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Important notice: please read

In formulating this consultation document, the trustee has received actuarial information and actuarial advice (together the *'Actuarial Information'*) from the Scheme Actuary, Aaron Punwani of LCP, investment advice from USS Investment Management Ltd and Mercer, and covenant advice from PwC supplemented by analysis from Nous Group. The Scheme Actuary has confirmed to the trustee that the Actuarial Information complies with relevant Technical Actuarial Standards.

For the avoidance of doubt, this consultation document is addressed to UUK only. Neither UUK, nor any other entity or person who might receive or otherwise come into possession of a copy of this document, are considered to be 'users' of the actuarial information or other advice that has been provided to the trustee by the Scheme Actuary or other advisers. To the extent that any of the actuarial information, or other advice provided to the trustee, is included within this consultation document it is provided for information only and on a non-reliance basis. Neither the trustee nor any of its advisers accepts any liability to any other party. We recommend that UUK or any other entity or person who might receive or otherwise come into possession of a copy of this document take their own advice, including actuarial advice, on which they can rely. References to 'the consultation document', 'the consultation' and 'the document' include the appendices and the Supporting Information.

Please get in touch with us if you need an accessible version of this document.

Please send any general enquiries about this document and the enclosed Supporting Information to **valuation@uss.co.uk**.

1 Foreword

I am pleased to introduce the start of the trustee's consultation with UUK on the March 2023 valuation of the USS Retirement Income Builder (the Defined Benefit section of the scheme).

The indicative valuation results show a major improvement in the scheme's funding position. This reflects some very significant economic developments since the 2020 valuation.

UK interest rates have risen rapidly. Over the past 18 months, more than 10 years of declining interest rates on UK gilts has reversed – as policymakers have looked to tackle a sharp rise in inflation.

This has brought about a turnaround in fortunes for many private Defined Benefit (DB) pension schemes, including USS. Since the last valuation, rising long-term interest rates have reduced the value placed on our liabilities and our assets have grown in value, meaning our funding position is much improved. At the same time, the cost of making new pension promises has fallen because the price of the assets required to back those promises has come down – the return we can currently expect to make on these assets in future is greater.

The improved funding position, the enduring value of the covenant support measures provided to the scheme by employers at the 2020 valuation and the proven resilience of the higher education sector through the pandemic have all contributed to our assessment that the employer covenant continues to be strong for the 2023 valuation.

On this basis, we are expecting to report a surplus for the first time since the 2008 valuation. With a favourable financial position, we consider that a reduction in the contribution rate is likely to be appropriate at this valuation and we provided guidance to stakeholders earlier in the year to that end.

In March this year, the Joint Negotiating Committee (JNC) requested that the trustee prices benefits, subject to the outcome of the 2023 valuation process and consultations, at pre-April 2022 levels for service from 1 April 2024. This request followed joint statements from Universities UK (UUK) and the University and College Union (UCU) expressing their commitment to *'prioritise the improvement of benefits to pre-April 2022 levels, where this can be done in a demonstrably sustainable manner'*.

Accordingly, we have illustrated contribution rates for future service on both the current set of benefits and the pre-April 2022 benefits.

Restoring future benefits to pre-April 2022 levels would require a statutory employer-led consultation with affected employees and their representatives. In anticipation, and to help achieve our shared accelerated timetable, we are working with employers and the JNC to support such a consultation which we expect to begin in late September.

The pace of change we have seen demonstrates clearly how volatile the economic context can be. Financial market conditions could change again and it is important that we have a common understanding of our financial risks and consider any steps we might take to mitigate them. Stability at future valuations cannot be guaranteed.

Our goal for this valuation is to work collaboratively with our stakeholders to ensure USS is positioned to deliver the benefits being promised. This reflects one of our key legal duties as trustee: the *security* of the Retirement Income Builder benefits already promised and being promised to our members. We also recognise that the *affordability* of contributions for employers and members and the *stability* of benefits are important to the sector.

In November a technical forum was established to facilitate early engagement with our stakeholders around key aspects of the 2023 valuation. The trustee is very grateful to UCU and UUK's representatives and their advisers for their constructive engagement, robust discussion, challenge, and debate in that forum.

As a result, we have been able to air some important technical issues with stakeholders in relation to the assumptions and methodology and to debate regulatory considerations. This has enabled us to work on a 'no surprises' basis and contributed to the collaborative spirit that has supported the tangible progress made to date, collectively, to complete this valuation on an accelerated timetable.

The scheme's improved funding position provides a platform on which to build greater resilience and stability. A working group has been set up by the JNC to explore these issues and we look forward to supporting the Group and participating in those discussions.

