USS Review Working Group
10.30 – 12.00, Monday 14 January 2019
Venue Bannister Room, 6 Worcester St

Agenda

1. Apologies for absence and welcome (Martine Abboud, additional member from the Research Staff Society)

2. Conflicts of interest declarations

3. Minutes of previous meeting – 27 November 2018

4. Matters arising from the minutes

5. Response to 2017 valuation consultation – *to note (to be circulated ahead of the meeting when completed and submitted by 11 January 2019)*

6. 2018 valuation consultation document from USS and USS letter to UUK –

   At the meeting Russell Powles of Aon will explain the key elements of the USS proposal. More material is expected from UUK and Aon (UUK's advisers) to enable employers to give a response to the USS consultation questions –"comments from UUK on the amount of risk employers are willing to support in funding the scheme and the contingent support they are willing to provide". A USS proposed possible range of contributions (33.7% to 29.7% depending on contingent contributions amongst others matters (this implies employer contributions, from the current rate of 18% to between 23% and 20.4%). The additional material from UUK will be tabled at the meeting and this should allow the University to structure the considerations and its response

7. USS discussion paper on 2018 valuation and tPR letter to USS *(to note*)

8. Draft paper for Council (*draft version on options considered by the Group for comment*)

9. Communication update (oral)

10. Any other business.

Date of next meeting – 1.30pm 19 February 2019, venue tbc

Invitees:
Professor Richard Hobbs (Chair)
Dr Martine Abboud
Mr Charles Alexander
Professor Gordon Clark
Sir Andrew Dilnot
Professor Danny Dorling
Mr Julian Duxfield
Professor Fabian Essler
Professor Cecile Fabre
Mr Charles Harman
Professor Sam Howison
Professor Jane Humphries

Mr Jaya John John
Mr Giles Kerr
Mr Lindsay Pearson

Apologies:
Professor Gordon Clark
Sir Andrew Dilnot
Professor Cecile Fabre
Professor Sam Howison
Mr Giles Kerr

In attendance:
Ms Jan Killick
Mr Stephen Rouse
Mr Russell Powles, Aon
Ms Judith Finch, Conference of Colleges
Prof Anne Trefethen, Pro-Vice-Chancellor, People and GLAM

COUNCIL

USS Review Working Group

Meeting room 4, Radcliffe Quarter , 11.30 am – 1.00 pm

Minutes of the meeting of 27 November 2018

Present: Professor Richard Hobbs (Chair), Mr Charles Alexander, Professor Danny Dorling, Mr Charles Harman (by phone), Professor Jane Humphries, Mr Jaya John John, Mr Julian Duxfield, Professor Fabian Essler,

In attendance: Ms Jan Killick, Mr Russell Powles (Aon), Mr Stephen Rouse, Professor Anne Trefethen, Ms Judith Finch

Apologies: Professor Gordon Clark, Sir Andrew Dilnot, Professor Cecile Fabre, Professor Sam Howison, Mr Giles Kerr,

1. **Apologies for absence and welcome**

Prof Clark, Prof Howison, Prof Fabre, Sir Andrew Dilnot and Mr Kerr had sent their apologies.

2. **Conflicts of interest**

There were no new conflicts of interest declared.

3. Minutes of the previous meeting

The minutes of the meeting on 29 October 2018 were agreed.

4. Matters arising from the minutes

All matters arising from the minutes had been completed or were covered as separate agenda items.

5. UUK summary of Employer feedback

The Group reviewed the summary prepared by UUK on the responses from employers on the Joint Expert Panel findings. It was noted that the questions posed by UUK had been narrow. The University's response had been classified as giving clear support to the JEP findings. This consultation was viewed as a stepping stone towards the next valuation, a 2018 valuation. The letter from USS proposing this out of cycle valuation was noted.

The group discussed the impact of possible contribution increases and the understanding of risk at various employers, particularly at smaller institution where increased cost could cause financial stress. A drop in student fees could compound these difficulties.

It was noted that only 112 University employees out of over 9,000 USS members at the University submitted responses to the Employer consultation on increases in contributions and removal of the employer Match contributions. Prof Hobbs asked that the summary submitted to the USS trustee be circulated with the minutes.

Action: **JK**

6. Update on Council's consideration on USS matters

Prof Hobbs gave feedback on the discussion on USS matters at Council on 30 October 2018. Council had been asked specifically to provide clarity for the Group (and others as the point had been raised on the Pension online discussion forum) as to whether Council seeking to 'provide pension provision for USS members employed by the University that is of the same standard as currently available', subject to the stated conditions, referred solely to the maintenance of the level of benefits or extended to meeting the cost of increased employee contributions (in addition to the increased employer's contributions). Council agreed that "pension provision" referred to the level of benefits.

Prof Hobbs outlined that at this stage Council did not require the Group to consider the proposed increases in contributions under Rule 76.4. The Group's focus should be developing options on how to maintain the same standard of benefits should these be reduced. Prof Essler commented that it was his understanding that Council had not considered who would meet the cost of maintaining the level of benefits in Oxford should this be required.

7. Summary of options considered by the Group to date

Mr Duxfield reminded the Group of the various options that had been considered and those that had been found to be impractical. A summary of the options considered and the conclusions reached would be taken to Council in Hilary Term. A more detailed paper was required that covered in more depth the DC top up, with example members, to highlight the difficulty in calculating and the practical difficulties. The tax position of any DC contributions should be explained, noted that many colleges did not operate a salary sacrifice arrangement. The Group remained of the view that trying to achieve a solution within USS would be in the University's and employees' best interests.

Many employees had raised the concerns about the affordability of increased contributions. When considering DC or cash alternative as the two remaining options, there was some discussion about would employees be given options on the level of their contributions or cash. Mr Duxfield noted that only those who opt out of USS due to the impact of pension taxation were given a cash alternative. Ms Finch suggested that may be an option for those if they opted out of a DC top up to have a cash alternative.

Prof Humphries queried if option 7b (cash alternative) was consistent with Council's statement regarding providing pension provision.

It was agreed that the Group would agree a revised paper for Council on the options by circulation early in the New Year.

Action: JK/JD

8. Communication update

Mr Rouse reported that the traffic on the pensions pages was lower than in August and September. The issue of an all staff email drove traffic to the site, with the most recent email sent on 10 October 2018. The videos of the open forum for September had 53 views, with 20 watched to the end. 20 people had visited the glossary section in the past week.

9. Discussion on communications and meetings for 2019

The Group considered if it could help understanding to include a summary of the impact of the different strategies for the valuation assumptions. Prof Dorling suggested that it may help to explain what the differences in approaches were. There was a concern that different approaches did not necessarily have equal validity. To avoid suggesting that the Group endorsed a particular valuation approach, having previously agreed not to comment on the valuation considerations of the JEP, it would not follow this route. The Group agreed it would include a timeline to the key 2018 valuation consultation dates and other events on the website.

Action JK/SR

Prof Hobbs reported that the open fora had been well received. It was clear from these sessions that the general level of understanding on valuation and other pension matters was not high. To help employees understand the complexities a glossary of terms had been posted on the University's website https://www.ox.ac.uk/staff/working-at-oxford/pensions-comms/glossary. Group members were invited to comment on the glossary. One question that had been raised on several occasions at the fora was whether the JEP findings were binding. It was confusing understand the influence of the various parties involved.

As the open forum had generally been well received, although the numbers attending had been reducing, with around 30 at the last meeting. It was agreed to continue the sessions with at least one next term.

The Group would meet early next term and monthly thereafter to summer.

10. Any other business

There was no other business.

11. Next meeting

The next monthly meeting: Monday 14 January 2019, 10.30 am, to 12.00pm, Meeting room tbc.

The meeting closed at 11.30 am

Paper 6

Universities Superannuation Scheme

2018 Actuarial Valuation

A consultation with Universities UK on the proposed assumptions for the scheme's Technical Provisions and Statement of Funding Principles

2 January 2019

Contents

1. Introduction

This document sets out the Trustee's actuarial assessment of the USS Retirement Income Builder's funding position as at 31 March 2018 and constitutes a formal statutory consultation on the Technical Provisions and the Statement of Funding Principles. The USS Retirement Income Builder is the name for the defined benefit (DB) section of the scheme.

This document forms part of the 2018 actuarial valuation of the scheme, carried out in accordance with the requirements of the Scheme's Trust Deed and Rules, and the Pensions Act 2004. The document also sets out the future contribution requirements including deficit contributions (a formal consultation on the Recovery Plan and the Schedule of Contributions will follow later in the valuation process).

As the last assessment was conducted just 12 months prior (31 March 2017), this document only sets out the material changes identified and applied by the Trustee in that time. Cross-reference to the supporting materials in the 2017 Technical Provisions report may therefore be beneficial.

The Trustee is undertaking a 31 March 2018 valuation as Universities UK (UUK) has written to the Trustee to communicate that the vast majority of employers are supportive of the Joint Expert Panel's recommendations and therefore would (subject to some conditions) wish to see a change in valuation assumptions. The Trustee as part of the valuation will re-evaluate the employers' risk appetite and explore contingent contribution arrangements, in order to reflect the employers' desire to support the JEP's recommendations.

These matters could not be accommodated in the 2017 valuation due to the statutory requirements to complete that valuation by a legal deadline.

Once completed, the outcome of the 2018 valuation will result in a new Schedule of Contributions and deficit recovery plan which will replace those from the 2017 valuation.

2. The current position

An overview of the benefits provided by the scheme and the current contributions payable is provided in Appendix A.

The total contributions currently payable by members and employers sum to 26% of salary. Under the 2017 valuation these will **increase** in three phases between 1 April 2019 and 1 April 2020 to a total of **36.6%** of salary.

3. The 2018 valuation

A valuation as at 31 March 2018 has a statutory deadline for submission to the Pensions Regulator of 30 June 2019. The Trustee proposes, in line with its legal duties, to use the same methodology as adopted for the 2017 valuation with key assumptions and inputs being updated (where permitted by the regulations) for experience, change in outlook and employers' risk appetite.

A description of the methodology adopted for the 2017 valuation is available in the respective Technical Provisions consultation document, and the final assumptions and inputs for the 2017 valuation are contained in the Rule 76.1 report (issued to stakeholders in December 2017 – a summary of which was subsequently published online by the Trustee in April 2018).

The methodology was discussed and consulted upon with stakeholders via a Valuation Discussion Forum in 2016 – a detailed report of which is available on the USS website.

The proposed changes to assumptions and inputs are discussed in the following sections.

4. What has changed since 31 March 2017?

Two key things have occurred since the assumptions and inputs for the 2017 valuation were decided:

- The Trustee has another year of economic and membership experience and new data upon which to base the valuation assumptions and inputs.
- A stakeholder panel was convened to review the 2017 valuation. In its report this Joint Expert Panel (JEP) proposed six “adjustments” to the 2017 valuation.

We address these two developments in turn.

4.1 New experience and data

4.1.1 Interest rates

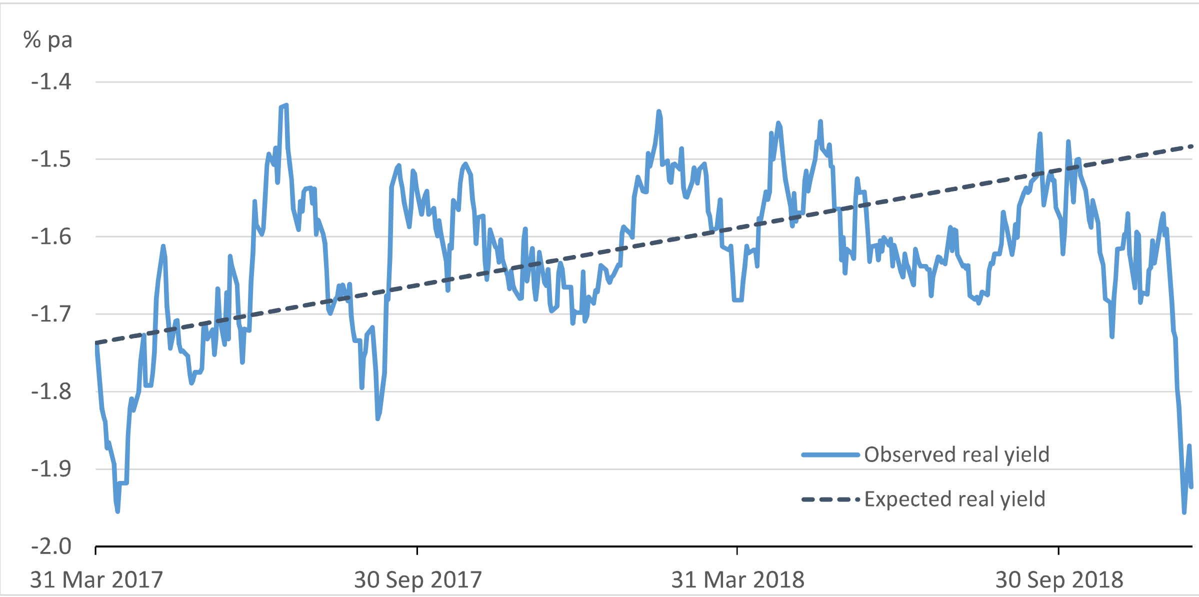
Recall that in the 2017 valuation a core assumption made by the Trustee involved a fundamental belief in the reversion of real interest rates (real gilt yields) over a 10-year period to a level comparable to that prevailing at the time of the 2014 valuation. Specifically, the Trustee’s assumption was that 20-year real gilt yields would increase from –1.74% on 31 March 2017 to a level of –0.25% on 31 March 2027.

Figure 1 shows the evolution of 20-year real gilt yields since 31 March 2017 compared with the expected path forecast in the 2017 valuation. There is clearly volatility in the yield level, but until October 2018 a clear upward trend that broadly tracks the expected path is evident.

As at 31 March 2018 the 20-year gilt yield stood at –1.68%, which is just 9 basis points (bps) below its expected level.

Following the market turmoil in October 2018 and the Brexit-related market developments in early December 2018, the real gilt yield is now some way below the expected path: as of the 14 December 2018 it stands at –1.92% some 44bps below its expected level and 18bps lower than at the 2017 valuation date.

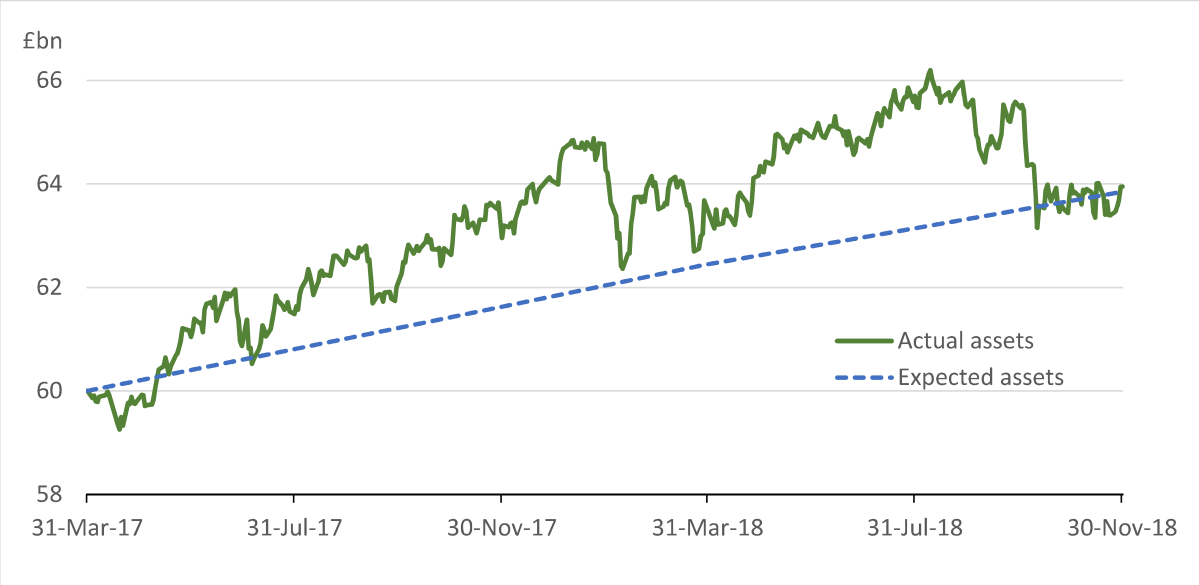
Figure 1: 20-year real gilt yield compared to the expected reversion path assumed in the 2017 valuation. (Data from 31 Mar 2017 to 14 Dec 2018)



4.1.2 Realised asset returns

Since 31 March 2017, realised asset returns have generally been higher than the expected (best estimate) path in the 2017 valuation, as shown in Figure 2. This is reflected in the level of DB assets at 31 March 2018 which stood at £63.7bn, some £1.2bn higher than expected. Since October 2018, experience has not been so positive with DB assets as of 14 December 2018 very close to the expected level forecasted in the 2017 valuation.

Figure 2: Growth in DB assets compared with expected (best estimate) path in the 2017 valuation. (Data from 31 Mar 2017 to 14 Dec 2018).



