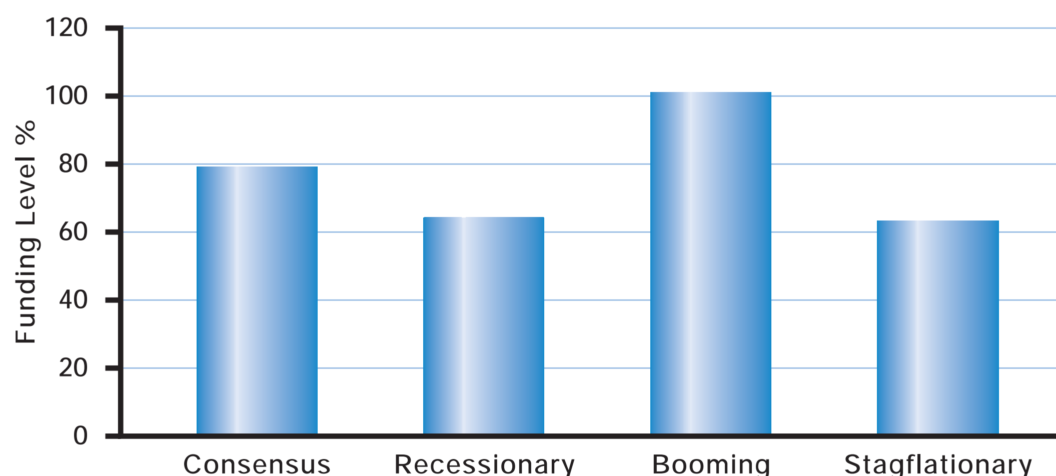
E.4 The scenarios investigated are designed to form a broad spectrum of possible outcomes and are neither equally likely nor intended to represent extremes. The investment assumptions underlying the various scenarios are designed to model possible short-term experience of the Scheme over the next few years, as against the long-term valuation assumptions used in the ongoing valuation of the Scheme. However, as the experience of the last three years has confirmed, returns on investments – equities in particular – do not always follow the logic implied by economic statistics; rather, the return depends significantly on how investors' views about the future at the end of the period of measurement compare with their

corresponding views at the start. Full details of the actuarial assumptions underlying each scenario can be provided, if required. Some of the more extreme scenarios are designed to test the robustness of the investment strategy to critical conditions for the Scheme, not because they are all equally likely. 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)

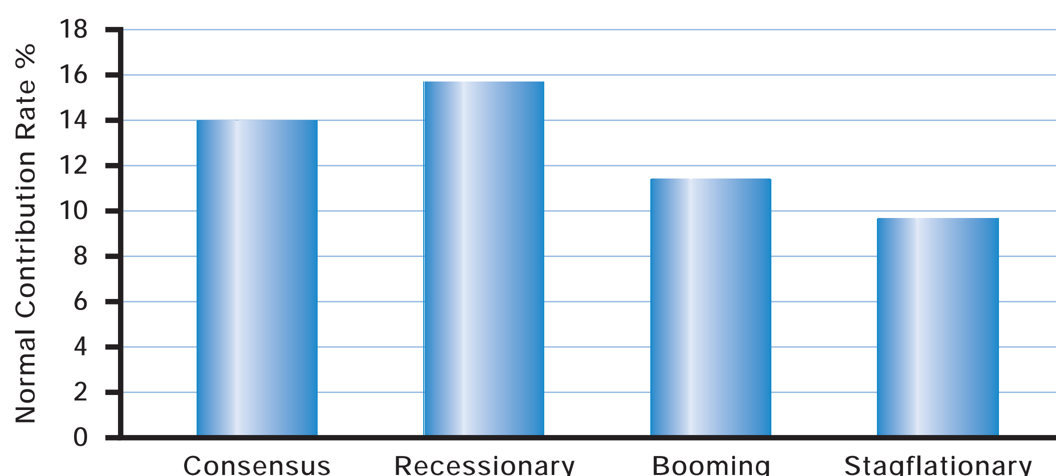
E.5 The following chart shows the Scheme's approximate ongoing funding level after three years under each scenario, assuming the Employer contribution rate of 14% continues over the period.

Ongoing Funding Level as at 31 March 2008



Changes in bond yields under the various scenarios will also affect the cost of benefit accrual. The following chart shows the normal contribution, i.e. before adjustment for surplus or deficit, under the scenarios.

Employer's Normal Contribution Rate as at 31 March 2008



Actuarial Certificate

Ongoing Funding Statement

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	Universities Superannuation Scheme
Effective date of valuation	31 March 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. Variations in markets may mean divergence from those assumptions and changes in values of assets such that this statement would no longer be true unless different assumptions are made or contributions increased at or before the next valuation. The Institutions' abilities to meet future contribution requirements are outside the scope of my investigation. In giving this opinion, I have assumed that the following amounts will be paid to the scheme:

Description of contributions

Employer contributions: 14% of Salaries per annum
Member contributions: 6.35% of Salary per annum

Subject to review at future actuarial valuations.