No decisions have been, or can be, taken by the trustee at this stage of the consultation process. We therefore look forward to receiving UUK's response to this consultation, on behalf of employers, and to continued engagement with our stakeholders as our discussions around stability and resilience progress.

Dame Kate Barker
Chair of the Trustee Board

19 July 2023

2 Executive summary

At a glance

Rising long-term interest rates, alongside wider changes in financial conditions, have led to a significant turnaround in the scheme's funding position.

The provisional view presented by the trustee as at 31 March 2023, subject to the outcome of the consultation with UUK, is:

A future service contribution rate of

16.2%

of salaries for current benefits (significantly down from the current overall contribution rate of 31.4%, which includes 25.2% in respect of future service contributions and 6.2% in respect of the 2020 deficit)

A funding surplus of

£7.4bn

on the Technical Provisions basis (compared to a deficit of £14.1bn at the 2020 valuation)

A future service contribution rate of

20.6%

of salaries for the pre-April 2022 benefits (for service from 1 April 2024)

At the end of this consultation process, the trustee will consider UUK's response and, following receipt of the Scheme Actuary's Rule 76.1 report, will determine the overall contribution rate for the purposes of the cost-sharing process.

As anticipated under the scheme rules, the JNC is then able to determine how a change to the overall contribution rate will be addressed, whether by changes to member and employer contributions, changes to future benefits, or both.

Outline of the valuation process

- Under legislation, we must carry out a full valuation at least every three years.
- Regular valuations help us assess whether the funding of the scheme is on track.
- We are required to consult with UUK on our proposed methodology and the assumptions to be used in calculating the Technical Provisions (TP), and any other matter to be included in the Statement of Funding Principles (SFP). This document starts those consultations.
- We are also required to consult UUK on revisions to the Schedule of Contributions (SoC) and we plan to do that later in the process.

The stakeholders are seeking to make benefit improvements

- Rising long-term interest rates have driven an improvement in the scheme's financial position and lowered contribution requirements.
- These positive financial developments have paved the way for UUK and UCU to jointly agree to *'prioritise the improvement of benefits to pre-April 2022 levels, where this can be done in a demonstrably sustainable manner'*.
- UUK and UCU have issued several joint statements to confirm these commitments and the JNC has asked the trustee to price benefits on that basis, subject to the outcome of the 2023 valuation process and consultations.
- The stakeholders have also reiterated their commitment to explore the options and costs of improving benefits in recognition of the lower benefits built up between April 2022 and April 2024.

Our proposed methodology is consistent with the last valuation

- Our methodology was fully reviewed and consulted on for the 2020 valuation and we believe it remains appropriate for this valuation.
- Therefore, for the 2023 valuation we propose to retain the main elements of our approach, including:
  - setting 'dual discount rates', where different rates are applied for benefits in payment (in respect of members when they have retired) and before benefits come into payment (in respect of active and deferred members before they retire)
  - deriving the dual discount rates by referring to our investment return expectations for the assets we expect to hold and then applying a margin for prudence, as required by legislation
  - using our Integrated Risk Management Framework (IRMF) to ensure that the proposed funding approach is within employers' risk capacity and our risk appetite.
- Retaining the 2020 methodology supports an accelerated timetable for this valuation. It enables us to work with stakeholders towards introducing improved benefits and lower contributions, from 1 April 2024.
- The Valuation Technical Forum, a body including representatives from UUK and UCU, has held a series of meetings to discuss technical matters in relation to the assumptions and methodology in preparation for this consultation.

Executive summary
Continued

Our approach to risk management

- Key to our approach to risk management is our belief that the amount of reliance we place on the employers in funding the scheme should be within their risk capacity and within their and our risk appetite. The main inputs to the IRMF relate to:
  - the employer covenant
  - the scheme's investment strategy
  - the funding strategy.
- We have again rated the employer covenant as 'strong'. This is based on advice from our covenant advisers and consideration of the financial performance of the sector, its resilience during the pandemic and the enduring value of the covenant support measures introduced at the last valuation.
- The strong covenant supports us continuing to take funding and investment risk and maintaining substantial investment in growth assets.
- For the purposes of the financial assumptions we have proposed, we have adopted the current Valuation Investment Strategy as our starting point.