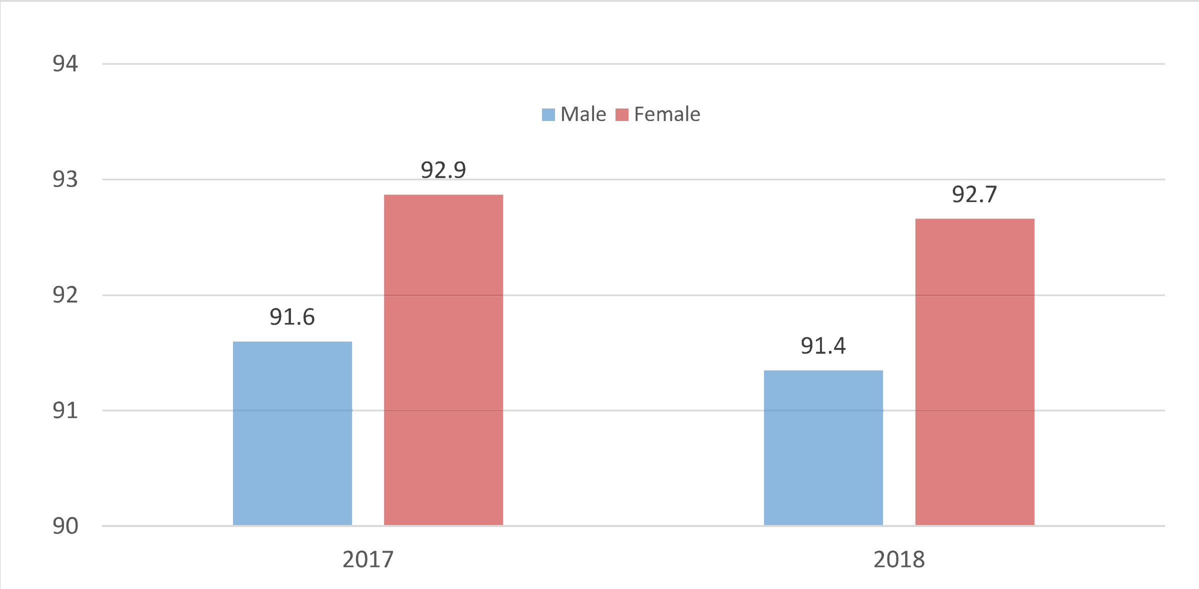
4.1.3 Mortality

Mortality rates have been updated to reflect the one year of additional experience data available for the scheme. The additional year of scheme mortality experience reflects a lower realised improvement in mortality rates than expected from 2017 to 2018. This is broadly consistent with observations in the general population where the slowdown in population mortality rates leads to a lower near-term rate of improvement, albeit this change is less marked for USS because USS member demographics are very different from those of the general population.

The implication of this is a slight fall in the life expectancy of USS members. Figure 3 shows the (cohort) life expectancy for USS members aged 45, assuming they reach retirement age.[1] It is evident from the chart that cohort life expectancy for both male and female members has fallen by 0.2 years (or about two-and-a-half months) over the year.

[1] So-called "cohort life expectancy" measures life expectancy taking account of prevailing mortality rates and projections for future improvements.

Figure 3: Life expectancy of 45-year-old USS members upon reaching age 65 based on 31 March 2017 and 2018 valuations (both shown at consistent dates)



4.1.4 Expected future investment returns

Expected future investment returns on the assets held by the DB section of the scheme have been updated using the Trustee's Fundamental Building Blocks (FBB)[2] approach, which is the same approach that was used for the 2017 valuation.

Expected investment returns are vitally important to the valuation because they form the basis from which discount rates are calculated. (Discount rates are used to establish the scheme's technical provisions (liabilities) and future contribution requirements.)

The updated FBB results for the real expected returns are summarised in Figure 4 for the 2017 Reference Portfolio.

Note as for 2017, the 2018 expected returns are lower in the first 10 years than the subsequent 20 years because of reversion of real gilt yields in that initial 10-year period.

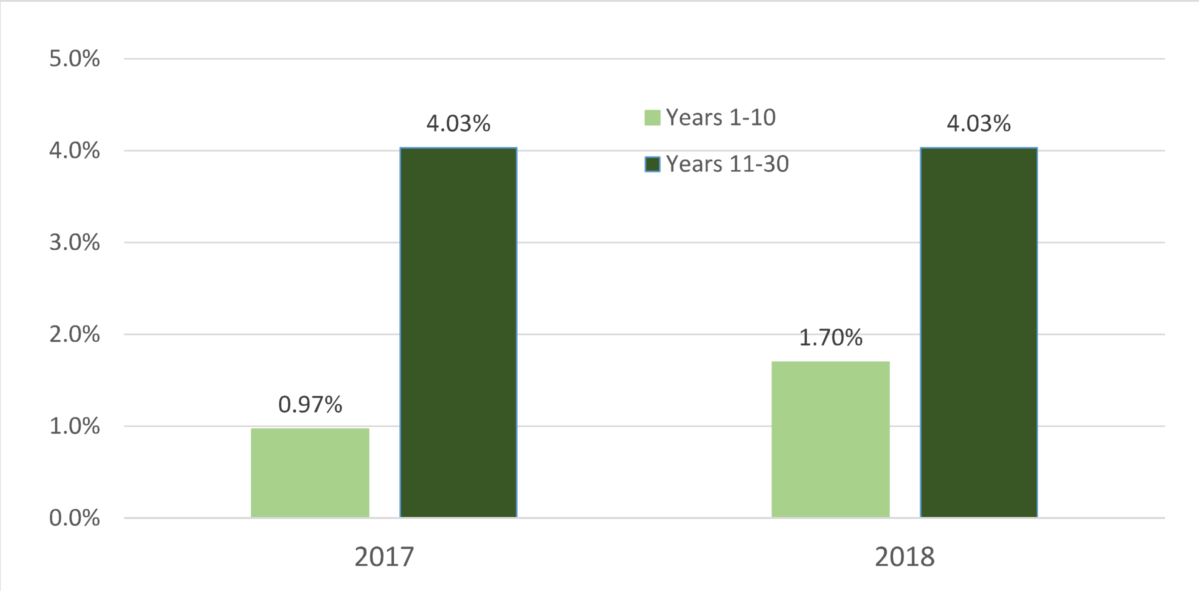
Comparing the expected returns between the two years *for the same portfolio* (the 2017 Reference Portfolio) we see that:

- The 2018 expected returns are higher than 2017 in the first 10 years by 73bps a year.
- The 2018 long term equilibrium returns beyond 10 years are the same as those used for the 2017 valuation.

Note that the 2018 numbers will be different for the 2018 Reference Portfolio, but only slightly.

[2] Details of the FBB approach can be found in "USS Investment Management's Fundamental Building Blocks (FBB) approach to expected returns", March 2018.

Figure 4: Expected real returns on the 2017 Reference Portfolio as of 31 March 2017 and 31 March 2018 (assumes the same portfolio and no de-risking)



4.1.5 Net impact

The observed changes in three of the above variables (realised asset return, mortality rates and expected investment returns) are positive in that they all contribute to reducing the deficit and future contribution requirements. By contrast, the change in real gilt yields acts as a drag on the positive effect of the other three elements, but the overall impact is positive.

4.2 The JEP's suggested adjustments

The Joint Expert Panel (JEP) convened by UCU and UUK proposed six adjustments to the 2017 valuation, namely:

- Incorporate the latest mortality experience data and realised investment returns.
- Use updated future expected investment returns.
- Increase the target reliance on the employers' covenant in 20 years' time from £10bn to £13bn in real terms.
- Reinstate the 10-year delay in de-risking the investment strategy (this was the basis upon which the Trustee consulted in September 2017).
- Allow for future investment outperformance (relative to discount rates) in calculating Deficit Recovery Contributions (DRCs).
- Smooth future service contributions over two valuation cycles.

Starting from the methodology and assumptions of the 2017 valuation, the JEP estimated the impact of these adjustments on the contribution rate. With these adjustment they estimated that current USS benefits (having removed 'the match') could be funded with a contribution rate of approximately 29.2%. (The panel's report also recognised that there were a number of different paths that the Trustee could adopt to reduce the contribution rate to below 30%.)

Together these adjustments significantly increase the risk associated with the valuation as we show below. The JEP report did not explicitly consider or estimate this increase in risk, but suggested this would be addressed in a second phase of the panel. Some pertinent aspects of the Trustee's perspective on risk are dealt with in the next section.

Separately UUK has written to the Trustee indicating that the sponsoring employers are prepared to accept more risk in funding the scheme in order that the JEP adjustments can be implemented, subject to USS providing more information on the additional financial risks involved – and if and how they could be managed, and mitigated: *"UUK's analysis shows that the vast majority of employers that responded to the consultation are supportive of the JEP's recommendations and therefore wish to see a change in valuation assumptions in line with that put forward. There are however conditions attached to this support, in particular that it is subject to acceptance by the USS trustee (and the Pensions Regulator, as appropriate) and the need for further information on what (if any) requirements there may be from the USS trustee to back any additional risk which is associated with the JEP's recommendations."*

5. Managing risk

The Trustee has a statutory duty to take account of risk in the actuarial valuation. This is reflected in the prudence that is required to be incorporated into the technical provisions and the risk considerations relating to the deficit recovery plan.

There are a number of risks in funding any DB pension scheme. The principal ones can be broadly classified as including risks to:

- Covenant strength (i.e. the ability of the employers to provide adequate support to the scheme);
- Demographic assumptions (i.e. longevity risk); and
- Financial assumptions (i.e. investment risk).

Risk is part of all financial decisions, the outcomes of which are never certain.

Whilst it is hoped outcomes will be favourable, there is a need to have credible options available for material downsides.

The potential downside impact on the valuation of the above risks could be a much larger than expected deficit, higher than expected contributions, and higher than sustainable reliance on the employers' covenant.

5.1 Risk and the response to the 2017 Technical Provisions consultation

When the Trustee consulted on the 2017 valuation in September 2017, the response received from UUK indicated that the Trustee should take a more moderate approach to risk.

There was particular concern about the assumption of gilt yield reversion and a desire for the Trustee to reconsider the investment strategy and the role of hedging (i.e. de-risking) within the investment strategy. For example:

- "…a small majority of employers (53%) have a preference to accept the level of risk proposed, with many qualifying that the proposals are at the very edge of what would be acceptable. However… a significant minority (42%) … want less risk to be taken."
- "…the large number of employers who are uncomfortable with the maximum level of risk proposed by the trustee. …UUK believes a path less reliant on … interest rate reversion would reduce the risk of a future call on contingent contributions."
- "Many employers are concerned about the challenges that would be faced if interest rates were not to revert... We ask the trustee to consider carefully whether the proposed investment strategy (including the degree of interest rate hedging) is optimal."

This feedback runs counter to the level of additional risk embodied in the JEP adjustments, to such an extent that the Trustee would need to re-evaluate the risk appetite of employers in order for the panel's proposals to be considered.

A number of third parties also expressed a view on the risk associated with the September 2017 Technical Provisions consultation. In particular, Aon (UUK's actuarial advisor), PwC (the scheme's covenant advisor), the Pensions Regulator and the scheme actuary all indicated that the amount of risk incorporated in the Technical Provisions proposed in September 2017 was close to the maximum acceptable level.

Importantly, in the response to the Trustee's consultation, UUK requested that the views of tPR be reflected in the Trustee's considerations: *"UUK recognises that the views of tPR could have a significant impact on the 2017 valuation, and asks that the trustee considers the important commentary from tPR as it determines its final views on risk capacity."*

This feedback from third parties taken together with the feedback from employers (via UUK as the consultee) confirms the view that the September 2017 Technical Provisions set the benchmark for the maximum level of risk in the valuation.

Note that this maximum level of risk also came with some requirements for contingent support, which are briefly outlined on page 10 of the September 2017 consultation document.

5.2 The final 2017 Technical Provisions and contribution rate

Following the consultation with employers, their concerns about risk described above coupled with their reluctance to provide contingent support led the Trustee to reducing risk through the following two measures:

- Bringing the investment de-risking programme forward to start immediately; and
- Increasing the level of deficit recovery contributions to 6%.

The result is that the overall required contribution (after removal of 'the match') steps up over time to a total of **36.6%** of salary. This is the amount shown in the Schedule of Contributions currently being consulted on for the 2017 valuation that will be prevailing from 1 April 2020.

5.3 Implications for the proposed JEP adjustments

The implications of the issues discussed in the previous two sections are as follows:

For a significant increase in risk beyond the level adopted in the final Technical Provisions (such as that associated with the JEP adjustments), the Trustee requires additional contingent support arrangements.

The potential form of those contingent arrangements are discussed later in this document.

5.4 Measuring risk in the 2017 valuation

Risk is a multifaceted concept. This is reflected in the variety of different metrics for measuring risk and the variety of different perspectives on risk.

5.4.1 Risk measured in terms of reliance on the covenant

A particularly important risk metric for the Trustee is the amount of *reliance* on the employers' covenant, measured in terms of the self-sufficiency deficit.

The reason that the Trustee can take risk in funding the scheme is the fact that the employers stand collectively behind the scheme.

That covenant, however, is not unlimited and employers must decide how much of their risk budget they can – and wish – to be allocated to supporting the scheme. It is for this reason that reliance on the covenant is one of the Trustee's key measures of risk.

One of the ways with which the Trustee manages long-term risk is by setting a long-term target level of reliance that is within the risk capacity and the risk appetite of the employers.

In this context, the Trustee measures reliance as the difference between:

- The assets required under a low-risk investment strategy to pay all accrued benefits with a high probability without requiring any further contributions (i.e. self-sufficiency); and
- The assets currently held by the DB section of the scheme.

The long-term reliance target adopted for the 2017 valuation was £10bn in real terms in 20 years' time. In other words, this is the target level of reliance on the employers' covenant 20 years out from the valuation date.

The realised reliance at 31 March 2017 was £22.4bn, and the 2017 valuation envisaged a target path over 20 years for reliance to fall to £10bn in real terms by 2037. (Note the target path is not the *expected* path, but merely a target against which progress can be measured.) As at 31 March 2018 realised reliance had fallen to £20.8bn, slightly ahead of the target path.

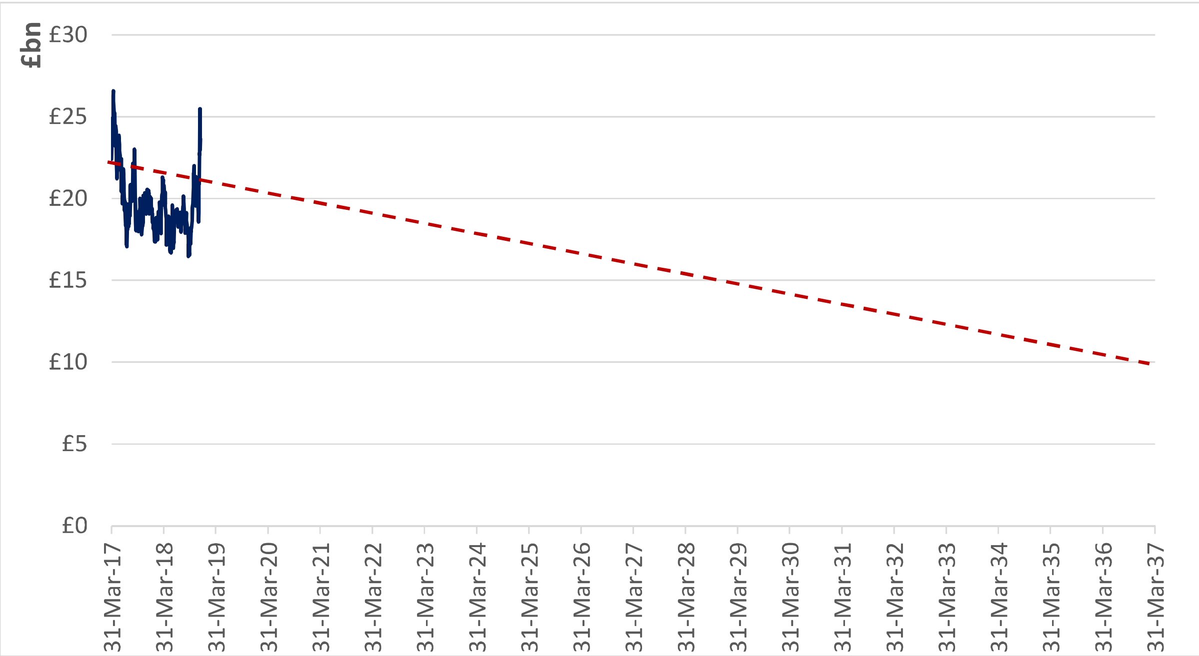
Reliance is volatile, however, as the chart in Figure 5 shows.

In this chart the realised reliance since 31 March 2017 to 14 December 2018 is compared with target path of reliance. So while the £10bn reliance target helps control long-term reliance risk, the valuation is still subject to significant short-term reliance risk. We see that reliance has swung by over £10bn from peak to trough: peaking at £26.6bn and falling as low as £16.6bn.

So while there is a plan for the long-term risk to be kept under control, it is evident that there are credible short-term scenarios which could result in reliance reaching levels which, if sustained, would be difficult for the sector to support.

While we certainly do not expect to have to move to a self-sufficiency strategy in the short term, there are credible scenarios that could make the current risk position difficult to recover from – such that the ability to move to a self-sufficiency strategy in the long term moves out of reach.

Figure 5. Reliance: Actual vs the 2017 target of £10bn in 2037 (Data from 31 Mar 2017 to 14 Dec 2018).



5.4.2 Risk measured in terms of average discount rate spread

Another measure of aggregate risk in any valuation is the average discount rate used to determine the technical provisions. Specifically it is the discount rate expressed as a spread relative to inflation (i.e. CPI) or gilt yields.

This is not a perfect measure of risk (no single risk metric in isolation can be described as perfect), but it does provide an appropriate way to compare the aggregate risk across different valuations and across different DB pension schemes. It is for this reason that we introduce this approach here.

The Trustee considers that measuring discount rates relative to CPI is the most appropriate approach, as the scheme's liabilities for the main part are explicitly linked to CPI. By contrast, the Pensions Regulator prefers measuring discount rates relative to gilt yields. These two ways of quoting discount rates provide similar perspectives on the aggregate risks in different actuarial valuations.

Table 1 below shows the average (liability-equivalent) discount rates relative to CPI and relative to gilts used in the 2017 valuation both for the September 2017 consultation and those adopted for the final 2017 Technical Provisions. Note that the final discount rates are c.20bps lower than those for the September 2017 consultation, reflecting the reduced risk position that resulted from employers' feedback. Both of these are relevant for comparative purposes when considering the proposals for the 2018 valuation discussed later.

Table 1. Discount rates for the 2017 valuation under two bases.

Discount rates relative to	September 2017 TP Consultation	2017 Final Valuation
Spread over CPI ("CPI +")	CPI + 0.91%	CPI + 0.71%
Spread over IL gilts ("Gilts +")	Gilts + 1.41%	Gilts + 1.20%

Note that the view expressed by the Pensions Regulator is that the discount rate used in the September 2017 consultation was at the upper end of the range for a scheme with a "strong" covenant.