2. Summary of methods and assumptions used

Valuation method	Projected unit
Investment return - past service - future service	4.5% per annum 6.2% per annum
Salary growth	3.9% per annum
Pension increases	2.9% per annum

Further details of the methods and assumptions used are set out in my actuarial valuation addressed to the Trustee dated December 2005.

Signature

Name E S Topper

Date of signing **13 December 2005**

Address Mercer Human Resource Consulting Limited, Clarence House, Clarence Street, Manchester, M2 4DW

Qualification Fellow of the Institute of Actuaries

Actuarial Certificate

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	Universities Superannuation Scheme
Effective date of valuation	31 March 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

Name	E S Topper
Date of signing	**13 December 2005**
Address	Mercer Human Resource Consulting Limited, Clarence House, Clarence Street, Manchester, M2 4DW
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.

Actuarial Certificate

Surplus Certificate

The certificate is given to the Commissioners of Inland Revenue for the purposes of paragraph 2 of Schedule 22 to the Income and Corporation Taxes Act 1988.

Name of Scheme	Universities Superannuation Scheme
Inland Revenue Reference No.	SF49/1526

A. I hereby certify that:

1. In my opinion as at 31 March 2005 the value of the assets of the Scheme did not exceed 105% of the value of the liabilities of the Scheme;

2. The assets and liabilities to which paragraph (1) refers have been determined in accordance with principles and requirements prescribed by the Pension Scheme Surpluses (Valuation) Regulations 1987.

Signature

Name	E S Topper
Date of signing	**13 December 2005**
Address	Mercer Human Resource Consulting Limited, Clarence House, Clarence Street, Manchester, M2 4DW
Qualification	Fellow of the Institute of Actuaries

Addendum

Technical Provisions and Pension Protection Fund

Pension Protection Fund

From April 2006 final salary schemes will fall under the Pension Protection Fund (PPF). Essentially, the PPF provides an element of security for members of final salary schemes in the event that the employer sponsoring their scheme becomes insolvent. If this happened, the PPF could take on all the assets of the scheme and would in turn provide the PPF benefits as follows:

- Accrued rights, restricted to 90% for non-pensioners
- Capped at £25,000 per annum
- 50% spouses pensions
- No allowance for pre-1997 pension increases
- Pension increases for post-1997 restricted to Limited Price Indexation (RPI capped at 2½%)

In order to fund the PPF, sponsoring employers of schemes that might fall into the PPF are required to pay a levy. This is determined in two parts – firstly an element of the levy relates to the overall size of the scheme (the Scheme based levy) and is a percentage of the liabilities of the above PPF benefits measured on a prescribed set of assumptions. The second part of the levy (the risk based levy) is based on the funding strength of the scheme. A funding level (on the PPF liabilities and assumptions) in excess of 104% minimises this risk based levy. At 31 March 2005, we estimated that the USS was funded to 110%.

The exact levy that the USS would be required to pay is not yet certain and discussions are ongoing.

Technical Provisions

This valuation falls under the Minimum Funding Requirement (MFR) regulatory regime. This regime is to be abolished shortly and the next valuation will be performed under a new regulatory regime – Technical Provisions. The Statutory Funding Objective (SFO) requires that schemes must have assets at least sufficient to cover these Technical Provisions and, if not, to put in place a Recovery Plan to make good the shortfall as "soon as practicable".

The Trustees are required to set the actuarial assumptions used to assess the coverage of the Technical Provisions. The assumptions must be "prudent" although this term is not defined. However the Regulator has recently offered the following as guidance suggesting the sort of funding programme that would generally be acceptable:

- 70-80% covered on buy-out
- Over 100% on PPF
- Will meet full FRS17 funding over 10 years

This guidance was offered in the context of settling disputes where trustees and employers cannot agree on a funding objective (i.e. making good the deficit on Technical Provisions).

Putting the above bullet points in context for the USS:

- The buy-out coverage is within this range
- The USS was measured as 110% funded on PPF
- There is a deficit on an FRS17 basis that will not be met by contributions over the next 10 years while the rate remains at 14%

Whilst nothing has been tested with the Regulator as yet, I would think that the first two bullet points, together with the strong positive cashflow and high equity content of the assets might mean that the Regulator may well be satisfied with the USS position.

So, a funding plan needs to be approved by the Regulator if the scheme is in deficit measured against the Technical Provisions. Further, once set at a formal actuarial valuation, the basis for calculating Technical Provisions cannot easily be altered without good reason. As the coverage and progression of the Technical Provision requires annual re-certification, it is important to choose an appropriate basis at the outset.

Set out below are the surpluses (or deficits) on a variety of possible options for the Technical Provisions basis:

Assumptions	Gilts	Gilts + 1%	Gilts + 1.7%	Gilts +3% pre retirement +1% post retirement
With Salary Increases (£m)	-6,568	-2,415	194	308
Without Salary increases (£m)	-4,111	-340	1,844	1,784

The Scheme Funding Objective and Technical Provisions are not quite the same thing as each other and one might envisage the actuarial bases being different for the two.

The Scheme Funding Objectives will be monitored by "disclosure" to members (rather than the old regime of a minimum funding requirement) but that will also have to marry in (and possibly be tempered by) the acceptability of any Recovery Plan for any under-funded Technical Provisions.