Proposed key actuarial assumptions

- We fulfil our requirement to value the liabilities prudently by including margins in our discount rate and mortality assumptions.
- All other assumptions represent our best estimate of future experience.
- The discount rates are the most important actuarial assumptions in this valuation.
- We propose a post-retirement discount rate of 0.9% p.a. above gilt yields and a pre-retirement discount rate of 2.5% p.a. above gilt yields. These are higher in absolute terms than at the previous valuation (but lower relative to gilt yields), reflecting higher gilt yields and our updated investment return expectations.
- There is no single right answer when setting the discount rates. In developing our proposals, we have made a balanced overall judgement taking into account a number of considerations about the wider economic and stakeholder context, and the legal requirement for prudence. We believe our proposed assumptions also offer a platform for prompt progress on the valuation and associated work streams such as consideration of benefit improvements.
- We measure prudence in a number of ways. For example, our modelling indicates that each of the pre and post-retirement discount rates has approximately a 70% confidence level, meaning there is a 30% chance that experience turns out to be worse than assumed.
- Overall, our proposed assumptions are less prudent than at the last valuation but are broadly comparable with valuations in 2017 and 2018. This is consistent with a return to a less constrained risk position than at the last valuation and reflects the current circumstances of the scheme.

Provisional results

- Our proposed assumptions would produce the following results. For comparison we have also shown the results of the 2020 valuation.

Funding position:

Amounts in £bn	2023 valuation	2020 valuation
Assets	73.1	66.5
Technical Provisions	65.7	80.6
Surplus/(deficit)	**7.4**	**(14.1)**

Contribution rates (% of salaries):	2023 valuation	2020 valuation (current contribution rates)
Future service contribution rate for current benefits	**16.2%**	**25.2%**
Deficit contributions	Nil	6.2%
Overall contribution rate – current benefits	16.2% (before allowing for any surplus[1])	31.4%
Future service contribution rate for pre-April 2022 benefits	**20.6%**	**N/A**
Deficit contributions	Nil	N/A
Overall contribution rate – pre-April 2022 benefits	20.6% (before allowing for any surplus[1])	N/A

Notes

1 The contribution rates shown for the 2023 valuation do not include any potential adjustments which may in due course be considered in light of the surplus.

The JNC can determine how the required contribution rate is split. If the JNC does not reach a decision in the time allowed under the 'cost-sharing process' the default cost-share rule would apply requiring the decrease to the contribution rate to be split 35%:65% between members and employers respectively. The current contribution rates are 9.8% for members and 21.6% for employers and for illustration, cost-sharing applied to the above future service contribution rates would lead to rates for pre-April 2022 benefits of 6.1% for members and 14.5% for employers (or 4.5% and 11.7% member and employer contributions for existing benefits).

Executive summary
Continued

There is added focus on stability

- The financial position remains potentially volatile, given our investment strategy.
- This strategy has helped to produce the improved financial position at this valuation but means the position could reverse again in the future.
- The degree of movement since the last valuation has been a catalyst for stakeholder interest in exploring options to bring greater stability. We are supporting a working group which has been established by the JNC to progress that work.

Next steps

- We invite UUK to consider the consultation matters set out opposite.
- We expect your response to us no later than **29 September**. (Employers should plan to provide you with their feedback by **22 September.**)
- During the consultation process, we plan to run a series of interactive webinars for employers along with supporting meetings with sector groups and individual employers.
- At the end of this consultation process we will consider the response from UUK.
- The anticipated future service benefit changes would be subject to a statutory employer-led consultation process with affected employees and their representatives. That consultation is planned to begin in late September and must run for at least 60 days.
- The benefits and member and employer contributions splits will be confirmed following any decision of the JNC. We will then prepare a new Schedule of Contributions and run a short consultation process with UUK, in the same manner as previous valuations.
- We have started reviewing our investment strategy, and we expect fuller engagement with employers on investment strategy to take place in the later stages of the valuation, and as part of the discussions in relation to stability.
- The outcome of the actuarial valuation is important for members' pension benefits. Although our consultation is with UUK as required by the Rules and legislation, we encourage employers to engage, through UUK and by joining the interactive webinars.

Category	Consultation points
Core consultation elements:	We invite feedback on the core consultation elements, in particular: 1. Proposed discount rates, both for the purposes of valuing Technical Provisions and determining future service contributions. 2. Remaining proposed assumptions set out in the Statement of Funding Principles (covering inflation, mortality, and the other demographic assumptions). 3. Any other aspect of the assumptions and methodology underlying the Technical Provisions. 4. Any other matter included in the Statement of Funding Principles.
Additional elements related to the consultation:	In addition, comments are welcomed on: 5. The Trustee's overall assessment of employer covenant, including assumptions made about the level of financial support employers are collectively able and willing to give the Scheme and their Affordable Risk Capacity. 6. The assumed Valuation Investment Strategy (VIS) and strategic mix of return-seeking assets and matching assets. (Note that more extensive engagement with employers on the investment strategy will take place in the later stages of the valuation process.) 7. The balance and trade-offs between investment risk, the degree of prudence and stability (of benefits, contributions, and funding levels), both at this valuation and looking ahead. 8. Any other aspect of this consultation.