Furthermore, the Regulator's view – with which the Trustee disagrees – is that the sponsoring employers of USS provide a covenant that is only "tending-to-strong", as opposed to "strong".

As such, the final discount rate adopted for the 2017 valuation of gilts + 1.20% is still above the level the Regulator views as appropriate for a "tending-to-strong" covenant.

6. Considerations for the 2018 valuation

6.1 Potential updates and changes

The Trustee has reviewed the assumptions and inputs used for the 2017 valuation in order to decide what should be updated for the 2018 valuation.

In terms of the demographic assumptions, with the exception of mortality the Trustee proposes to use the same assumptions as adopted at the 2017 valuation.

Similarly with respect to financial assumptions, the Trustee proposes to use the same approach as in the 2017 valuation. However, an important proposed change is to update the future expected returns on assets, which are derived from the Trustee's Fundamental Building Blocks (FBB) approach.

There are also other changes relative to the 2017 valuation that the Trustee could elect to make when undertaking the 2018 valuation, including the six JEP "adjustments" discussed.

All these changes fall into three broad risk categories, namely:

- *Risk Category 1:* Those which reflect experience and do not necessarily increase risk
- *Risk Category 2:* Those which on some measures do not increase risk, but on other measures do increase risk
- *Risk Category 3:* Those which clearly increase risk

For this purpose, the Trustee considers risk to be increased if there is a change in the implied path for future investment strategy which means that investment risk would be higher and / or because of reduced contributions which in turn reduce the build-up of assets available in the Scheme.

Table 2 lists potential adjustments that have been considered by the Trustee in deciding its approach to the 2018 valuation and classifies them according to the above risk categories.

Table 2: Potential changes in the 2018 valuation relative to the 2017 valuation

Ref. No.	Potential changes in the 2018 valuation (relative to 2017)	Risk category
1	Incorporate realised investment returns	1
2	Incorporate the latest mortality experience data	1
3	Change in retirement age from 65 to 66 from October 2020 *(non-JEP change)*	1
4	Use updated future expected investment returns from the FBB approach	2
5	Increase target reliance at 20 years from £10bn to £13bn in real terms	3
6	Defer de-risking for 10 years	3
7	Smooth contribution rates over two valuation cycles	3
8	Allow for investment outperformance relative to technical provisions discount rate in the deficit recovery contributions	3

Individually each of these potential changes is worthy of consideration and could well be acceptable in the context of the 2018 valuation. However, all changes must be considered collectively in terms of their overall impact on the aggregate risk in the valuation. The Trustee is of the view that changes 1 to 4 in Table 2 could be incorporated in the 2018 valuation without significantly increasing the aggregate risk position. (Note that the increase in discount rate arising from updating of the FBB expected returns will probably be considered by the Pensions Regulator as an increase in risk).

However, the adoption of any of the changes from 5 to 8 in Table 2 would involve increases in risk that would necessitate the introduction of contingent support measures (which are addressed later in this document).

Collectively, the level of additional risk would be very significant.

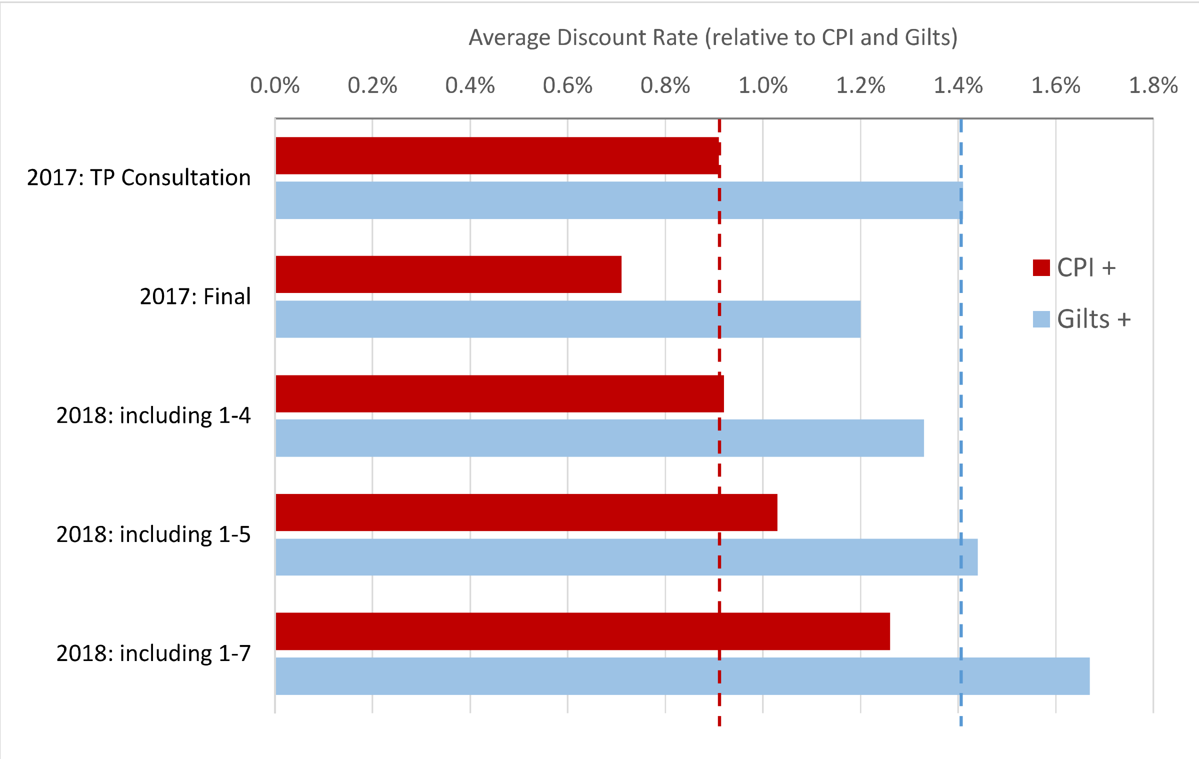
6.2 Risk in the 2018 valuation

As we discussed above, one useful measure of aggregate valuation risk is the single-equivalent discount used for the technical provisions relative to CPI (or relative to the yield on gilts).

Figure 6 below compares the single equivalent discount rates considered in in the 2017 valuation with those that would arise in the 2018 valuation adopting different combinations of the changes in Table 2.

It is instructive to compare the discount rates to those for the September 2017 consultation, which we discussed earlier as being at the maximum acceptable risk level at that time and therefore defining a kind of risk benchmark.

Figure 6. Comparison of different combinations of changes for the 2018 valuation. Chart shows discount rates relative to CPI and relative to gilts.
(The 2017 valuation is included for benchmarking purposes.)



According to Figure 6, using the relative discount rates as risk metrics suggests that changes 1 to 4 from Table 2 yield an aggregate risk level that is comparable to, or slightly below, the benchmark suggested by the September 2017 consultation.

Incorporating changes 1 to 5 results in an aggregate risk level that is slightly above the benchmark, whereas incorporating changes 1 to 7 is significantly above the benchmark.

6.3 Another perspective on risk: Reliance stress tests

As we described above, one of the risks of most concern to the Trustee is the short-term level of reliance. Whilst reliance appears to be moving towards the longer-term desired target, there are some credible event risk scenarios that demonstrate that this could significantly change.

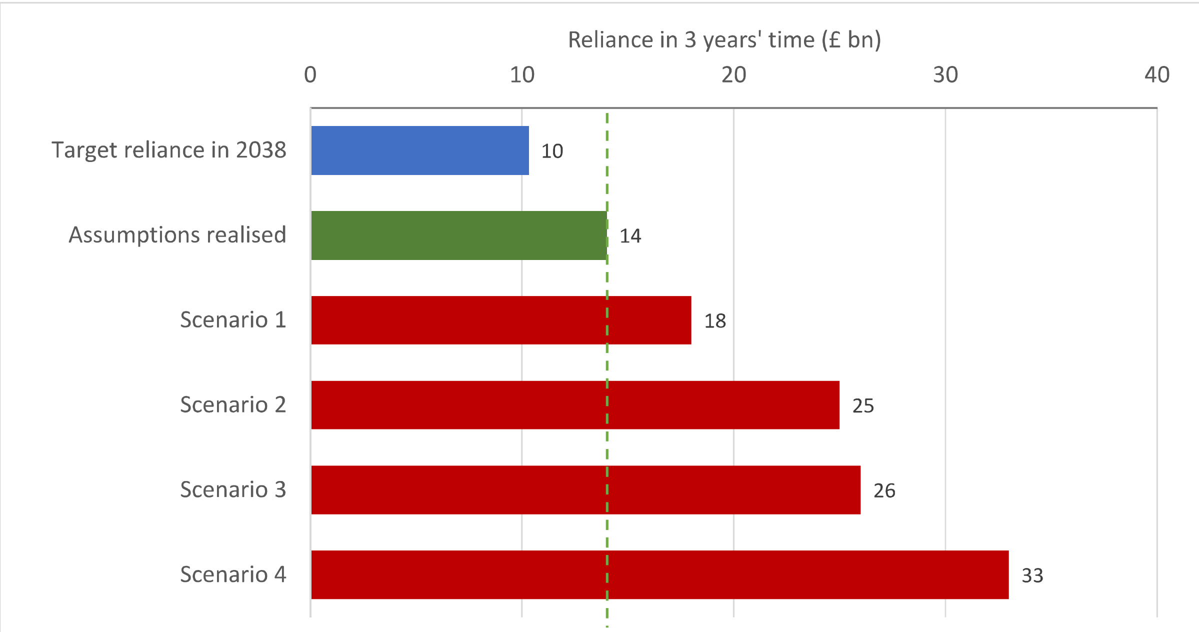
We consider the same four scenarios that we considered in the September 2017 consultation. These are:

- *Scenario 1:* Gilt yield reversion does not materialise as expected, but moves broadly in line with market breakeven levels (forwards).
- *Scenario 2:* Scenario 1 + 10% asset fall.
- *Scenario 3:* Scenario 1 + 50bp fall in gilt yields.
- *Scenario 4:* Scenario 3 + 10% asset fall.

Figure 7 shows the impact of these four scenarios on reliance in 3 years' time in the context of the 2018 valuation (note that the impact on reliance is the same regardless of which of the changes 5 to 8 are incorporated into the 2018 valuation). The impact of these scenarios have been compared to the expected (best estimate) position and to the long-term reliance target of £10bn.

The implications of this event risk scenario analysis are clear: there are credible risk events in which reliance rises significantly (potentially doubling) over the short term.

Figure 7: Impact of four adverse scenarios on reliance in 3 years' time for the 2018 valuation.



7. Technical provisions and contribution requirements for the 2018 valuation

The risk considerations discussed in the previous section have an important bearing on the technical provisions and contribution requirements for the 2018 valuation.

The Trustee is of the view that for the 2018 valuation the overall contribution requirement is dependent on the amount of contingent support provided by employers:

- Without any contingent support arrangements, the overall contribution rate could potentially be slightly lower than that for the 2017 valuation; and
- With sufficient contingent support, the overall contribution rate could potentially be notably lower than that for the 2017 valuation.

The upper and lower ends (or "bookends") of the range of potential acceptable technical provisions and contribution requirements is discussed below.

7.1 Upper bookend assuming no contingent support

The key changes relative to the 2017 valuation that the Trustee proposes to make if **no** contingent support is provided are changes 1 to 4 from Table 2:

- *Change 1:* Updating of assets to allow for actual investment returns realised over the period 31 March 2017 to 31 March 2018;
- *Change 2:* Observed lower rates of mortality improvement;
- *Change 3:* Change in retirement age which increases to 66 for service after October 2020;
- *Change 4:* Higher discount rates than adopted at the 2017 valuation, reflected the higher expected assets returns produced by the FBB approach as at 31 March 2018.

Full details of all the proposed assumptions for the 2018 valuation, highlighting where they differ from the 2017 ones, are provided in Appendix B.

Table 3 details the technical provisions and future service rate as at 31 March 2018 **without** contingent contributions.

*Table 3: Comparison of the 31 March 2017 valuation and 31 March 2018 if **no** contingent support is provided.*

	Rule 76.1 Valuation at 31 March 2017	Valuation at 31 March 2018 with no contingent support
Prudence percentile level:	**67th**	**67th**
Reliance in 20 years:	**£10bn**	**£10bn**
Technical Provisions (TP)	£67.5bn	£67.3bn
Self-sufficiency (SS)	£82.4bn	£84.5bn
Assets	£60.0bn	£63.7bn
Deficit on TP basis	£7.5bn	£3.6bn
SS basis	£22.4bn	£20.8bn
Total contributions:*		
Future service contribution	30.6%	28.7% (NRA 66)
Deficit recovery contribution	6%	See discussion point below
Total contribution	36.6%	See discussion point below
Average discount rate above current gilt yields	**1.20%**	**1.33%**
Average discount rate above CPI assumption	**0.71%**	**0.92%**

In respect of the 2017 valuation, the Trustee is currently consulting on the Schedule of Contributions which includes a deficit recovery contribution of 6%. Allowing for no outperformance in the recovery plan results in a recovery period of 14 years (from 2020). The main reason for the level of deficit recovery contributions was the concern in respect of the short-term reliance position and the lack of contingent support.

Given the improvement in the self-sufficiency position between 31 March 2017 and March 2018, and subject to this being in a similar position at the time the scheme actuary signs off the 2018 valuation Schedule of Contributions, the Trustee is proposing deficit recovery contributions for the 2018 valuation – **without** contingent support, and **not** allowing for any outperformance – of 5%.

Table 4 below details the deficit contribution assuming different levels of investment out-performance allowed for in the recovery plan and term. (Note that a formal consultation on the Recovery Plan and the Schedule of Contributions will follow later in the valuation process.)

Table 4: Deficit Recovery Contributions (DRCs) for different terms and investment outperformance

DRCs required (% of salary)		Deficit recovery period (years from 31 March 2018)							
		14	13	12	11	10	9	8	7
Level of outperformance (proportion of BE returns over TP)	0%	3.5	3.9	4.3	4.8	5.5	6.3	7.5	9.1
	5%	3.0	3.3	3.7	4.2	4.8	5.7	6.8	8.3
	10%	2.5	2.8	3.2	3.6	4.2	5.0	6.1	7.6
	15%	2.0	2.2	2.6	3.0	3.5	4.3	5.3	6.8
	20%	1.4	1.7	2.0	2.4	2.9	3.6	4.6	6.1
	25%	0.9	1.2	1.4	1.8	2.3	3.0	3.9	5.3
	30%	0.4	0.6	0.9	1.2	1.6	2.3	3.2	4.6
	35%	0	0.1	0.3	0.6	1.0	1.6	2.5	3.8
	40%	0	0	0	0	0.3	1.0	1.8	3.1
	50%	0	0	0	0	0	0	0.4	1.5

In summary the required technical provisions and contribution requirements if **no** contingent support is available:

- Technical provisions is **£67.3bn**
- The deficit on the Technical Provision basis is **£3.6bn**
- The required contribution is **33.7%** of salary (being the sum of future contribution requirement of 28.7% and deficit recovery contribution of 5%).

Appendix C sets out the sensitivities of the technical provisions and contribution requirements to changes in the underlying assumptions.

7.2 Lower bookend if sufficiently strong contingent support provided

The other four changes (i.e. changes 5 to 8) lower the total required contribution other things equal, but simultaneously lead to a significant increase in risk. These changes are as follows:

- *Change 5:* Increasing the reliance at 20 years above £10bn in real terms.
- *Change 6:* Deferring when de-risking starts.
- *Change 7:* Smoothing contributions over future valuation cycles.
- *Change 8:* Allowing for outperformance in the recovery plan.

Increasing the risk in funding the scheme by adopting any combination of these <u>*will*</u> require additional contingent support to be put in place.

Adopting them all, even with contingent support, would fall outside the Trustee's risk appetite. Having said this the Trustee believes, subject to an appropriate level of contingent support being put in place, a contribution rate **slightly below 30%** could be acceptable.

No formal decision was made on which of the changes which increase risk would be adopted, but the two elements which the board indicated they were prepared to consider were:

- Increasing the reliance at 20 years from £10bn in line with the employers more recent wishes; and,
- Reducing the deficit recovery contributions (by allowing for investment out-performance or increasing the length of the recovery period).

For example, increasing reliance to £13bn and maintaining the current level of deficit recovery contribution at 2.1% would result in a contribution requirement of **29.7%.**

However, whether or not that quantum of reduction could be achieved would be very much related to the level of contingent support provided.

7.3 Contingent support

The Trustee has considered the range of different types of contingent support that could be provided by the employers, including:

- Negative pledges
- Charge over assets
- Contingent assets
- Contingent contributions
- Escrow accounts
- Ring-fencing of cash reserves
- Surety bonds

The Trustee believes that a combination of contingent contributions and negative pledges would be the most appropriate means of providing acceptable support.

Negative pledges are not discussed further in this document but a high level description of contingent contribution arrangements is given below, and the Trustee would be very willing to discuss how any of these might be constructed to mitigate any further risk taking in the scheme.