3 Consultation process

3.1 Roles and responsibilities

Under Part 3 of the Pensions Act 2004, we must carry out a formal actuarial valuation of the Retirement Income Builder section of the scheme at least every three years. The previous valuation date was 31 March 2020. This valuation has a valuation date of 31 March 2023.

Valuations help us assess whether the scheme is expected to have enough money to be able to pay members the pensions they have built up. In addition, the valuation enables us to review and, if necessary, amend, the overall contribution rate.

In calculating the present value of future pension payments, we are required to make a range of financial and demographic assumptions about the scheme.

This document sets out our proposed methodology and assumptions for the 2023 valuation, along with provisional results. This begins the formal statutory consultation with UUK on the methodology and assumptions for the valuation and on the Statement of Funding Principles, as required under the rules of the scheme and legislation.

At this stage we are consulting on the Statement of Funding Principles and the Technical Provisions results. In due course, we will also consult on a new Schedule of Contributions.

Setting the valuation assumptions and methodology and the resulting overall contribution rate is principally a matter for the Trustee having consulted UUK (on behalf of the employers). Decisions regarding benefit changes and the contribution split between members and employers are the responsibility of the JNC. The JNC comprises of five representatives each from UUK and UCU and an Independent Chair.

UUK and UCU have issued joint statements signalling their commitment to prioritise the improvement of benefits to pre-April 2022 levels for service from April 2024. So, we have included, subject to the outcome of the valuation, results for the future service costs on both the current benefit structure and the anticipated new benefit structure. In due course, the JNC will have the opportunity to determine whether to recommend changes to the current benefits and/or how the contribution rate will be shared between members and employers. The JNC would need to make these decisions by late December 2023 to allow for implementation of the changes by 1 April 2024.

The Pensions Regulator (TPR) regulates the scheme. We have kept them up to date with the valuation process, timetable, methodology and assumptions, and will continue to do so.

3.2 The consultation process

While we understand that this consultation document will be read by employers (and may also be of interest to scheme members), this formal consultation process is specifically with UUK in order to meet the trustee's requirements as specified in the scheme rules and legislation.

We aim to complete the 2023 valuation on an accelerated timetable. This is made possible by our proposal to retain broadly the same methodology as the last valuation, which we believe remains appropriate this time. The shorter timetable reflects the stakeholders' desire to implement improvements to benefits, and to reduce contributions, from 1 April 2024. In practical terms, this is the earliest point at which benefit changes could be made, because that is the start of the next scheme year for benefit calculation purposes.

Some of those changes would be subject to a statutory Member Consultation exercise by employers with affected employees and their representatives. We are working with the employers (and the JNC) to prepare for that exercise which we anticipate will launch on or around 25 September 2023. That allows for the time it would take for the Member Consultation to complete, for the JNC to finalise its decisions, and for the subsequent lead time in implementing the potential changes to administration and payroll systems.