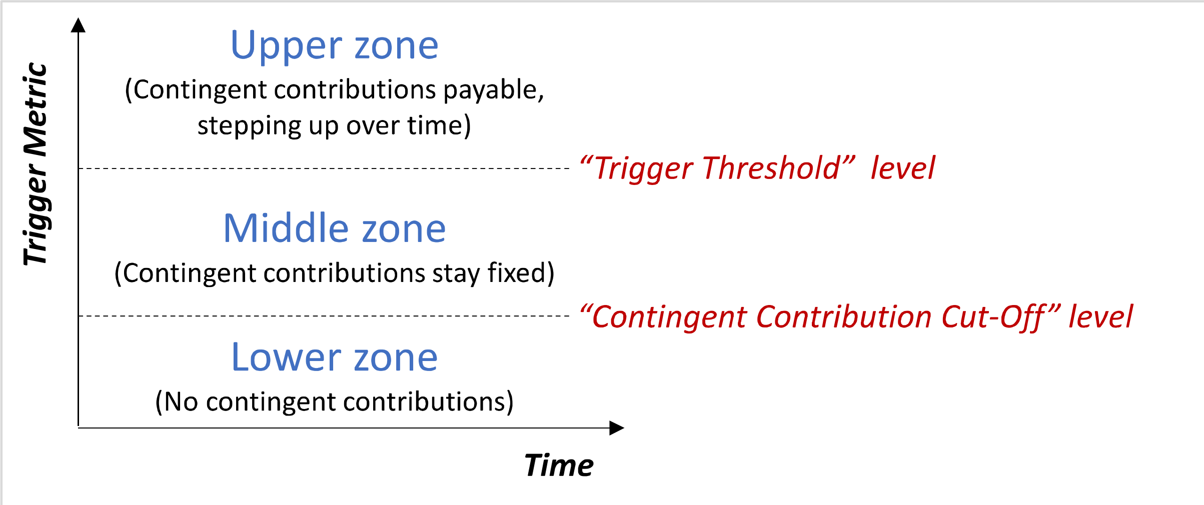
The key features of a contingent contribution arrangement would be:

- Contingent contributions would be triggered by a certain metric (the so-called "trigger metric") moving above a specified level for a sustained period.
- Employers would be given a period of notice before contingent contributions would become payable.
- Contingent contributions would step up over time, up to a maximum, as long as the metric remained above the specified level. There would be a period of 12 months between steps.
- The maximum contingent contribution would be the difference between the contribution required with **no** contingent support and that payable **with** contingent support.
- Should the metric move low enough for a sustained period, contingent contributions would fall to zero.

Essentially there are three zones for the trigger metric (see Figure 8):

- *Upper zone:* If the metric is in this zone for a minimum period then contingent contributions will kick-in and increase in predefined steps up to a maximum.
- *Middle zone:* If the metric is in this zone for a minimum period then contingent contributions remain fixed (i.e. if they are zero they remain at zero, if they are 1.5% they remain at 1.5%).
- *Lower zone:* If the metric is in this zone for a minimum period then contingent contributions are reduced to zero.

Figure 8. The three zones for the trigger metric which are proposed for the contingent contribution approach.



The value of the contingent arrangements are dependent on (among other factors):

- The trigger measure, and the threshold levels
- The time for which the measure must be in the trigger zone
- The quantum and schedule of the triggered contribution increases

Further details are given in Appendix D. The Trustee proposes to agree these details with UUK through the consultation period, and would welcome alternative proposals. The value that can be ascribed to the contingent contributions will determine the degree to which 'normal' contributions can approach the lower end of the contribution range outlined by the Trustee.

8. Statement of Funding Principles

The Trustee's Statement of Funding Principles in respect of the 2018 valuation for consultation is set out in Appendix E.

9. Consultation

This consultation with UUK on Technical Provisions and Statement of Funding Principles commences on 2 January 2019 and runs until 1700 on 28 February 2019.

The Trustee looks forward to receiving comments from UUK on the amount of risk employers are willing to support in funding the scheme and the contingent support they are willing to provide.

The Trustee also looks forward to receiving comments on the Statement of Funding Principles.

Appendix A: Overview of the scheme benefits

Since 1 April 2016, contributions to the scheme have been set at 8% for members and 18% for employers – 26% of payroll.

Currently[3], for that contribution rate, members build up a **set level** of income in retirement for every year they pay in to the USS **Retirement Income** Builder – the defined benefit (or DB) part of the scheme – on salary up to a threshold.

This *defined benefit* is based on 1/75th of annual salary up to a prescribed threshold which increases annually, broadly in line with the Consumer Price Index measure of inflation. (For example, in 2018/19 it is £57,216.50; in 17/18 it was £55,550.)

Every year, members' benefits in this section are calculated and 'banked'. They are then increased each year broadly in line with inflation. Each subsequent year, they earn more benefits and these are added to the benefits they have already earned, which are paid to them when they retire.

At retirement, members also get a tax-free lump sum of three times their annual USS Retirement Income Builder pension.

Contributions to the scheme also secure a number of further benefits, including:

If a member **dies in service**, their beneficiaries would receive three times their salary (regardless of the threshold) as a lump sum, and their spouse or civil partner would also receive a pension for life based on full salary, not limited by the threshold.

For **death in retirement**, the scheme pays a pension to a member's spouse or civil partner of half the pension the member was entitled to when at retirement, plus increases to reflect inflation to the date of their death.

If a member retires through partial or total **incapacity** as a result of long-term illness or injury, they would receive a pension and a tax-free cash lump sum. The benefits would be calculated using their full pensionable salary, rather than being limited by the salary threshold and could be significantly enhanced over what they have built up.

In addition to these benefits, a portion of any member's salary above the threshold automatically goes into the USS **Investment Builder**, the defined contribution (DC) part of the scheme.

A total of 20% of any salary above the threshold (8% from members and 12% from their employer) goes into this section, as do any matched or additional contributions or any funds recently transferred in.

Contributions in this DC part of the scheme are also invested to provide retirement benefits – but there is no guarantee as to the amount.

[3]See: 'Changes to USS that will affect you' - https://www.uss.co.uk/members/members-home/retirement-articles/2018/changes-to-uss-that-will-affect-you

Appendix B: Changes to inputs and assumptions for the 2018 valuation

This appendix set out the changes to the 2017 valuation input and assumptions that the Trustee proposes to make for the 2018 valuation. It is proposed to be undertake the valuation as at 31 March 2018, using the same methodology as the 2017 valuation with key assumptions and inputs being updated where permitted by the regulations for experience, change in outlook and employers' risk appetite. In line with the 2017 valuation, margins for prudence are incorporated into the mortality and discount rate assumptions, with all other assumptions proposed being best estimates.

Appendix E contains the draft Statement of Funding Principles and details of the assumptions used in arriving at the 2018 valuation position set out in the main document. This appendix describes the changes and updates from the assumptions used in the 2017 valuation.

Sensitivities of the valuation results to the main assumptions are set out in Appendix C, from which the relative impact of changes in assumptions can be seen.

Demographic assumptions

The demographic assumptions proposed for the 2018 valuation are the same as used for the 2017 valuation, with the exception of the following:

Mortality

The mortality assumption is made up of two elements: a "baseline" assumption, reflecting the current position, and a "future improvements" assumption for how mortality is expected to evolve. Both elements are proposed to be updated as part of this valuation for post-retirement mortality, and pre-retirement the future improvements are proposed to be updated.

The baseline post-retirement assumption proposed is based on updated scheme experience, to 31 December 2017, and the assumption for future improvements is proposed to be based on the latest model from the Continuous Mortality Investigation (CMI). The long term improvement rates assumed, and used in this model, are in line with the 2017 valuation.

These proposed assumptions are based on a full scheme specific analysis carried out by the Scheme Actuary, which shows that USS members have exhibited higher mortality (i.e. lower life expectancy) than previously expected, albeit still much lower (i.e. higher life expectancy) than the general population and other occupational pension schemes. As previously, the results of this analysis have been expressed using standard mortality tables (determined on a liability-equivalent basis), in order to ease communication of the assumptions and because of the additional robustness of standard tables.

The mortality assumptions proposed are set out below, alongside the 2017 valuation assumption for comparison. Example life expectancies are also set out.

Table 1: Comparison of mortality assumptions used for 2017 valuation with that proposed for 2018

	2017 valuation assumption	2018 proposed assumption
Mortality base table	Pre-retirement: 71% of AMC00 (duration 0) for males and 112% of AFC00 (duration 0) for females Post retirement: 96.5% of SAPS S1NMA "light" for males and 101.3% of RFV00 for females	Pre-retirement: 71% of AMC00 (duration 0) for males and 112% of AFC00 (duration 0) for females Post retirement: 97.6% of SAPS S1NMA "light" for males and 102.7% of RFV00 for females
Future improvements to mortality	CMI_2016 with a smoothing parameter of 8.5 and a long term improvement rate of 1.8% pa for males and 1.6% pa for females	CMI_2017 with a smoothing parameter of 8.5 and a long term improvement rate of 1.8% pa for males and 1.6% pa for females
Life expectancy from age 65	(for comparable members aged as shown in 2018)	
Male age 65	24.6	24.4
Male age 45	26.6	26.4
Female age 65	26.1	25.9
Female age 45	27.9	27.7

The mortality assumption includes a margin for prudence, in line with the Pension Regulator's guidance. This is achieved by a 2% reduction in the weightings applied to the mortality (i.e. the probabilities of death in any given year have been decreased by c2%), which increases liabilities by around 0.5% and is unchanged from 2017.

Retirement age for future service

Currently, new benefits accrued are payable from age 65. For benefits accrued from October 2020, this changes to age 66, in line with the change in State Pension Age, as set out in the Scheme Rules. This reduces the cost of benefits being accrued, and this change has been allowed for when calculating the contribution rates payable.

Financial assumptions

Self-sufficiency

The Trustee considers "self-sufficiency" as the amount of assets that would be required to fund the scheme using a low-risk investment portfolio – one that has less than a 5% chance of ever requiring a further contribution from employers. This is not a target for the Trustee, but it is an important metric that provides a view on the level of risk being taken. As part of the 2017 valuation, the Trustee determined the calculation of this as based on a discount rate of gilts + 0.75% pa, with an inflation assumption based on a RPI / CPI gap of 0.8% pa, and no inflation risk premium. This approach is proposed to be retained for the 2018 valuation.

Currently there is a large gap between the assets held by the scheme and the level required for self-sufficiency. Over time the Trustee expects this position to improve, partly through additional contributions and partly through its expectation that gilt yields rise, decreasing the cost of self-sufficiency.

Reliance

The Trustee defines the reliance on the covenant as the difference between the level of assets required for self-sufficiency, and the level of assets held. In the long term, the assets are taken as being equal to the projected technical provisions liabilities. This is because at each valuation, in line with the Trustee's funding objective, contributions and/or investment strategy will be adjusted to target this.

This ensures that the contribution requirements that arise from a valuation are based on the cost of the defined benefits accruing at that point in time being paid. If the Trustee's assumptions are borne out then these costs, and the resulting contributions, would be expected to reduce at subsequent valuations (held at least every three years). If they are not borne out, the level of short term risk would be exacerbated.

The target level of reliance at the 20 year horizon which was allowed for in the calculation of the technical provisions liabilities and contribution rates at the 2017 valuation was £10bn in real terms (agreed following the February and September 2017 consultations).

In line with this approach, the Trustee's starting point is reliance of £10.3bn (i.e. allowing for the CPI indexation applicable over the 2017/18 year). The Trustee's view is that an increase above this level would require additional contingent support from the employers, given the additional risk which would be borne by the Trustee.

Expected investment returns

The expected investment returns proposed are derived using the Trustee's Fundamental Building Block (FBB) approach, appropriately updated to 31 March 2018. These are used in the derivation of the discount rates, which are the most important valuation assumption.

The FBB model has generated a forecasted best estimate path for real gilt yields that differs from that in the 2017 valuation. This path has a slightly lower amount of yield reversion as it starts from a slightly higher initial real yield level and reverts to a slightly lower reversion level, set out in table 2 below.

Table 2. Real yields on 20-year index linked gilts

Real 20-year gilt yield	Valuation date (t=0 years)	t=10 years	t=20 years
2018 Valuation	-1.68%	-0.37%	-0.37%
2017 Valuation	-1.74%	-0.25%	-0.25%

The expected returns used in the 2018 valuation differ from those used in the 2017 valuation for two reasons: (i) the FBB expected returns for different asset classes have changed, and (ii) the initial Reference Portfolio has changed. These changes also increase the rebalancing & diversification premium relative to 2017. Details of the updated position can be found in Table 3, but the net effect relative to the 2017 position is as follows:

- The expected 30-year annualised return on the portfolio has increased by 26bps (3.26% above CPI from 3.0% above CPI).
- The expected return in the 10 year reversion period is now higher by 64bps (1.61% above CPI from 0.97% above CPI).

Table 3. Expected returns for the 2018 valuation (Geometric return above CPI)

Asset class	Reference Portfolio weight	30-yr Exp Real Return	30-yr Exp Nominal Return	10-yr Exp Real Return	10-yr Exp Nominal Return	10-yr Fwd 20-yr Exp Real Return
Equities	60.00%	4.04%	6.27%	2.85%	5.05%	4.64%
Property	7.50%	2.16%	4.35%	2.20%	4.39%	2.14%
Listed Credit	15.00%	1.53%	3.70%	-0.04%	2.10%	2.32%
Index Linked	27.50%	-0.66%	1.47%	-3.39%	-1.32%	0.73%
Cash	-10.00%	-0.30%	1.84%	-0.75%	1.37%	-0.07%
Rebalancing & diversification premium		**0.60%**	**0.60%**	**0.60%**	**0.60%**	**0.60%**
Ref Portfolio		**3.26%**	**5.46%**	**1.61%**	**3.78%**	**4.10%**

De-risking and discount rates

The discount rates used in the valuation drive the technical provisions liabilities and contribution requirements. The target level of reliance described above determines the long term discount rate, and the remainder of the path reflects a prudent investment return developed from the 33rd centile of the distribution of investment returns. This provides a 67% confidence that the discount rate will at least be achieved.

Allowance for the investment strategy to change over time has therefore been incorporated, based on achieving the target level of reliance described above. This results in the investment strategy holding a lower level of return-seeking assets over time.

The resulting best estimate investment returns and technical provisions discount rates over time are set out below. Full details can be found in Appendix E.

Table 4: Financial assumptions as at 31 March 2018

Investment return (Best Estimate) using £10bn Reliance	Years 1-10: CPI + 1.64% reducing linearly to CPI + 0.67% Years 11-21: CPI + 3.51% reducing linearly to CPI + 2.53% by year 21 Years 21 +: CPI + 2.53%
Discount rate for Technical Provisions using £10bn Reliance	Years 1-10: CPI + 0.14% reducing linearly to CPI – 0.73% Years 11-21: CPI + 2.52% reducing linearly to CPI + 1.55% by year 21 Years 21 +: CPI + 1.55%
Investment return (Best Estimate) using £13bn Reliance	Years 1-10: CPI + 1.64% reducing linearly to CPI + 0.79% Years 11-21: CPI + 3.60% reducing linearly to CPI + 2.72% by year 21 Years 21 +: CPI + 2.72%
Discount rate for Technical Provisions using £13bn Reliance	Years 1-10: CPI + 0.14% reducing linearly to CPI – 0.62% Years 11-21: CPI + 2.61% reducing linearly to CPI + 1.75% by year 21 Years 21 +: CPI + 1.75%

Salary cost growth

The Trustee is proposing to retain the assumption of CPI + 2% for the overall growth in total scheme payroll.

Appendix C: Sensitivities of deficit and future service contributions to change in assumptions

Table 1 below details the impact on the deficit and future service contribution requirements of changes to the main assumptions underlying the proposed 2018 valuation assuming no contingent support is available.

Table 1: Sensitivities of deficit and future service contributions to change in assumptions

Assumption to be changed	Impact on deficit	Impact on future service contribution
Reliance increased to £13bn	- £1.4bn	- 1.1%
Self-sufficiency discount rate + 0.25%	- £2.1bn	- 1.6%
Technical Provisions discount rate + 0.1%	- £1.2bn	- 0.8%
RPI – CPI spread + 0.1%	- £0.7bn	- 0.5%
Salary growth + 1%	- £0.4bn	- 0.3%
Withdrawals reduced by 5% *	+ <£0.1bn	Negligible
Impact of all active members retiring at 65	- £0.9bn	n/a
Ill health retirements increased by 10% *	+ <£0.1bn	+ 0.1%
Proportion married + 5% *	+ £0.3bn	+ 0.1%
Long term improvement rate in mortality assumption + 0.25%	+ £0.5bn	+ 0.3%
Mortality base table reduced by 5% (i.e. 5% lower probability of deaths) *	+ £0.8bn	+ 0.2%

*multiplicative changes to probabilities

Appendix D: Contingent contributions overview

This appendix provides more details of how a contingent contribution arrangement could operate.

Listed below are some definitions which will be required for the contingent arrangement:

- **Trigger Metric**: This is the variable that that is monitored to decide if the contingent contributions are triggered and therefore become payable. (This might be, for example, "reliance" or in other words the "self-sufficiency deficit").
- **Trigger Threshold**: This has two components:
  - A specified level which needs to be breached by the Trigger Metric, before contingent contributions become payable.
  - A minimum time period for which the Trigger Metric must remain above (or below) the specified level before the contingent contributions are triggered.

  So, the Trigger Threshold is a combination of the specified level of the Trigger Metric and the minimum time period it must be above or below the level.

- **Contingent Contribution Cut-Off:** This has two components:
  - A specified level which needs to be breached by the Trigger Metric, before contingent contributions cease.
  - A minimum time period for which the Trigger Metric must remain below the specified level before the contingent contributions are ceased.
- **Maximum Contingent Contribution**: This is the maximum contingent contribution rate payable under the arrangement.
- **Contingent Contribution Rate**: The contingent contributions (as a percentage of salary) that are payable at a particular time.
- **Contingent Contribution Commencement Date**: The date from which a new level of contingent contributions are payable.
- **Contingent Contribution Review Date**: The date at which the level of contingent contributions is reviewed.
- **Contingent Contribution Review Process**: The mechanism for determining future contingent contributions once they have started to be paid.

Broadly speaking the contingent contribution arrangement would work as follows:

- The **Trigger Metric** would be monitored against the Trigger Threshold.
- Should the **Trigger Metric** satisfy the **Trigger Threshold** (i.e. exceed the specified trigger level for the minimum time period), contingent contributions would then become payable from the Contingent Contribution Commencement Date.
- The **maximum Contingent Contribution** could be the difference between the contribution requirement with no contingent support and that with contingent support.
- The initial **Contingent Contribution Rate** would be lower than the **Maximum Contingent Contribution,** but increase annually until it reaches the **Maximum Contingent Contribution**. (For example, if the maximum was 4.5%, initially the contribution may be 1.5% of salary, rising to 3% on the first anniversary of the trigger and then to 4.5%, the maximum, on the second anniversary.)
- Once contingent contributions are being paid at a given non-zero rate, this rate is maintained for at least one year. Hence if contingent contributions are being paid, the **Trigger Metric** does not need to be reviewed until a short time (i.e. 3 months) before the anniversary of the most recent increase in contingent contributions.