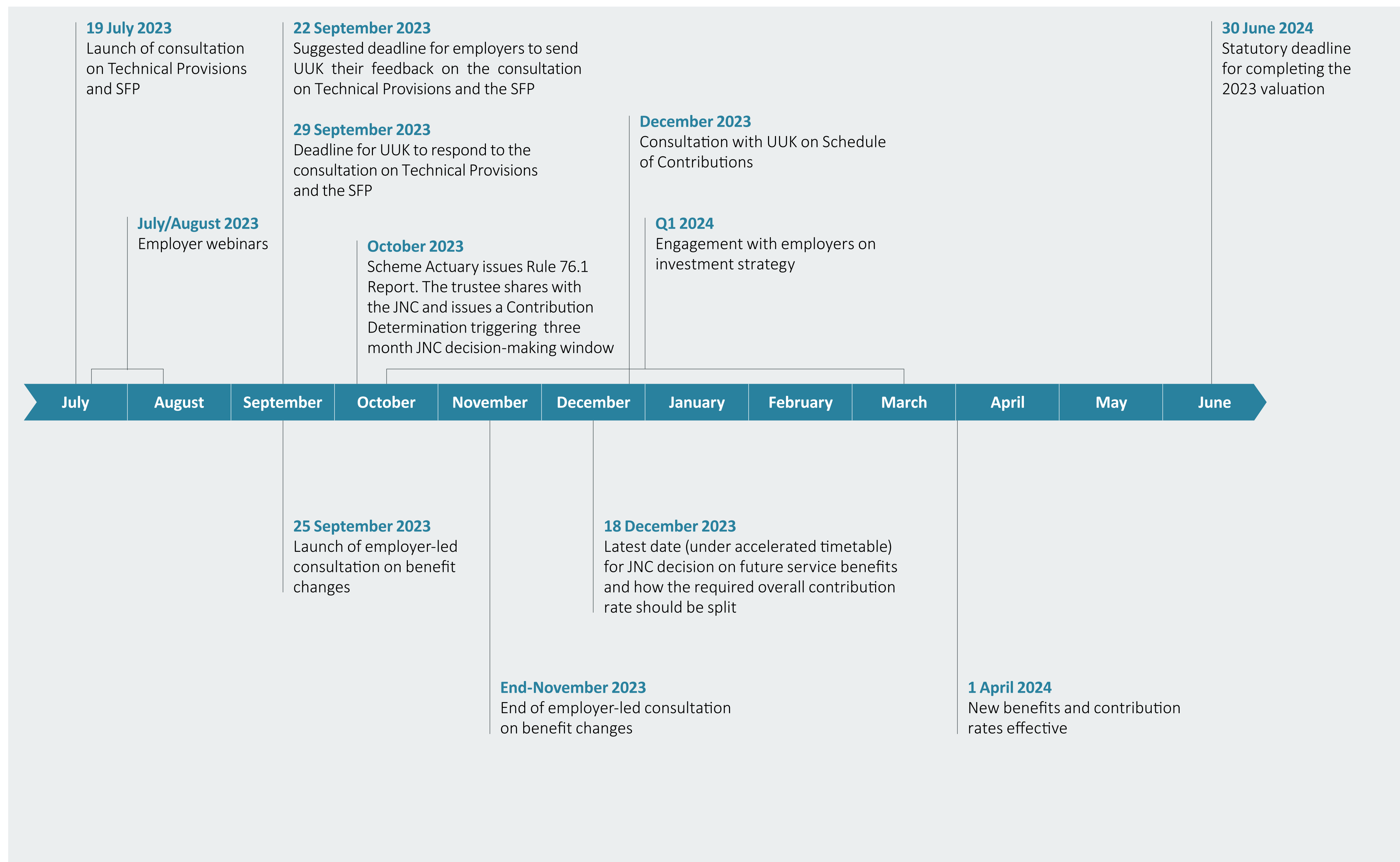
As part of the valuation, the Scheme Actuary is required under the scheme rules to report to the trustee on the financial condition of the scheme including making recommendations about contributions. This is known as the 'Rule 76.1 Report', which will be provided to the trustee after this consultation has concluded. After that, the trustee will issue a copy of the Rule 76.1 Report and a notice confirming its Contribution Determination to the JNC. The JNC will then have up to three months (or such other period as the trustee may allow) to decide how to address the required change to contributions, whether by changes to the member and employer contributions, changes to the future benefit structure, or both.

To meet the overall timetable for completion of the valuation and implementation of anticipated improved future service benefits, we invite UUK to provide a response to this consultation by **5pm on 29 September**. We note that employers should plan to provide UUK with their feedback by **5pm 22 September**.

We explain our consultation proposals in this document with further detail included in the Supporting Information. In addition, during the consultation process we plan to hold a series of webinars to provide an opportunity for participating employers to ask the trustee questions about our proposals.

We have set out on the next page an indicative timetable for the 2023 valuation. Not all the steps illustrated below are within the trustee's control. While it is possible to implement the anticipated future service benefit changes from 1 April 2024, doing so will require all parties to work constructively together to meet this ambitious timetable.

Consultation process
Continued



4 Developments since the last valuation

4.1 Financial markets have been volatile

Interest rates have risen sharply
Since the last valuation, interest rates have increased at a rate that is unprecedented in recent times, reversing more than 10 years of decline. The pace of change has been widely reported on and interest rate movements are having an impact across many parts of the economy.

In the context of pension scheme valuations, the impact of a change in expected returns on assets or interest rates is amplified due to the long-term nature of scheme cash flows, which are the benefit payments we make to members and which extend many decades into the future.

Higher long-term interest rates tend to increase our overall expected investment return. This means we need less money today to meet benefit payments in the future. In other words, the value of the Technical Provisions (the liabilities) and the cost of future service benefits both tend to fall as long-term interest rates rise – bringing positive news at this valuation.

Our investments have performed well
Overall, the scheme's investments have performed well over the period since the last valuation. Our growth assets (such as company shares) benefited from the rebound in global stock markets from the low point of the pandemic.

Meanwhile, our matching assets (such as bonds) mirrored the liabilities – which is what we ask of that part of our portfolio. The rise in interest rates meant that the value of our liabilities and the value of our matching assets both fell over the period.

4.2 Stakeholders are planning benefit improvements

The challenging economic environment at the 2020 valuation meant the trustee and the JNC had to take some difficult decisions.

The sector demonstrated the resilience of its business model in the face of COVID-led disruptions. In addition, employers agreed to a package of covenant support measures. These factors helped make sure the scheme could continue to provide hybrid pension benefits securely, albeit with a lower level of DB pension being built up from April 2022.