- At each **Contingent Contribution Review Date** the **Contingent Contribution Level** will be reviewed in accordance with pre-agreed rules. The **Contingent Contribution Level** could increase (if the **Trigger Metric** has been in the upper zone for the minimum time period), remain unchanged (if the **Trigger Metric** has been in the middle zone for the minimum time period) or fall to zero (if the **Trigger Metric** has been in the lower zone for the minimum time period).
- So contingent contributions increase in three steps once the **Trigger Threshold** is satisfied (when the **Trigger Metric** has been in the upper zone for the minimum time period), but fall to zero in one step below the **Contingent Contribution Cut-Off Level** (when the **Trigger Metric** has been in the lower zone for the minimum time period).

Appendix E: 2018 draft Statement of Funding Principles

ACTUARIAL VALUATION AS AT 31 MARCH 2018
STATEMENT OF FUNDING PRINCIPLES

Universities Superannuation Scheme (the scheme)

This statement of funding principles (SFP) sets out the policies of the trustee board of the Universities Superannuation Scheme (the trustee) for securing that the statutory funding objective is met.

It has been prepared by the trustee to satisfy the requirements of section 223 of the Pensions Act 2004, after obtaining the advice of Ali Tayyebi, the scheme actuary appointed under s47 of the Pensions Act 1995. It reflects the guiding principles on risk management adopted by the trustee as set out in its published funding principles and tests. It has been taken into account in the actuarial valuation as at the effective date of 31 March 2018. The SFP will be reviewed and, if necessary, revised, before being taken into account at subsequent valuations under Part 3 of the Pensions Act 2004.

In accordance with legislation and the scheme rules, the trustee has consulted with Universities UK over the content of this statement of funding principles.

The statutory funding objective

The statutory funding objective is that the scheme has sufficient and appropriate assets to meet the amount required, on actuarial calculation, to make provision for the scheme's liabilities (the technical provisions).

Calculation of the technical provisions

The principal method and assumptions to be used in the calculation of the technical provisions are set out in the notes to this appendix.

The general principles adopted by the trustee are that the assumptions used, taken as a whole, will be chosen sufficiently prudently for pensions and benefits already in payment to continue to be paid, and to reflect the commitments which will arise from members' accrued pension rights. The basis will include appropriate margins to allow for the possibility of events turning out worse than expected and will only be adopted after considering how it compares with the assumptions used to assess the scheme's solvency position.

However, the trustee does not intend for the method and assumptions to remove completely the risk that the technical provisions could be insufficient to provide benefits in the future.

As part of its process for choosing the assumptions and determining the size of the margins to include, the trustee will take into account its objective assessment of the employer covenant and the level of risk present in the investment strategy of the scheme.

Self-sufficiency basis

The principles of risk management adopted by the trustee mean that the trustee will have regard to the *self-sufficiency* basis when setting the technical provisions basis. In particular, the trustee takes into account the projected difference between the *self-sufficiency* basis and the technical provisions basis over time in order to ensure that it is within a range which is considered acceptable. This means that the choice of the discount rate may be impacted by the level of future benefit accrual as the latter will affect the projected quantum of liabilities over time. In the shorter term, the trustee considers the level of any shortfall between the assets held and the self-sufficiency liabilities, as a key risk measure.

The differences between the assumptions used for this basis and the technical provisions assumptions are highlighted in the notes to this appendix.

Policy on discretionary increases and funding strategy

No allowance has been included in the assumptions for paying discretionary benefits or making increases to benefits that are not guaranteed under the scheme rules.

There are no funding objectives provided for in the rules of the scheme or which the trustee has adopted in addition to the Statutory Funding Objective.

Rectifying a failure to meet the statutory funding objective

If the assets of the scheme are less than the technical provisions at the effective date of any actuarial valuation, a recovery plan will be put in place, which may require additional contributions from the employers (and potentially the members) to meet the shortfall. The trustee has agreed that any such funding shortfalls should be met over an appropriate period and tailored to both Scheme and Employer circumstances.

Additional contributions will be expressed as a percentage of pensionable payroll.

In determining the actual recovery period at any particular valuation, the trustee will take into account the following factors:

- The size of the funding shortfall and the scheme's current asset and liability structure;
- The trustee's future investment strategy, as set out it the Statement of Investment Principles;
- The trustee's objective assessment of the financial covenant of the employer.

Based on the principles and assuming the assumptions are borne out in practice, the shortfall calculated at the 31 March 2018 valuation will be met by [XXXX] which is [XX] years from the effective date of the valuation. The assumptions to be used in these calculations are set out in the notes to the appendix below.

Calculating the normal cost of the scheme

Contributions required to meet the cost of benefits accruing by members after the valuation date will be calculated using the method and assumptions set out in the notes to the appendix.

Contributions payable to the scheme

The contributions payable to the scheme by members and employers, including those to meet the cost of new benefits accruing as well as any other contributions the trustee may require, will be set out in the Schedule of Contributions following each valuation.

Arrangements for other parties to make payments to the scheme

There is no provision except in specific, limited circumstances in the scheme rules to allow someone other than the employers or a scheme member to make contributions to the scheme.

Policy on reduction of cash equivalent transfer values (CETVs)

At each valuation, the trustee will ask the actuary to report on the extent to which assets are sufficient to provide CETVs for all members. If the assets are insufficient to provide 100% of benefits on that basis, so that payment of full CETVs would adversely affect the security of the remaining members' benefits, and the employers are unable or unwilling to provide additional funds, the trustee will consider reducing CETVs as permitted under legislation.

If, at any other time, the trustee is of the opinion that payment of CETVs at a previously agreed level could adversely affect the security of the remaining members' benefits, the trustee will commission a report from the actuary and will use the above criteria to decide whether, and to what extent, CETVs should be reduced.

Payments to the employer

There is no provision in the scheme rules for employers to request a refund of the excess assets over the cost of buying out benefits of all beneficiaries with an insurance company, when the scheme is not being wound up.

GMP Equalisation

As a result of the court case ruling in respect of the Lloyds Banking Group Pension Schemes, Schemes are required to equalise Guaranteed Minimum Pensions accrued between 17 May 1990 and 5 April 1997. There is no explicit allowance for this in the 2018 actuarial valuation and any additional funding costs required to uplift benefits will be met by either the Scheme's assets or future contributions from the Employer, although it is expected that these will be immaterial in the context of the scheme as a whole.

Frequency of valuations and circumstances for extra valuations

Subsequent valuations will in normal circumstances be carried out every three years, the next being due on 31 March 2021. In intervening years an actuarial report will be produced.

The trustee will monitor the funding level on a regular basis between valuations in order to determine what action, if any, it needs to take. If the trustee decides that it is appropriate, it may commission a full actuarial valuation, when after considering the actuary's advice, it is of the opinion that it is necessary to do so and is an effective use of its resources.

This statement of funding principles, revised from [effective date] has been agreed by the trustee of the USS after obtaining advice from the scheme actuary.

Signed on behalf of the Trustee of the USS	
Name	
Position	
Revised and effective from date	

Notes to Statement of Funding Principles

Method and assumptions used in calculating the technical provisions

Summary of decisions made as to method and key assumptions used for calculating technical provisions as at 31 March 2018

The method used was the Projected Unit method.

Principal actuarial assumptions for Technical Provisions as at 31 March 2018	
Market derived price inflation	In line with difference between Fixed Interest and Index-Linked yield curves
Inflation risk premium	0.3% pa
Price inflation – Retail Prices Index	Market derived price inflation less Inflation risk premium
RPI / CPI gap	1.0% pa
Price inflation – Consumer Prices Index	RPI assumption less RPI / CPI gap
Discount rate *	Years 1-10: CPI + 0.14% reducing linearly to CPI – 0.73% Years 11-21: CPI + 2.52% reducing linearly to CPI + 1.55% by year 21 Years 21 +: CPI + 1.55%
Pension increases in payment	CPI assumption (for both pre and post 2011 benefits)
Mortality base table	Pre-retirement: 71% of AMC00 (duration 0) for males and 112% of AFC00 (duration 0) for females Post retirement: 97.6% of SAPS S1NMA “light” for males and 102.7% of RFV00 for females
Future improvements to mortality	CMI_2017 with a smoothing parameter of 8.5 and a long term improvement rate of 1.8% pa for males and 1.6% pa for females

* Based on the position used if no contingent support is available

The derivation of these key assumptions and an explanation of the other assumptions to be used in the calculation of the technical provisions are set out below.

Method

The actuarial method to be used in the calculation of the technical provisions is the Projected Unit method with a one-year control period.

Financial assumptions

The financial assumptions shall be determined using a ‘yield curve approach’, with different assumptions applying at different points in time, reflecting the term structure of financial instruments. The particular approach to be used in determining each of the financial assumptions is set out below.

Inflation (RPI)

The assumption for the rate of increase in the Retail Prices Index (RPI) will be taken as a term structure derived from the investment market’s expectation for inflation as indicated by the difference between an estimate of the yields available on conventional and index-linked UK Government bonds appropriate to the date of each future cash flow (extrapolated for cash flows beyond the longest available gilts), as advised by the Scheme Actuary. An adjustment may be made to the assumption to reflect market views that the prices of index-linked gilts include a ‘risk premium’ to reflect, for example, future inflation uncertainty. This adjustment may be limited by the existing or prospective level of inflation hedging targeted by the scheme. For the 31 March 2018 valuation, the inflation risk premium is set to be 0.3% pa.

For the self-sufficiency basis the inflation risk premium is assumed to be nil.

Inflation (CPI)

The assumption for the rate of increase in the Consumer Prices Index (CPI) will be derived from the RPI inflation assumption with an appropriate adjustment to recognise the difference between expectations of future RPI increases and future CPI increases. The adjustment will be reviewed at each valuation; at the 31 March 2018 valuation the adjustment was a deduction of 1.0% pa.

For the self-sufficiency basis the adjustment to expected RPI is a deduction of 0.8% pa.

Investment return

The assumed expected investment return for the DB section of the scheme is a best estimate that follows a term structure because:

1. The expected returns on each component asset class vary through time according to two periods: A period during which gilt yields revert from the valuation date until 31 March 2028 followed by an equilibrium period from 1 April 2028 onwards.
2. The investment portfolio is progressively de-risked over 20 years following the valuation.

These expected investment returns are listed for each year following the valuation date in the summary Table below.

Discount rate

The discount rate for liabilities is a prudent forecast investment return developed from the 33rd centile of the distribution of investment returns. This provides a 67% confidence that the discount rate will at least be achieved. From this calculation the discount rate is CPI +0.14% pa in year 1 decreasing linearly to CPI –0.73% in year 10, then CPI + 2.52% pa in year 11 reducing linearly to CPI +1.55% pa over the following 10 years and assumed to stay at CPI +1.55% pa beyond that point. This approach therefore includes the provision for gradual investment de-risking to take place as discussed above.

If, following a review of the investment strategy and any consequential changes to the Statement of Investment Principles after completion of the valuation, or due to a change in the Trustee's view on the outlook for future returns, the assumed rate of best estimate investment return and / or the prudent discount rate in excess of the CPI assumption may also change at subsequent funding updates.

For the "Self-sufficiency" basis the discount rate assumes a term structure derived from the yield of fixed interest gilts appropriate to the date of each future cash flow (extrapolated for cash flows beyond the longest available gilts) with a margin of 0.75% pa added to the fixed interest gilt yield. .

Pension increases

Increases to pensions are assumed to be in line with the CPI inflation assumption described above. In particular, at the 31 March 2018 valuation no adjustment has been made for the fact that pension increases are subject to a minimum of zero, and on benefits accrued after 30 September 2011 do not fully reflect inflation once CPI exceeds 5% pa.

Summary

The table below shows the technical provisions and discount rate and CPI assumptions as at 31 March 2018, determined in line with the above approach. The values shown at year 50 are assumed to stay constant after that point.

Term	Investment return (Best estimate) *(forward)*	Discount rate for Technical Provisions *(forward)*	CPI *(forward)*	Term	Investment return (Best estimate) *(forward)*	Discount rate for Technical Provisions *(forward)*	CPI *(forward)*
1	3.33%	1.83%	1.69%	26	4.41%	3.43%	1.88%
2	3.11%	1.62%	1.58%	27	4.28%	3.30%	1.75%
3	2.95%	1.47%	1.53%	28	4.16%	3.18%	1.63%
4	2.88%	1.41%	1.56%	29	4.05%	3.07%	1.52%
5	2.86%	1.41%	1.66%	30	3.94%	2.96%	1.41%
6	2.89%	1.45%	1.79%	31	3.84%	2.86%	1.31%
7	2.94%	1.51%	1.95%	32	3.76%	2.78%	1.23%
8	3.00%	1.58%	2.11%	33	3.70%	2.72%	1.17%
9	3.05%	1.63%	2.27%	34	3.66%	2.68%	1.13%
10	3.07%	1.67%	2.40%	35	3.64%	2.66%	1.11%
11	6.01%	5.02%	2.50%	36	3.64%	2.66%	1.11%
12	5.98%	4.99%	2.57%	37	3.65%	2.67%	1.12%
13	5.92%	4.94%	2.61%	38	3.69%	2.71%	1.16%
14	5.84%	4.85%	2.62%	39	3.73%	2.75%	1.20%
15	5.74%	4.75%	2.62%	40	3.80%	2.82%	1.27%
16	5.62%	4.64%	2.60%	41	3.87%	2.89%	1.34%
17	5.49%	4.51%	2.57%	42	3.96%	2.98%	1.43%
18	5.36%	4.37%	2.53%	43	4.06%	3.08%	1.53%
19	5.21%	4.22%	2.48%	44	4.16%	3.18%	1.63%
20	5.05%	4.07%	2.42%	45	4.28%	3.30%	1.75%
21	4.89%	3.91%	2.36%	46	4.40%	3.42%	1.87%
22	4.82%	3.84%	2.29%	47	4.53%	3.55%	2.00%
23	4.73%	3.75%	2.20%	48	4.67%	3.69%	2.14%
24	4.63%	3.65%	2.10%	49	4.80%	3.82%	2.27%
25	4.52%	3.54%	1.99%	50	4.94%	3.96%	2.41%

Demographic assumptions

Mortality

The mortality assumptions are based on scheme-specific experience analysis, expressed as liability-equivalent adjustments to standard tables published by the Continuous Mortality Investigation (CMI), making allowance for future improvements in longevity. The mortality tables are as follows:

Pre-retirement

AxC00 (duration 0) tables taking 71% for males and 112% for females, and improvements using CMI_2017 with a smoothing parameter of 8.5, and long term rates of 1.8% pa for males and 1.6% pa for females.

Post-retirement

- Males: S1NMA “Light” with 97.6% weighting and improvements using CMI_2017 [1.8%] with smoothing parameter 8.5
- Females: RFV00* with 102.7% weighting and improvements using CMI_2017 [1.6%] with smoothing parameter 8.5
  **At ages below 50, the RFV00 table will be extended by blending into the RFC00 table*

Early retirement

The allowance for early retirements will reflect emerging experience of retirements as monitored at each actuarial valuation and any adjustment for future expectations which is considered appropriate. For the 31 March 2018 valuation it has been assumed that ex-final salary active members will retire in line with the following decrement table (with all others assumed to retire at 65). Benefits relating to service accrued prior to 1 October 2011 are assumed to be paid with no reduction, and an allowance has been made for benefits accrued after 30 September 2011 to be reduced from the payable age of 65.

Age	% leaving per annum
60	30
61	10
62	15
63	15
64	20

All other members of the scheme are assumed to retire at 65 and allowance is built in for the appropriate adjustment to each relevant tranche of benefit applicable to members in line with the benefit age or associated Contractual Pension Age.

Ill health retirement

A small proportion of the active members will be assumed to retire owing to ill health. As an example of the rates assumed at the valuation with effective date 31 March 2018, the following is an extract from the decrement table used:

	% leaving per annum	% leaving per annum
Age	Males	Females
35	0.01	0.01
45	0.04	0.05
55	0.14	0.25

Withdrawals

This assumption relates to those members who leave the scheme with an entitlement to a deferred pension. It has been assumed that active members will leave the scheme at the following sample rates:

Age	% leaving per annum
25	18.28
35	9.11
45	5.38

Commutation

No allowance has been made for the option that members have to commute part of their pension at retirement in return for an additional lump sum (or indeed exchange part of their additional lump sum for pension) on the basis that the overall effect of these options is not expected to be material to the scheme.

Proportion of beneficiary pensions payable and age difference

It has been assumed that a proportion of members will have an eligible beneficiary at the time of retirement or earlier death based on the following:

Males:
All: 109% of the ONS 2008 table for males

Females:
Non-pensioners: 84% of ONS 2008 table for females
Pensioners: 68% up to and including age 59, 56% at 60 to 64 and 73% of ONS 2008 over age 64

Sample rates as shown in the table below.

	% spouse / partner		
Age	Male	Female pre-retirement	Female post retirement
45	69.8	54.6	68.0
55	77.4	58.8	68.0
65	83.9	57.1	49.6
75	79.6	n/a	35.0
85	61.0	n/a	14.6

The surviving beneficiary of male members is assumed to be four years younger, on average, than the deceased scheme member, and the beneficiary of female members two years older.

Expenses

Expenses including PPF Levies are met by the fund. A provision for this is included by adding 0.4% of salary to the total contribution rate. This addition is reassessed at each valuation. The future level of the PPF levy in particular is very uncertain. Investment expenses have been allowed for implicitly in determining the discount rates.

Assumptions used in calculating contributions payable under the recovery plan

The contributions payable under the recovery plan will be calculated using the same assumptions as those used to calculate the technical provisions, with the exception of the following during the period of the recovery plan:

Investment return on existing assets and future contributions

[This section is provisional]

[The Trustee has determined that it will not allow for additional investment returns in the recovery plan for the 31 March 2018 valuation.]