Improving future service benefits
Earlier this year, we gave stakeholders approximate guidance of projected future service contributions at this valuation. We based this on our quarterly monitoring of the Financial Management Plan reports.

The anticipated reduction in contribution requirements driven by changes in market conditions has paved the way for UUK and UCU to signal their commitment to prioritise the improvement of benefits to pre-April 2022 levels.

Potential changes for benefits accruing from 1 April 2024:

- The accrual rate would change to 1/75th from 1/85th (with the equivalent lump sum adjustment).
- The salary threshold would change to the level it would have been but for the changes made as of 1 April 2022 (for reference purposes the salary threshold as at 1 April 2023 would have been circa £66,400 p.a. – the threshold at 1 April 2024 will be known after the September CPI data is published in mid-October 2023).
- Inflationary increases would be based upon full CPI up to 5% then half of any increase up to 15% meaning the maximum increase will be capped at 10% (this is sometimes referred to as the 'soft cap').

As a result, we have included future service contributions in this consultation both on the current benefit basis and on the potential new benefit basis from 1 April 2024.

Developments since the last valuation
Continued

Uplifting benefits in recognition of past service benefit reductions

The stakeholders have also reiterated their commitment to *'explore the options and costs of augmenting benefits in recognition of the lower benefits accrued between April 2022 and April 2024, within the 2023 valuation timetable'*.

A range of options are currently being considered for discussion at future JNC meetings, alongside broader discussions on stability.

4.3 Life expectancy changes have improved our funding position

Having taken advice from the Scheme Actuary, we are proposing to reduce the allowance for future life expectancy improvements. This reflects the repercussions of the pandemic, pressures on the healthcare system and more recent population data.

With assumed life expectancies rising less quickly in future, the value of liabilities and future service contributions would fall, all else being equal.

4.4 We have held discussions on technical aspects

The 2023 Valuation Technical Forum (VTF) was established in autumn 2022 to provide an opportunity for early and informal discussion between the trustee, UCU and UUK around the technical aspects of the valuation.

These VTF discussions have helped progress technical debate in preparation for the accelerated valuation timetable. They have helped to cultivate a shared understanding of the key decisions around methodology and assumptions and which assumptions are likely to be most material to the outcomes.

Eight meetings of the VTF took place. Summary reports of those meetings are published on the USS website (see link to 2023 valuation homepage in the Useful links in Appendix 1).

4.5 With our stakeholders, we are exploring ways to bring greater stability

The degree of movement since the last valuation has been a catalyst for stakeholder interest in exploring options to bring greater stability and we are supporting a working group which has been established by the JNC to progress that work.

The initial phase of these discussions will focus on understanding the features that can improve stability and identifying specific metrics by which we can understand the range of outcomes at future valuations under different scenarios.

Thereafter, the working group will look more widely at stability in relation to scheme funding and valuations and explore specific concepts and constructs that may provide resilience against the need to change contributions and/or benefits at future valuations.

5 Approach to valuing the Technical Provisions

5.1 The regulations require us to be prudent

Scheme funding regulations require us to calculate the assets and liabilities of the scheme at the valuation date (31 March 2023). On the asset side, this means that we obtain a market valuation of the assets held by the scheme. On the liability side, we are required to observe relevant economic indicators on the same date.

Regulations mandate that the actuarial assumptions underpinning the Technical Provisions must be calculated prudently. This means that the likelihood of actual experience being better than assumed should be greater than the likelihood of experience being worse than assumed.

With cash flows projected several decades into the future, selecting appropriate and prudent discount rates is the area that requires the greatest judgement in the Technical Provisions calculation.

5.2 Our approach is consistent with the last valuation

Our methodology was fully reviewed and consulted on for the 2020 valuation. It took into account the recommendations put forward by the Joint Expert Panel. Retaining this methodology for the 2023 valuation helps support a shorter timetable for this valuation. The key elements of this approach are as follows:

- We use a ‘dual discount rate’ to calculate the present value of the scheme’s liabilities.
- Discount rates are derived from investment return expectations on the assets we expect to hold, with a margin deducted for prudence.
- All other assumptions represent our best estimate of future experience, except for our mortality assumption, where regulations require us to include a small margin for prudence.

Our IRMF seeks to ensure we are not taking too much risk in funding the scheme. We are also proposing to operate the IRMF in the same way as the last valuation, but with some simplifications to the risk metrics, as discussed with the Valuation Technical Forum and set out in the next section.