Salary increases

The growth in the aggregate payroll of the scheme's membership, used in the recovery plan, is assumed to be CPI + 2% pa. Because of the methodology used for the valuation it is not necessary to specify assumptions for individual members' pay growth

Method and assumptions used in calculating the cost of future accrual

The cost of future accrual was calculated using the same assumptions as those used to calculate the technical provisions, with the exception of retirement age. From October 2020, new benefits being accrued will have a retirement age of 66, in line with the change to State Pension Age. This change has been allowed for from the outset when calculating the cost of future accrual, with a small corresponding impact on the deficit recovery contributions resulting from the underpayment of the service cost in the period prior to that.

The salary threshold has been assumed to increase in line with the CPI assumption.

Mr A Jarvis
Chief Executive
Universities UK
Woburn House
20 Tavistock Square
LONDON
WC1H 9HQ

Your Ref
Our Ref BG/JMR
Date 21 December 2018

By email only

Dear Alistair

Consultation on the proposed Technical Provisions and Statement of Funding Principles for the 2018 actuarial valuation

Please find attached the official consultation document on the proposed Technical Provisions and Statement of Funding Principles, which forms part of the 2018 actuarial valuation of the scheme.

The valuation is being carried out in accordance with the requirements of the Scheme's Trust Deed and Rules and the Pensions Act 2004, and this document sets out the Trustee's key considerations in setting the scheme's future contribution requirements.

Note that this incorporates deficit recovery contributions, but a formal consultation on the Recovery Plan and the Schedule of Contributions will follow later in the valuation process.

The consultation will commence on 2 January and we will require UUK's response to it no later than 17.00 hours on 28 February 2019.

In particular, the Trustee looks forward to receiving comments from UUK on the amount of risk that employers are willing to support in funding the scheme, and the contingent support they are willing to provide in doing so – as these will be critical factors in determining the Trustee's final position (for the reasons we set out in the report).

This consultation presents a framework for contingent support. Further analysis will be completed and shared in January to support discussions with UUK in order to agree the parameters that would determine the value that can be ascribed to any such support. We anticipate that this will be an iterative process.

My colleagues and I stand ready to support UUK in its engagement with employers on these important matters.

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Registered in England & Wales No. 1167127 Registered Office: Royal Liver Building, Liverpool L3 1PY Regulated by The Pensions Regulator

The Trustee will continue to engage with the stakeholders, and the Joint Negotiating Committee, throughout the consultation with the aim of completing the 2018 valuation on a timely basis.

The statutory deadline for completing the 2018 valuation is **30 June 2019.**

Yours sincerely

Bill Galvin
Group Chief Executive Officer

Sir David Eastwood
Chairman

Encs.

Paper 7

A discussion on the future of USS

The USS Trustee announced in November that we would commence a new valuation of the scheme in order to properly consider feedback from USS employers following the stakeholder panel's recent review of the 2017 valuation.

Wednesday (2 January 2019) marked the start of a consultation with Universities UK (UUK), which acts on behalf of the employers, on the proposed Technical Provisions for the 2018 valuation.

The accompanying report sets out the financial risks faced by the scheme and proposes ways in which an increase in risk could be supported by contingent measures, in order to reduce the regular payroll contributions deemed to be required of members and employers as a result of the 2017 valuation.

- Under the 2017 valuation, your employer's contribution towards 'the match' will end, and total contributions will increase in three phases, between 1 April 2019 and 1 April 2020, from 26% today (8% members, 18% employers) to 36.6% (11.7% members, 24.9% employers). Find out more about how these changes will affect you.

The required contribution rate that will emerge from the 2018 valuation will depend upon how much more optimistic the scheme's assumptions can be about the future returns from its investments, and how any more optimistic assumptions can be tangibly supported by the scheme's sponsors.

Our report to UUK sets out the most important considerations of the Trustee in this regard, and reflects our primary duty: to ensure the defined pension benefits offered to members are secure and can be paid when due.

Defined benefit pensions promise a set level of benefits in retirement and so the funding arrangements and investments that will create the future pension payments must be secure in order to ensure that these can be reliably paid when they are due.

As was the case with the 2017 valuation, the most material issue we must face is the increased cost of the assets in which we can invest your contributions today in order to fund a set level of benefits in future. It is the Trustee's view that today's higher prices are likely to lead to a lower level of returns from these assets.

The Trustee is consulting with UUK on - among other things - ways in which contributions might automatically increase, if investment returns in the short term prove less than sufficient to close the current gap between the scheme's assets and the estimated cost of providing pensions already promised by the scheme.

We will be consulting UUK - who will in turn engage with the scheme's employers - on these issues until 28 February 2019.

Thereafter, we will finalise the contribution rate required - and the Joint Negotiating Committee will be asked how it wants to respond to any conclusions. We will continue to keep you updated as things progress.

Please note: Our consultation is with UUK, as the body which formally represents employers in the scheme rules. If you have any questions or comments about the consultation, we ask that you raise them with your employer in the first instance to ensure they are captured as part of the overall process. We have provided some initial FAQs below, and there is a wide range of material on our website relating to the 2017 valuation, which may also be of use. You can also submit questions about the valuation using the Contact Us form.

FAQs

Why is USS carrying out another valuation?

You may have read about alternative funding proposals that have been put forward by a panel assembled by UCU and UUK which could result in lower contributions than those required by the Trustee under the 2017 valuation.

The panel's proposals would require employers to take on greater risk, and both members and employers to pay higher contributions, than USS was advised they were originally willing to support.

UUK recently consulted employers on the stakeholder panel's proposals and subsequently announced that employers are willing to support them, subject to the Trustee providing more information on the additional financial risks involved - and if and how they could be managed, and mitigated.

News and announcements

Press releases

To make sure the implications of this development are considered in line with the laws governing pension schemes, USS is carrying out a new valuation of the scheme's funding position - as at 31 March 2018.

- See: Concluding the 2017 valuation

Does that mean cost-sharing is cancelled?

No. The 2017 valuation is now more than six months overdue, and the Trustee has a legal obligation to complete it and implement cost-sharing, beginning in April 2019.

We hope the 2018 valuation will result in an alternative way forward being agreed by the Joint Negotiating Committee before the significantly higher cost-sharing increases are planned to come into effect from 1 October 2019 onwards.

However, given the timescales of the processes involved, we can't now avoid the proposed April 2019 contribution increase.

- See: Changes to USS that will affect you

Why can't USS apply the Joint Expert Panel's recommendations to the 2017 valuation instead, and avoid the cost-sharing increases?

The 2017 valuation is now more than six months overdue, and the Trustee has a legal obligation to complete it and implement cost sharing.

As such, the Trustee could only revisit such fundamental issues as market risks, investment strategies and contribution levels by holding a new valuation, as at 31 March 2018, with an accompanying Technical Provisions consultation.

This is the only way material changes in the positions stated to date (through the 2017 valuation) could be addressed properly and in time to avoid the full extent of the cost sharing increases.

In addition, only a new valuation would allow a sufficiently robust, informed position to be developed, and the latest data and market experience to be properly incorporated.

Does USS accept all of the JEP recommendations?

Each of the panel's recommendations is worthy of consideration in isolation, but each one introduces varying degrees of additional risk.

The panel's report **did not** explicitly consider or quantify the additional financial risks involved in adopting its proposals - either in isolation or in aggregate - and this is something employers, via UUK, have since asked us to assess and address.

The potential consequences of taking greater risk must be quantified, and credible options for managing material downsides must be available: the Trustee has a legal, regulatory and fiduciary duty to ensure that the pensions promised to members are secure and can be paid when due, and that the scheme is sustainable into the future.

The Trustee has now assessed the risks involved with each element, as well as in aggregate, and has set out the overall level of financial risk it is prepared to contemplate taking (based upon the collective strength of the employers which support the scheme and in ensuring that members' benefits are properly funded).

The panel's report **did** recognise that there were a number of different paths that the Trustee could adopt which would have the effect of reducing the required contribution rate* - and the Trustee has set out a path that can achieve this, the risks involved, and the financial commitments it would need in order to do so. It is now formally consulting UUK (on behalf of employers) on its position.
*JEP report, page 63

Is USS reviewing its methodology for the 2018 valuation, given the comments made about it in the JEP report?

It is important to note that, while it passed high level comment on the methodology, the panel did not recommend any specific changes to it.

Its recommendations are based on how different underlying assumptions could be applied to achieve a different outcome in terms of the contributions required of members and employers.

The panel's report also recognised that there were a number of different paths that the Trustee could adopt to reduce the required contribution rate.

The new valuation - incorporating an assessment of the panel's proposals - gives our stakeholders the opportunity to revisit key issues in time to achieve an alternative way forward before the significantly higher cost-sharing increases come into effect from 1 October 2019 onwards.

Avoiding the October cost-sharing increases would not be possible if we were to wait for the panel to complete its second proposed phase of work - which we understand will consider matters such as methodology - and for any recommendations arising from it to be considered by the scheme's stakeholders or, in turn, the Trustee.

In the meantime, members can be reassured by the independent judgement of the Trustee, which is a critical part of the checks and balances of running a mutual pension arrangement. The Trustee has no other agenda than to ensure that the defined pension benefits USS members earn are secure and can be paid as they fall due, and that the scheme is sustainable into the future.

What role does the Pensions Regulator have to play in this process?

The Pensions Regulator is a key stakeholder, and it is important for all parties involved in the valuation process to understand its perspective on the central issues at hand.

Ultimately, the regulator can direct how the Trustee should calculate the technical provisions, change the benefits, and/or set the contribution rates of members and employers. This is why such weight must be given to complying with the legal and regulatory requirements of a valuation.

The regulator has been updated by the Trustee appropriately, after the Board has made decisions. UUK and UCU have also engaged with the regulator.

USS's engagement has informed the regulator's assessment of the Trustee's position. Notably, the Trustee has robustly defended the strength of the covenant and the valuation in all meetings with the regulator.

The consultation report submitted to UUK addresses the matters raised in the regulator's most recent letter to the scheme's stakeholders (December 2018).

What role does UUK have to play in this process?

Universities UK (UUK) is the body that formally represents employers participating in USS on the Joint Negotiating Committee. It is also the body that is formally consulted by Trustee on the Technical Provisions assumptions for a valuation. For more information about UUK, visit www.universitiesuk.ac.uk.

What role does UCU have to play in this process?

University and College Union (UCU) is the body that formally represents members on the Joint Negotiating Committee. For more information about UCU, visit www.ucu.org.uk.

Is USS acting in the best interests of members and employers in the way it is funding the scheme?

The Trustee has no other agenda than to ensure that the pensions promised are secure, and the scheme is sustainable into the future. It has, accordingly, set out the overall level of financial risk it is prepared to contemplate taking in funding secure defined pension benefits that can be paid when due - and is now consulting UUK (on behalf of employers) on its position.

The issue of the 'right way' to fund USS pensions has generated much debate.

On the one hand, the Trustee is accused of being recklessly prudent in its funding assumptions, and so requiring contributions that are unnecessarily high. On the other, the Trustee is alleged to be taking bets that the Higher Education sector might not reasonably be able to cash in, to keep pension promises unreasonably affordable.

- See: Perspectives on funding pensions

Is USS listening to its stakeholders?

Yes - it has listened carefully to the arguments put forward by the Joint Expert Panel, and subsequently by UCU and UUK. This is clear from its decision to hold a new valuation and seek a fresh mandate from employers on the level of risk to be taken in funding the scheme's defined benefit pensions.

However, the potential consequences of taking greater risk must be quantified, and credible options for managing material downsides must be available: the Trustee has a legal, regulatory and fiduciary duty to ensure that the pensions promised to members are secure and can be paid when due, and that the scheme is sustainable into the future.

It has, accordingly, set out the overall level of financial risk it is prepared to contemplate taking, but this is dependent on employers being willing to support the scheme in the event of the risks involved coming to pass (as was the case when the Trustee consulted employers on the technical provisions proposed for the 2017 valuation).

Why isn't USS prepared to build up a funding surplus, as has been claimed?

The contribution requirements from the 2017 valuation - and those that will arise from the 2018 valuation - are based on the cost of the defined benefits accruing at that point in time being properly funded and therefore paid when they fall due.

If the Trustee's assumptions are borne out then these costs, and the resulting contributions, would be expected to reduce at subsequent valuations (held at least every three years). If they are not borne out, the level of short term risk would be exacerbated.

It is important to note that the combined contribution rate under the 2017 valuation amounts to a c.40% discount on the current economic cost of defined benefits accruing in the USS Retirement Income Builder. (That is, the contributions calculated by the Trustee are 40% below what they should be if the benefits were to be secured with matching assets).

Projections based on current contributions would involve even less of the full cost being met, affecting the deficit position in the short term (when the Trustee is required by law to demonstrate every three years that the scheme is sustainable) and weakening the ability of the scheme to recover in the long term if things do not go as expected.

This is precisely why, with every valuation, the Trustee establishes a funding plan that looks to manage the many interlinked short and long term risks at that point in time, such that it can expect to arrive at its target position in 2037 with a high degree of confidence.

This is important, as it protects the security of the pensions members have earned.

What will USS do with the additional contributions it requires under cost-sharing, or under the contingent contribution arrangements it is proposing?

They will be invested in line with the scheme's investment strategy to fund the benefits members have earned.

Videos

- Ali Tayyebi, Scheme Actuary, speaking at the 2018 Institutions' Meeting
- Guy Coughlan, Chief Risk Officer, speaking at the 2018 Institutions' Meeting

Article date: 4 January 2019

The Pensions Regulator
Making workplace pensions work

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Sir David Eastwood
Chair of Trustees
Universities Superannuation Scheme Ltd

Sent via email only

Our ref: C72540470

11 December 2018

Dear Sir David

Universities Superannuation Scheme (the Scheme)
Actuarial Valuation as at 31 March 2017 (the 2017 Valuation)
Actuarial Valuation as at 31 March 2018 (the 2018 Valuation)

We are writing to set out our views on the key issues and risks that TPR feels should be taken into account when finalising your 2017 Valuation and when preparing your proposed 2018 Valuation.

The timeframes within which you will need to complete these valuations are short and we are aware that discussions with stakeholders about the 2018 Valuation have started. We are making our views clear now, to give you the best opportunity to conclude the 2018 Valuation within the statutory deadline.

Summary

1. You have confirmed that you will complete the 2017 Valuation by February 2019. You will then conduct a 2018 Valuation which will allow you to take into account some of the points set out in the Joint Expert Panel (JEP) report.

2. As we set out in previous correspondence, we are prepared to accept the 2017 Valuation proposal on technical provisions but it is at the limit of what we regard as being compliant with the requirement for prudence under the Pensions Act 2004. We have yet to see an agreed proposal for the recovery plan which is currently subject to an employer consultation due to be completed in January 2019.

3. We remain of the view that the covenant remains 'tending to strong' and employer affordability is constrained. Our work with you on the 2017 Valuation has highlighted limitations on affordability:

   a) We believe that the future scale of the Scheme relative to the future scale of the sector (specifically those institutions supporting the Scheme) and its ability to support the Scheme is a key consideration. If the Scheme grows relative to the sector, any increase in the size of the deficit would place a more significant burden on the employers supporting the Scheme. We acknowledge that very high level analysis by USS was included in the JEP report suggesting that the sector could grow relative to the Scheme. Given the importance of this issue, we believe detailed work should be undertaken to understand how this relationship might vary under different future scenarios. Processes should also be put in place to monitor, manage and mitigate the impact of this risk.

b) We also see potential risks to the strength of the employer base from at least two further factors which could impair the employers' strength and constrain affordability in the near future: the uncertainty of Brexit's impact; and the Review of Post-18 Education and Funding which is due to report in January 2019. We expect the Trustee, through PwC, to continue to monitor the impacts of these events and any other developments to inform their covenant assessment as part of the 2018 Valuation process.

4. The JEP report highlighted areas where the Trustee could reduce the level of contributions to the Scheme by reflecting experience since the 2017 Valuation date and by accepting a higher level of risk in respect of specific areas. UUK has indicated that, subject to some conditions, *"the vast majority of employers that responded to the consultation are supportive of the JEP's recommendations"*.

5. The JEP recommendations principally increase reliance on investment performance to fund benefits. However, these create a potential for increased volatility in the Scheme's position and for the Scheme deficit to increase if actual outcomes are worse than predicted. The JEP report did not quantify these risks in terms of the potential for further deficit increases in realistic downside investment outcomes and what level of contributions would be required to clear such deficits over a reasonable period.

6. Constraints on affordability are currently evident among employers in respect of the contributions being discussed for the 2017 Valuation. Placing increased reliance on investment performance therefore increases the risk that future contributions may be required at a level which would be damaging to employers in order to address such potential downside outcomes.

7. If the employers want the 2018 Valuation to include greater risk than the 2017 Valuation, we expect further analysis to be undertaken. In particular, we expect USS and UUK to:

a) quantify the scale and range of risks;
b) provide evidence to the employers so that they can understand the scale and range of risks and the implications; and,
c) demonstrate and agree how the employers will support these risks.

8. We expect the Trustee and UUK to design and implement appropriate contingency measures, with legally binding triggers for action to support the risk being taken, including additional cash payments that would be contingent upon the Scheme's performance. This is particularly so if the level of risk exceeds that allowed for within the 2017 Valuation.

The role of TPR

9. We aim to understand the risks (covenant, funding and investment) to which the Scheme and members' benefits are currently exposed and how those risks might vary over time so that we can properly fulfil our statutory objectives when we consider the Valuations.

10. We believe the most effective way to engage with schemes on valuations is to set out our comments and any concerns to the trustees and other key stakeholders at an early stage so that they can be addressed during the ongoing valuation and negotiation process. This is the approach we have taken with you since 2010. If we believe at any stage that it is not clear that the risks are understood or that they can be supported sufficiently by the employers' covenant and funding plans, we will inform the Trustee and other key stakeholders of our concerns.

Concluding the 2017 Valuation

11. We understand that, following the recent 60-day consultation with USS members, the Trustee is now undertaking a consultation on the schedule of contributions and recovery plan with the employers which will end on 11 January 2019. The Trustee confirmed that you remain on track to submit the completed 2017 Valuation in February 2019.