5.3 How the IRMF operates

Our current approach involves calculated risks

Benefits are met by a combination of contributions from members and employers, and the investment returns on those contributions. In principle, therefore, if higher investment returns can be achieved, then lower contributions will be required. We invest scheme assets in a combination of matching assets (low risk) and growth assets (higher risk and higher expected return). An alternative would be to invest entirely in matching assets, which we would expect to generate lower returns, and always aim to hold sufficient funds to meet members’ benefits based on those lower returns. While that might offer greater stability, it would tend to lead to much higher contribution requirements.

A degree of funding risk may therefore be considered acceptable. There are limits, though, on the amount of risk that we are comfortable taking. In setting that limit, we take into account the amount of risk that the employers are able and willing to support.

The IRMF does not itself produce a set of discount rates, rather, it enables us to check that the funding strategy being proposed is within our risk appetite. It can therefore influence our decisions.

Measuring risk

The existing framework operates by comparing the reliance we are placing on employers with their capacity, and our appetite, to take risk.

We calculate the reliance we are placing on employers by reference to a 'self-sufficiency' measure of liabilities – that is the level of assets we would wish to hold if we could not rely on employer support.

We have adopted the following risk metrics at this valuation, which are an evolution of those used at the previous valuation.

Actual reliance: this is the current level of reliance on employer covenant given the current level of assets we hold.

Target reliance: this is the level of reliance on employer covenant when the scheme is fully funded, that is, with assets and Technical Provisions equal.

Through the risk metrics described above, we aim to set a limit for risk taking, which we call the ‘Affordable Risk Capacity’ (AffRC).

Approach to valuing the Technical Provisions
Continued

Measuring prudence
Reliance is inversely proportional to prudence. For a given investment strategy, the less prudent our assumptions, the more we are dependent on potential financial support from employers.

We use the following metrics to measure the prudence in our chosen assumptions:

Confidence level: this is the probability, based on our modelling, that future experience is in line with, or better than, our assumptions.

Ratio of Technical Provisions to Best Estimate: the ratio of the liabilities calculated on the Technical Provisions basis (which is required to be prudent) to the liabilities calculated on a Best Estimate basis (which has no deliberate margins for prudence).

Prudence/dependency proportion: this is calculated as the ratio of the distance between the Best Estimate liabilities and the Technical Provisions (a measure of prudence), and the distance between the Technical Provisions and the self-sufficiency liabilities (a measure of dependency on employers). It tells us where we are on the spectrum from no prudence to what we might consider the lowest risk basis we could reasonably adopt.

The IRMF is explained in further detail in the Supporting Information. In the following sections of this document, we report on the main inputs to the IRMF at this valuation: the employer covenant, the investment strategy, the self-sufficiency position and the proposed actuarial assumptions. The prudence metrics are reported in Section 9.

5.4 Our approach might need to change for future valuations

We are required to perform this actuarial valuation in compliance with the current regulatory and legislative funding regime.

Recently, there have been consultations on changes to DWP's funding and investment regulations and TPR's funding code of practice. We have responded to both consultations. A new code and underpinning Regulations are currently due to come into force for valuations carried out from April 2024, at the earliest. With UCU and UUK, we have also issued a joint stakeholder letter to TPR, calling for the draft code to recognise the unique nature of USS and other open schemes among UK defined benefit pension schemes. This correspondence is included on our website (see Useful links in Appendix 1).

We are optimistic that our existing approach to funding the scheme can substantially continue under the new regime. Nevertheless, the details of the new regime will be important and are currently unknown. We will monitor carefully the implications of the new funding regime as finally implemented.

6 Employer covenant

6.1 Financial backing from employers allows us to take investment risk

The 'covenant' is the legal obligation and financial ability of participating employers to financially support the scheme now and in the future. When the scheme takes risk, it is relying on the covenant for support to make good the position if that risk results in outcomes below original expectations, for example, if investment returns are lower than expected and a funding gap emerges.

The level of investment and funding risk we can take depends on the ability and commitment of employers to support the scheme. This is in line with the Pensions Regulator's guidance on assessing and monitoring covenant.

6.2 Our advisers have assessed the covenant strength

We have again enlisted the help of PwC to assess the strength of employer covenant. Nous Group provided input to that assessment in the form of a report on the outlook for the higher education sector. The work carried out by our professional advisers included:

- a desktop review – analysing publicly available financial information
- research on the landscape of, and outlook for, the higher education sector
- fieldwork – entailing focused interviews with 20 institutions, selected to provide reasonable coverage and a representative sample of USS employers.

Their work helps to inform the amount of risk employers are able to support and the amount of risk we may be prepared to accept in funding the scheme. The stronger the covenant, the more risk that can be taken in funding the benefits, all else being equal.

Further information about the covenant review we commissioned is included in the Supporting Information. The headline conclusions are summarised here.