12. As we previously said in our letter of 29 August 2018, we would be unlikely to take any further action in relation to the proposed technical provisions for the 2017 Valuation, if it were to be implemented and based on the Scheme's current circumstances remaining broadly unchanged. We also support the Trustee's approach to impose phased contribution increases using the process set out in the Scheme's rules.

13. However, the proposal for the 2017 Valuation is at the very limit of what TPR finds acceptable as it would see the Scheme carry higher levels of risk than we would consider manageable for a 'tending to strong' covenant. We indicated in our August letter that risk means increased volatility in the funding position and contribution requirements. Combined with the increasing scale of the Scheme, this underscores the need for meaningful contingency planning and triggers for action. As such, any further movement away from the 2017 Valuation proposal which involves additional risk will need to be fully backed by additional, tangible and realisable contingent support from the employers. In other situations, we have seen schemes reach agreement with their employers that, in the event that the deficit is above the level anticipated, they would fund additional contributions which are set at predetermined amounts based on scheme performance.

14. We are not yet sighted on the structure of the 2017 Valuation's recovery plan but we would stress that the 2014 Valuation's recovery plan length at 17 years was a notable outlier particularly for schemes with a 'strong' or 'tending to strong' covenant.

15. In reaching our view on the 2017 Valuation proposal we are aware that there was a short term improvement in the funding level from 31 March 2017 to 31 March 2018. We acknowledge that the Trustee could choose to take this positive post-valuation experience into account when consulting on the schedule of contributions and recovery plan. However, we also note that funding levels have fluctuated since 31 March 2018 and this will need to be considered when finalising the 2017 Valuation.

16. Although trustees may take post-valuation experience into account, they should avoid 'cherry picking' of such experience as part of any valuation process. If positive post-valuation experience is allowed for in a valuation, we would ordinarily expect to see the same approach in a subsequent valuation.

Covenant assessment and affordability

17. An ongoing area of disagreement between TPR and the Trustee relates to the assessment of the Scheme's covenant.

18. We recognise that the majority of Scheme liabilities relate to Pre-1992 universities whose stronger academic reputations, asset bases and revenue streams will tend to make them more resilient to changes in the overall market.

19. However, our view is that the Scheme's covenant is 'tending to strong'. Our assessment is based on:

    a) the substantial growth of the Scheme in recent years;

b) the limitations on cashflows available to service the Scheme's contribution requirements, highlighted by the fact that the current proposal appears to be close to the maximum affordable level of contributions;
c) the volatility in the Scheme's funding level due to the level of risk in the Scheme's investment strategy and the ability of the employers to effectively support that risk, particularly if the scale of the Scheme increases relative to the sector; and,
d) the significant increase in borrowing in the sector (as acknowledged by PWC) which, without a commensurate increase in income, will weaken the covenant in the future.

20. Factors which could impair the employers' strength and constrain affordability in the near future include the uncertainty of Brexit's impact and the Review of Post-18 Education and Funding which is due to report in January 2019.

21. With regard to Brexit, we note that Moody's state in their most recent review of the sector *"Depending on the terms of the final deal, Brexit remains a major concern for universities in terms of (1) research funding; (2) attracting and retaining top EU talent; and (3) student recruitment both from the EU and internationally"*.

22. On the Post-18 Education and Funding Review, we note that in a recent letter to The Daily Telegraph, Professor Sir Anton Muscatelli and Dr Tim Bradshaw set out that they believe that a cut in annual tuition fees to £6,500 without this being replaced by direct government funding is likely to have numerous negative impacts on the sector. Dr Bradshaw stated *"That level of fee cut being talked about would affect every university and every course. The scale of cuts being talked about it is a threat to all ultimately."*[1]

23. We expect the Trustee, through PwC, to continue to monitor the impacts of these events and any other developments to inform their covenant assessment as part of the 2018 Valuation process.

Size of Scheme versus sector

24. The Scheme is already of significant scale compared to the scale of the USS employers in the sector and there is significant volatility in the Scheme's funding level. The ability of the sector to provide cash support to the Scheme to fund ongoing accrual and repair deficits is already close to the limits of what can be provided on a sustainable basis. A key concern is the future ability of the sector to effectively support the Scheme, as the scale of the Scheme increases and as the sector develops.

25. Although some high level analysis has been completed, we expect USS together with UUK to undertake detailed sensitivity and scenario analysis around the potential future development of the Scheme and sector scale. This would enable a more thorough assessment to be made of the scale of this risk and the factors which significantly impact the risk.

26. This is a key risk which needs to be fully understood and managed, and a risk which should form part of the ongoing monitoring and contingency planning framework for the Scheme.

The 2018 Valuation

27. The statutory deadline for submission of the 2018 Valuation is 30 June 2019. We expect the Trustee and all the other stakeholders to work collaboratively together to ensure that this statutory deadline is met.

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[1] The Daily Telegraph online 23 November 2018 "Tuition fee cut will send universities into crisis, leading vice-Chancellors warn" and "The Russell Group's letter to The Daily Telegraph" https://www.telegraph.co.uk/education/2018/11/23/tuition-fee-cut-will-send-universities-crisis-leading-vice-chancellors/

28. The JEP report outlined, in relation to the 2017 Valuation, a number of alternative valuation options for the stakeholders to consider.

29. While we welcome the insight the JEP review provided, we believe that any proposal which USS and UUK wish to consider further (including those suggested by the JEP or other stakeholders) should be fully quantified. For instance, the JEP report does not articulate the potential future impact on the Scheme of the proposed increase in reliance on investment returns and the resultant volatility that could result from the JEP recommendations, or the ability and willingness of the employers to manage those risks. We believe that more analysis needs to be undertaken so that all stakeholders can make fully informed decisions.

30. A number of the recommendations (made in the JEP report) are relatively straightforward and do not appear likely to cause a concern as they reflect realised experience, for example:

    a) following a 2018 Valuation being called, market conditions as at 31 March 2018 will form part of the assumption set; and,
    b) as more recent evidence is available regarding mortality progression, it is appropriate for the Trustee to take this into account in setting the 2018 Valuation assumptions.

31. We understand that the majority of employers are supportive of the JEP's recommendations, i.e. they would like more investment risk to be taken within the Scheme's investment strategy. In principle, as long as the risk is supported, we are not against the employers placing greater reliance on investment performance and adopting a potentially more volatile investment approach as a consequence. However, we expect the level of the resulting risk and the range of realistic potential downside outcomes which involve increases in the Scheme's deficit to be fully quantified, monitored and managed.

32. We expect the employers to understand fully the implications of taking on that greater level of risk within the Scheme's investment strategy and to be able to demonstrate that they can fully support that risk if it is not rewarded. This includes understanding the implications for cash funding of the Scheme and the implications of an additional pensions cash call on their universities' future funding, development and capex plans. We also expect the employers to be able to demonstrate their ability and willingness to fully support these risks through formal contingency plans including hard triggers for cash funding of any increased deficit. In our considerations of any future proposals for the 2018 Valuation (JEP or otherwise) if the resultant risk profile and contingency plan is not robust, we may not be persuaded that the risk can be managed adequately and may conclude that the proposal may therefore not be appropriate.

33. We appreciate that agreeing an appropriate contingency plan across all the employers will be challenging. However, a valuation which is agreed without the employers demonstrating that they can and will support the overall approach should the risks not be rewarded may not be compliant with the requirements under Pensions Act 2004. We expect an appropriate, legally binding contingency plan to be agreed and submitted along with the 2018 Valuation. We are open to the employers and their advisors putting forward alternative proposals for consideration. However, our preference is for contingent cash support to be provided.

The Trustee's Tests

34. As set out earlier, the future scale of the Scheme and the future ability of the sector to effectively support it is a key consideration. As part of the 2014 Valuation, the Trustee developed a monitoring system to assess the reliance of the Scheme on the sector.

35. Although some of the details of Test 1 received criticism in the JEP report, we continue to believe that the Trustee should consider the reliance of the Scheme on the sector within their overall valuation approach. Considering a scheme's overall reliance on its covenant now and in

the future is a key part of how trustees should assess the sponsoring covenant. Therefore, we continue to believe that the intent behind Test 1 is relevant and that it should form part of your approach to assessing the Scheme's funding position. It is only one of a number of factors to consider, so the Trustee should attach the appropriate weight to it.

36. We expect effective monitoring to be supported with pre-agreed actions should the level of reliance of the Scheme on the sector exceed the Trustee's tolerance levels. We support the retention of the intent of this Test within the Trustee's ongoing monitoring approach.

Next steps

37. As part of the 2018 Valuation process we expect the Trustee and UUK to work collaboratively to:

a) quantify the risks that the JEP recommendations (both individually and collectively) would introduce;
b) be able to clearly articulate these risks (and their potential impact) to the employers; and,
c) be able to explain how those levels of risk will be monitored and underwritten.

38. We expect the following further work to be undertaken:

a) Ongoing covenant work by the Trustee's advisers, especially with regard to the impact of Brexit and the Review of Post-18 Education and Funding, on the ability of the sector to afford adequate pension contributions. We also expect any future covenant review to consider the impact of increasing borrowing levels in the sector.
b) Further analysis (including scenario and sensitivity analysis) should be completed on the future scale of the Scheme relative to the future scale of those institutions which support it and their ability to effectively support the Scheme. This will help employers to better understand their exposure to risk from the Scheme.
c) We do not expect this analysis to be sufficient on its own. However, it should form an input into an assessment of the ability of the employers to effectively support the level of risk in the Scheme and also help to assess the longer term impact on employers.
d) Appropriate contingency plans with firm triggers for cash payments should be agreed as part of the 2018 Valuation submission.

I have copied this letter to the other key USS stakeholders. Please do not hesitate to contact us if you wish to discuss any aspect further.

Yours sincerely

Mike Birch
Director of Supervision
The Pensions Regulator

cc Sir Andrew Cubie
Chair, Joint Negotiating Committee

Sally Hunt (via Paul Cottrell)
General Secretary, University and College Union

Alistair Jarvis
Chief Executive, Universities UK

Paper 8

COUNCIL

USS pensions –options and update.

CONFIDENTIAL

(a) Summary

This provides an update on the USS pension issues. It provides a summary of the output of the USS Pensions Working Group on possible options for pension provision should it be required. There is also an update of the 2018 USS valuation.

(b) Action required of Council

Council is asked to:

(i) **note** the USS Working Group's recommended options for Council should there be any change in USS pension provision; and

(ii) **note** the current situation with regard to the issues arising from the 2017 and 2018 USS valuations.

(c) Committees considered by

Committee	Date	Sharepoint Link to original paper	Sharepoint Link to minute of decision	Decision (endorsed/approved etc)
Council	9 July 2018	C(18)73	Minute 2(a)	Approved recommendations
Council	21 September 2018 Away Day	C(18)104	Minute 3	Endorsed procedure in principle
Council	29 October 2018	C(18)110	xx	xxx

(d) Key issues

1. Options for USS pension provision

The USS Review Group has been asked to explore options for Council to meet its aspiration to seek to provide pension provision for USS members employed by the University that is of the same standard as currently available. The full text of Council's statement is set out in Annex A. A summary of the options consider by the USS Review Group is detailed here for noting.

As matters currently stand there are no proposals to make any changes to the pension provision in USS, although there are planned increases in employer and employee contributions to the scheme. Should there be any changes to pension provision Council has agreed a procedure for dealing any decisions. Broadly Council would need to consider the options presented by the USS Review Group, a temporary committee of external members would then scrutinise Council's views on the matter and then refer back to Council a preferred option for final decision.

Exit USS and provide own defined benefit scheme

1.1 If the University withdrew from USS it could provide a defined benefit scheme of its own design and set the level of the benefits the scheme provided. Withdrawing from USS would subsequently allow the USS Trustees to trigger payment of a debt on the University which it is liable to pay. The debt is equivalent to the University's share of the "buy-out deficit" (i.e. the additional money needed to buy out all of the University's liabilities with an insurance company). A recent estimate of that debt was c£2.7bn.

1.2 The USS Review Group noted that the cost of the debt (known as the "section 75" debt) was calculated on very cautious basis and it would not necessarily be earmarked for the benefit of University members. It was agreed that this option was clearly not in the University's interests and would not be recommended to Council as an option to pursue further.

Exclusivity Clause

1.3 Options for providing a top up of benefits as a means of meeting Council's commitment on USS were restricted by the USS exclusivity rule. The Exclusivity Clause restricts the ability of employers to "maintain or contribute to any other pension scheme" other than USS for eligible employees. In this context, the USS definition of "pension scheme" includes any instrument or agreement which provides benefits on retirement, death, ill health or by virtue of a member reaching a particular age. The interpretation of this means that offering USS members additional benefits to top-up their USS pension either through a registered pension scheme or via an unfunded benefit promise (payable at retirement) would breach the USS Exclusivity Clause. Legal advice was sought confirming this interpretation.

Top up options

1.4 The effect of the Exclusivity Clause was to rule out many options for topping up benefits in the event that changes reduced future pension benefits. Options for remaining in USS whilst also contributing to another arrangement alongside USS were considered. These additional arrangements considered used a variety means of delivering pension provision: using another defined benefit or defined contribution pension scheme alongside USS, using a funded promise under trust or using an unfunded arrangement (ie promise to pay an additional amount at retirement for life directly from University funds). All these options were ruled out because of the Exclusivity Clause. These options are summarised in more detail in Annex B.

Remaining options

1.5 The two options that did not breach the USS Exclusivity Clause considered by the USS Review Group were:

a) topping up benefits in USS through the defined contribution ("DC") USS Investment Builder section; and
b) providing additional compensation, via salary, for the loss of pension provision so employees may make own retirement savings.

Under option a) members at retirement would have defined contribution funds within USS that could be used to replicate the expected pension benefits payable at retirement based on the current benefit structure via the purchase of an annuity that matched the pension from USS (subject to the annuity products available in the market). The USS policy team has confirmed that employers may pay a top up into the USS Investment Builder section.

Providing additional compensation for members to save for retirement

1.6 The Group considered to a limited extent the costs of providing alternative compensation for loss of pension provision so employees could save for retirement. Annex C shows the illustrative cost of additional compensation to the University and the financial benefit to the employee. The Group had concerns that this cash option was not consistent with the desire to maintain the same standard of pension provision as it clearly was not a pension arrangement. Other concerns were that the compensation would not necessarily be used for savings, however it allowed individuals flexibility and choice.

DC top up in USS

1.7 The USS Review Group also looked the possible benefits provided within the USS scheme via a defined contribution top up in the USS Investment Builder section for several example scenarios with an assumed benefit change scenario – a lowered salary threshold (as was put forward following the Acas discussions in March 2018). The advisers Aon provided information on some example USS members (at different ages and salaries). The modelling undertaken was limited but served to illustrate the sensitivity of member outcomes to investment returns and complexity of assumptions underlying the modelling. Annex D summaries the assumptions made and provides example member outcomes.

1.8 An employer regular voluntary contribution to a member's USS Investment Builder is permitted under USS rules. It is worth noting that there is nothing within the scheme rules to stop an employer introducing a policy for voluntary employer contributions which makes them contingent on a matching voluntary member contribution. Annex E serves to illustrate the net cost of DC top out and as a result of the tax and National Insurance treatment, pension can deliver better value to employees than cash compensation.

1.9 At this stage the USS Review Group has not explored the practicalities of design and delivery of a DC top up in USS but it is viewed as a realistic and the most feasible option should it be required.

2. Summary of current situation with regard to the issues arising from the 2017 and 2018 USS valuations

Rule 76.4 contribution increases and 2017 valuation.

2.1 The consultation on changes to USS closed on 2 November 2018. In support of the consultation, the University ran 4 briefing sessions with bookings from over 250 employees and over 140 attendees. The Oxford UCU has encouraged its members to give feedback on the consultation. The online responses (112 in total from over 9,000 affected Oxford employees) have been reviewed and submitted to USS. Formalities are nearing conclusion in completing the overdue 31 March 2017 valuation.

2.2 The changes to be implemented under Rule 76.4 are removal of the 1% employer match and contribution increases (shown in the table below). The increase in April 2019 will be applied. In the absence of any changes resulting from the 2018 the increases in October 2019 and April 2020 would also apply. If, following the 2018 valuation the required contributions are lower than the rates in the table it will not be necessary to hold another Employer consultation with employees.

% of pensionable salary	Current	From 1 April 2019	From 1 October 2019	From 1 April 2020
Employer	18.0%	19.5%	22.5%	24.9%
Employee	8.0%	8.8%	10.4%	11.7%

2018 valuation.

2.3 Add an update here .

Strategic Plan

At this stage there are no issues directly relating to the strategic plan.

Risk analysis

If the governance group is not set up as stated Council will find it difficult to take forward the discussions on pension provision due to conflict of interest.

Consider if any risks from 2018 valuation should be added

Cost and sustainability

The costs of the increase in employer contributions is £4m pa for a 1% increase in the contribution rate. In addition there would be costs to fund any additional pension provision above that provided by USS should it be required a future point.

(e) Public Sector Equality Duty

As a public body, the University has an active duty to consider the impact on equality in all decision making.

Negative Equality impact

An assessment of the impact of any top up to pension provision for USS members would need to be undertaken at the time. It should be noted that membership of the USS scheme by gender across the University is split approximately 50/50. The OSPS scheme for support staff has approximately two thirds female membership. If the decision was taken to top up benefits for USS members and not for OSPS members then there a potential negative impact for female employees.

Positive Equality impact

It is considered that this item will have no impact on equality

(f) Further information

Additional information may be obtained from Julian Duxfield, Director of HR (julian.duxfield@admin.ox.ac.uk)

Annex A

Council's April statement

The Council statement of 4th April is reproduced in full below:

Council notes the ongoing negotiations between UCU and UUK and will make every reasonable effort to resolve the current dispute within the national framework of USS. Although the outcome of the current negotiations remains unclear, Council will seek to provide pension provision for USS members employed by the University that is of the same standard as currently available, subject to the duties of the Council, as a trustee body, to serve the interests of the University as a whole. Council resolves to treat achieving this objective as an issue of high priority for the University. It will ensure that all members of Council are fully involved in Council's deliberations on pension provision, and that they will regularly review the delivery of the above objective and report to Congregation in a timely and transparent manner.

At the time of making the statement there was a potential pensions agreement that would change the pension benefits for USS members. Council wished to make it known that they would seek to maintain those benefits, if they could, for USS members at Oxford and hence the statement above was made. It was subsequently clarified by Council that the term "pension provision" referred to benefits.

Annex B

Options considered by the Working Group for increasing pension provision whilst remaining in USS by providing another arrangement alongside USS

Option 1

Continue to participate in USS and set up a new pension arrangement which tops up members' benefits to the desired level – using a **defined benefit occupational pension scheme**.

Type of arrangement	Contributor
Defined benefit occupational pension scheme	University and employees contribute to

Breaches the USS exclusivity clause. In addition it would be difficult to define the additional benefits needed, administer and explain to members.

Option 2

Continue to participate in USS and set up a new pension arrangement which tops up members' benefits to the desired level – **using a Funded Employer Financed Retirement Benefits Scheme (funded EFBS).**

Type of arrangement	Contributor
Funded Employer-Financed Retirement Benefits Scheme (funded EFBS)	University and employees contribute to.

This would provide benefits to employees on retirement using the contributions that had been put into trust. Breaches the USS exclusivity clause.

Option 3

Continue to participate in USS and set up a new pension arrangement which tops up members' benefits to the desired level – using a **defined contribution occupational pension scheme or personal pension plan (eg group personal pension plan)**.

Type of arrangement	Contributor
Defined contribution occupational pension scheme	University and employees contribute to
Defined contribution personal pension scheme eg group personal pension plan	University and employee contribute to

One challenge with a defined contribution top up is in setting the contribution rate at an appropriate level. Breaches the USS exclusivity clause.

Option 4

Continue to participate in USS and set up a new pension arrangement which tops up members' benefits to the desired level – using a **defined contribution occupational pension scheme or personal pension plan (eg group personal pension plan)**.

Type of arrangement	Contributor
Defined contribution occupational pension scheme	Employees only contribute to
Defined contribution personal pension scheme eg group personal pension plan	Employees only contribute to

This is a variation on option 3, but here the University provides additional pay to individuals to cover the cost of contributions. The individual is then given access to a pension vehicle to save for retirement and can elect to contribute to the arrangement or not.

Although the employer is not contributing in this scenario, it could breach the exclusivity clause as the employer is “maintaining” the arrangement.

Option 5

Continue to participate in USS and set up an unfunded benefit promise which tops up members’ benefits to the desired level – using an **Unfunded Employer-Financed Retirement Benefits Scheme (unfunded EFBS).**

Type of arrangement	Contributor
Unfunded Employer-Financed Retirement Benefits Scheme (unfunded EFBS)	None

Under this arrangement the University pays benefits directly to members when they retire (or, when they die, to their dependants). The benefit promise can be difficult to define (as in option 1). It is not tax-efficient for the majority and it is less secure as there are usually no funds specifically set aside. The University would include a provision for these liabilities in its financial statements.

Breaches the USS exclusivity clause as the University as it may be deemed a “pension scheme” under the relevant USS definition.

Annex C

Alternative compensation for loss of expected future pension provision for members to save for retirement

Costs of additional pay summary

The annual pensionable payroll for University employees who are members of USS is around £400m, so 1% employer contribution costs £4m per annum.

If the University provides additional compensation, rather than pension, there are extra costs to the University of National Insurance and Apprenticeship levy. Employer National Insurance cost is 13.8% of pay for those earning above £8,424 p.a. and apprenticeship levy is 0.5% of pay bill. These costs would not be payable on contributions to a pension scheme.

USS has confirmed that this compensation could be paid as a non-pensionable allowance.

Cost of providing compensation if pension provision is reduced

Two example employees are considered:

A. Earnings below £46,350. Basic rate (20%) tax payer, and earnings below Upper Earnings Limit (UEL) giving 12% employee National Insurance (NI) contribution rate.
B. Earnings above £46,350. Higher rate (40%) tax payer, and earnings above UEL giving 2% employee NI contribution rate.

Pension provision reduced, so employer pays additional <u>non-pensionable pay</u> to employee to compensate for pension change effect

Headline pay increase of £100 (non-pensionable).

Benefit to the employee

	A – salary <£46,350	B – salary >£46,350
Non pensionable pay increase	£100.00	£100.00
Less National Insurance (12% / 2%)	(£12.00)	(£2.00)
Less Tax (20% / 40%)	(£20.00)	(£40.00)
Additional net pay received	£68.00	£58.00

Cost to the employer

	A and B
Non pensionable pay increase	£100.00
Plus National Insurance (13.8%)	£13.80
Plus Apprenticeship levy (0.5%)	£0.50
Total cost to employer	£114.30

Annex D

Other options – DC top up via USS.

The Group wanted to understand what level of benefits defined contribution (DC) contributions could deliver to offset a change to the benefits currently provided by USS. Below is an outline of possible scenarios that could be modelled to illustrate this.

The agreed starting place was be to look at the rejected ACAS proposal and run a scenario where the salary threshold is reduced to £42K (i.e. ignore all other proposed changes). In additional a scenario where the salary threshold was reduced to £50K was modelled so that the Group can understand how sensitive a DC top up could be to changes in the cap.

Other assumptions included:

- All past service ignored
- Salary increases set at 2% pa
- CPI increases set at 2% pa
- DB Salary cap increases set at 2% pa
- DC funds used to provide tax-free cash (up to level provided in Base calculation) with the remainder used to buy an annuity (i.e. ignoring drawdown)
- Pension increases on annuity purchased by DC pot chosen to most closely match that from USS (subject to readily available annuity rates)
- Members remain in service until normal retirement age
- DC contributions set at 8% employee and 12% employer across all ages (above DB Salary cap)

The output for the scenarios (with the various DC investment return assumptions) gave:

1. The estimated pension benefits payable at normal retirement age based on the current benefit structure
2. The expected pension benefits payable under each salary threshold scenario at normal retirement age
3. How much additional money (if any) is needed at retirement to replicate (as closely as possible) the benefits under (1)
4. Work out the % of salary required to be paid every year to meet the cost in (3)

There are a number of assumptions that were made – particularly around the level of DC investment returns that could be achieved. As such any DC top up will change materially depending on the agreed benefit level and how the assumptions are borne out in practice.

Aon were asked if there would be any issues providing different DC contribution rates across different ages. There is nothing specifically set out within the Myners principles on setting different contribution rates across different ages of the DC population. DC pension schemes in the UK are able to apply different contribution rates according to the age of the member so long as they are able to justify why they are applying them. Typically a scheme that would do this would evidence that it has modelled the costs across different ages to justify why different rates have been applied. For this reason a number of DC schemes simply apply the same contribution rates across all ages.

Annex E

Pension provision reduced, so employer pays additional contribution into USS Investment Builder (DC) section as top-up to compensate for pension change effect

Headline DC employer contribution increase of £100

Cost to the employer

	A and B (see table below)
DC employer contribution increase	£100.00
Plus National Insurance (Nil as increase in pension contribution not treated as pay)	Nil
Plus Apprenticeship levy (Nil as increase in pension contribution not treated as pay)	Nil
Total cost to employer	£100.00

Benefit to the employee:

DC pot increases by £100. At retirement, 25% of the DC pot can be paid tax free with remainder taxed at marginal tax rate. For example, ignoring any future investment returns:

	A – income in retirement <£46,350	B – income in retirement >£46,350
Value of pension pot	£100.00	£100.00
Tax free element (25%)	£25.00	£25.00
Tax payable on remainder (20% / 40% on £75)	£15.00	£30.00
Net value of pension pot (before allowance for any investment returns)	£85	£70

Summary

If pension provision reduced and compensation paid:

	Impact on Employer	Impact on Employee A	Impact on Employee B
Employee receives additional £100 of non-pensionable pay (which isn't then paid into pension scheme) (as in Annex C)	£114.30 cost	£68 rise in net pay	£58 rise in net pay
Employee receives additional £100 of DC contribution from employer	£100 cost	Extra £100 to DC pot	
		£85* taken from DC pot after tax	£70* taken from DC pot after tax

* This assumes 25% is taken tax-free at retirement with the remainder taxed at marginal rate, with no allowance for investment returns, Employee A/B assumed to be lower/higher rate tax payer.

University of Oxford

USS – member examples

25 September 2018

Prepared by Aon

Presentation to USS Working Group

USS member examples

The following slides set out four member examples showing the potential impact of reducing the current Salary Threshold (currently £57,216.50) for members in the Universities Superannuation Scheme (the “Scheme”).

The examples highlight the potential impact on a member’s retirement pension and the potential cost to the University of offsetting any negative impact to the member.

The examples compare:

a) Projected USS pension assuming no benefit changes are implemented
b) Projected USS pension assuming a reduction to the Salary Threshold going forward (under a range of different investment returns)

Assumptions

In all of these examples it is assumed that:

- All the example members work for the University until retirement at SPA
- Price inflation is in line with CPI inflation of 2% a year
- Wage growth is in line with CPI inflation i.e. 2% a year until retirement
- Salary Threshold growth is in line with CPI inflation i.e. 2% a year
- The member pays 8% and the University pays 12% of Pensionable Salary above Salary Threshold into DC account
- The DC account purchases a guaranteed pension (i.e. annuity) at retirement, based on:
  - Pension increases of 2% a year
  - A 50% spouse's pension payable upon a member's death (spouse 3 years younger)
  - A 5 year guarantee period
  - An individual in good health
- The automatic 3x lump sum purchases a pension at retirement (as per the DC account)

In addition:

- The pension figures shown are all in today's money and so remove the effects of price inflation between now and the date the members retire
- Past service pension is ignored
- State benefits are excluded from all of the examples and may be payable in addition

Example A

- Age 50
- Retirement at SPA (67)
- Current Scheme Pensionable Salary of £60,000 a year

Yearly pension they might receive at age 67 (in today's money)	Current benefits (Salary Threshold = c£57k)			Salary Threshold reduced to £50K			Salary Threshold reduced to £42K		
	Investment return 3% per annum	Investment return 5% per annum	Investment return 7% per annum	Investment return 3% per annum	Investment return 5% per annum	Investment return 7% per annum	Investment return 3% per annum	Investment return 5% per annum	Investment return 7% per annum
DB CARE pension	12,715			11,111			9,333		
DB 3x lump sum pension	1,538			1,344			1,129		
DC pension	411	488	583	1,477	1,754	2,096	2,658	3,158	3,772
Total pension	**14,664**	**14,741**	**14,836**	**13,932**	**14,209**	**14,551**	**13,120**	**13,620**	**14,234**
Difference to current benefits*	-	-	-	(732)	(532)	(285)	(1,544)	(1,121)	(602)
Additional University contribution**	-	-	-	1.7%	1.0%	0.5%	3.5%	2.1%	1.0%

*compared to the relevant investment return
**estimated to be required to be paid to the DC account as a percentage of pensionable salary

Example member A – Explaining the 'If the Scheme continued in its current form'

- Total CARE benefit is 17 years x £57,216.50 x 1/75 x 1.02^{16} = £17,804

  Future salary increases and salary threshold increases of 2% a year are assumed to be granted at the end of the year. Revaluation of CARE benefit assumed to be 2% a year.

- Putting this into today's money terms:

  £17,804 / 1.02^{17} = **£12,715**

  To adjust the CARE pension payable in 17 years' time into today's money terms we remove 17 years' worth of inflation (at 2% a year).

- Cash lump sum in today's money is:

  3 x £12,715 = £38,145

- This is converted to a pension assuming £1 of pension a year costs £24.80 so the cash lump sum could purchase £38,145 / 24.80 = **£1,538** a year of pension :
- Future DC contributions would be paid in relation to Pensionable Salary above the assumed Salary Threshold:

	Salary net of Salary Threshold	Pension contributions	Value at retirement (low return)
Year 1	£60,000 – £57,216.50 = £2,783.50	20% x £2,783.50 = £556.70	£906.64 = (£556.70 x $1.03^{16.5}$)
Year 2 (etc)	£60,000 x 1.02 – 57,216.50 x 1.02 = £2,839.17	20% x £2,839.17 = £567.83	£897.83 = (£567.83 x $1.03^{15.5}$)

- Total DC fund value (17 years of contributions with returns at 3% a year) at retirement is £14,272
- This is converted to a pension assuming £1 of pension a year costs £24.80 so the DC fund value could purchase £14,272 / 24.80 = £575 a year of pension
- Putting this into today's money terms (i.e. removing inflation):

  £575 / 1.020^{17} = **£411** a year pension

Example member A – Explaining the ‘If the Scheme continued in its current form with a £42K salary Threshold’

- Total CARE benefit is 17 years x £42,000 x 1/75 x 1.02^{16} = 13,069

  Future salary increases and salary threshold increases of 2% a year are assumed to be granted at the end of the year. Revaluation of CARE benefit assumed to be 2% a year.

- Putting this into today’s money terms:

  £13,069 / 1.02^{17} = **£9,333** a year of pension

  To adjust the CARE pension payable in 17 years’ time into today’s money terms we remove 17 years’ worth of inflation (at 2% a year).

- Cash lump sum in today’s money is:

  3 x £9,333 = £27,999

- This is converted to a pension assuming £1 of pension a year costs £24.80 so the cash lump sum could purchase £27,999 / 24.80 = **£1,129** a year of pension :
- Future DC contributions would be paid in relation to Pensionable Salary above the assumed Salary Threshold:

	Salary net of Salary Threshold	Pension contributions	Value at retirement (low return)
Year 1	£60,000 – £42,000 = £18,000	20% x £18,000 = £3,600	£5,863 = (£3,600 x $1.03^{16.5}$)
Year 2 (etc)	£60,000 x 1.02 – 42,000 x 1.02 = £18,360	20% x £18,360 = £3,672	£5,806 = (£3,672 x $1.03^{15.5}$)

- Total DC fund value (17 years of contributions with returns at 3% a year) at retirement is £92,292
- This is converted to a pension assuming £1 of pension a year costs £24.80 so the DC fund value could purchase £92,292 / 24.80 = £3,721 a year of pension
- Putting this into today’s money terms (i.e. removing inflation):

  £3,721 / 1.020^{17} = **£2,658** a year pension

Example B

- Age 40
- Retirement at SPA (68)
- Current Scheme Pensionable Salary of £52,000 a year

Yearly pension they might receive at age 68 (in today's money)	Current benefits (Salary Threshold = c£57k)			Salary Threshold reduced to £50K			Salary Threshold reduced to £42K		
	Investment return 3% per annum	Investment return 5% per annum	Investment return 7% per annum	Investment return 3% per annum	Investment return 5% per annum	Investment return 7% per annum	Investment return 3% per annum	Investment return 5% per annum	Investment return 7% per annum
DB CARE pension		19,033			18,301			15,373	
DB 3x lump sum pension		2,378			2,287			1,921	
DC pension		-		531	712	972	2,656	3,561	4,858
Total pension		**21,411**		**21,119**	**21,300**	**21,560**	**19,950**	**20,855**	**22,152**
Difference to current benefits*		-		(292)	(111)	149	(1,461)	(556)	741
Additional university contribution**		-		0.4%	0.1%	n/a	2.1%	0.6%	n/a

*compared to the relevant investment return
**estimated to be required to be paid to the DC account as a percentage of pensionable salary

Example C

- Age 50
- Retirement at SPA (67)
- Current Scheme Pensionable Salary of £72,000 a year

Yearly pension they might receive at age 67 (in today's money)	Current benefits (Salary Threshold = c£57k)			Salary Threshold reduced to £50K			Salary Threshold reduced to £42K		
	Investment return 3% per annum	Investment return 5% per annum	Investment return 7% per annum	Investment return 3% per annum	Investment return 5% per annum	Investment return 7% per annum	Investment return 3% per annum	Investment return 5% per annum	Investment return 7% per annum
DB CARE pension		12,715			11,111			9,333	
DB 3x lump sum pension		1,538			1,344			1,129	
DC pension	2,183	2,594	3,098	3,249	3,860	4,610	4,430	5,263	6,287
Total pension	**16,436**	**16,847**	**17,351**	**15,704**	**16,315**	**17,065**	**14,892**	**15,725**	**16,749**
Difference to current benefits*	-	-	-	(732)	(532)	(286)	(1,544)	(1,122)	(602)
Additional University contribution**	-	-	-	1.4%	0.8%	0.4%	2.9%	1.8%	0.8%

*compared to the relevant investment return
**estimated to be required to be paid to the DC account as a percentage of pensionable salary

Example D

- Age 25 (assumed whole life member)
- Retirement at SPA (68)
- Current Scheme Pensionable Salary of £35,000 a year (promotional increase to £50K at age 35, £75K at age 45 and £100K at age 55)

Yearly pension they might receive at age 68 (in today's money)	Current benefits (Salary Threshold = c£57k)			Salary Threshold reduced to £50K			Salary Threshold reduced to £42K		
	Investment return 3% per annum	Investment return 5% per annum	Investment return 7% per annum	Investment return 3% per annum	Investment return 5% per annum	Investment return 7% per annum	Investment return 3% per annum	Investment return 5% per annum	Investment return 7% per annum
DB CARE pension		28,313			26,144			22,693	
DB 3x lump sum pension		3,538			3,267			2,835	
DC pension	6,640	8,051	9,866	8,174	9,997	12,361	10,743	13,645	17,670
Total pension	**38,491**	**39,902**	**41,717**	**37,585**	**39,408**	**41,771**	**36,271**	**39,173**	**43,198**
Difference to current benefits*		-		(906)	(494)	54	(2,220)	(729)	1,481
Additional university contribution**		-		0.6%	0.2%	n/a	1.6%	0.4%	n/a

*compared to the relevant investment return
**estimated to be required to be paid to the DC account as a percentage of pensionable salary

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Registered in England & Wales No. 4396810
Registered office:
The Aon Centre | The Leadenhall Building | 122 Leadenhall Street | London | EC3V 4AN

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