6.3 The overall covenant rating is strong

We have concluded that the covenant remains 'strong', overall, based on the advice we have received. This again represents the highest rating on the four-point scale we use (and which is adopted widely in pension scheme valuations). The main drivers for this rating are as follows:

- The financial resources which the scheme has access to from the HE sector, including support from some of the highest ranked universities in the world.
- The resilience demonstrated by the sector in the highly challenging circumstances of the COVID-19 pandemic. Employers were able to transform their business models to account for an almost fully virtual learning environment, demand remained high, and institutions achieved significant cost reductions in the short term. These led to material improvements to cash flow and a reduction in net debt.
- The backdrop of an improvement in the scheme funding level and the expected absence of a deficit reinforces the 'strong' rating. It also provides further comfort around employer covenant in the context of the funding obligation.
- The scheme's jointly and severally liable ('last man standing') structure, spread across more than 300 employers. This continues to significantly mitigate the risk of individual employer insolvencies.
- The security provided by covenant support measures introduced at the last valuation (described in 6.4 below) which remains in place.

Employer covenant
Continued

Affordable Risk Capacity
Affordable Risk Capacity ('AffRC') is the main covenant-related input to the scheme's IRMF and is our estimate of the amount of risk we are comfortable the employers could support if needed. It is calculated as the net present value of 10% of scheme-eligible payroll over 30 years. This is in line with the approach taken for the 2020 valuation and our covenant adviser has confirmed that these assumptions are still appropriate.

The AffRC at this valuation remains substantial, although it has fallen since the previous valuation. This is due to a higher rate of interest being used to discount future contribution cash flows to the valuation date. The same forces have also acted to reduce the value of the scheme's future liabilities, so affordability has not fallen in relative terms.

Additional employer contribution capacity	10% of eligible payroll
Covenant horizon	30 years
Discount rate[1]	Gilts + 0.7%
Assumed payroll growth[2]	CPI + 1.0%
AffRC[3]	**£28.1bn** (range £26.7bn to £29.5bn)

Notes
1 Based on average credit spread of all UK university-issued rated debt (rated A-AA).
2 Consistent with assumption at 2020 valuation and supported by projections from Nous.
3 Range for AffRC reflects forecasting variation of +/- 5%.

Our model is one of a range of possible approaches to estimating employers' capacity to support risk. We believe our approach frames the estimate in a context that is helpful for employers and stakeholders. We will keep our approach under review at future valuations to ensure it remains suitable.

6.4 Employers have agreed covenant support measures

As part of the 2020 valuation, the employers agreed a covenant support package. It involved:

- a 20-year moratorium on employer exits
- a debt monitoring framework including pari passu security arrangements.

These measures address two key risks highlighted at the 2018 and 2020 valuations, namely the risks of stronger employers leaving the scheme and of rising debt levels.

This support gives us confidence around the endurance of the covenant. With a long-term view over availability of financial support, it allows us to fund the scheme and invest assets with more freedom than otherwise. That means all else being equal, we need lower contributions to fund a given set of benefits.

If these measures were not in place, the approach to funding could look quite different. There could be a shorter horizon for taking risk and reduced confidence in employers' willingness to stand behind funding volatility. This could affect benefits and contributions significantly. We indicate the enduring value of the covenant support measures in Section 9 and the Supporting Information provides further details of how this has been assessed.

6.5 Outlook for the sector

The HE sector remains well positioned in the global market. We, and our advisers, believe the sector will continue to grow by capitalising on strong demand from international students over the next 30 years.

Alongside a positive forecast for demand, we are reassured by the sector's adaptability and capacity to reduce costs and protect cash flow when required as demonstrated during the COVID-19 pandemic.

The outlook continues, therefore, to be encouraging. However, it is not without its risks. There is significant reliance on international students (particularly from China) who provide higher fee revenue and the sector would be tested if there were to be a material fall in international student numbers.

In addition, when we look far into the future, we have to bear in mind new challenges, including those that we don't know about yet. We will continue to keep developments under review.

6.6 Conclusion

Overall, we conclude that the covenant remains strong and can support the funding and investment risks underpinning members' existing pension promises and the continuing build-up of future benefits.

Consultation point: We welcome comments on the Trustee's overall assessment of employer covenant, including assumptions made about the level of financial support employers are collectively able and willing to give the Scheme and their affordable risk capacity.

7 Valuation investment strategy

7.1 How the investment strategy is used in the valuation

The scheme's investment strategy is one of the key inputs to the valuation. In order to calculate the amount of money we need to hold today to meet future benefit payments, we make assumptions about the return we can expect to see on the assets we hold today and expect to hold in the future.

The assumed investment return is driven by the types of assets we invest in. We can broadly group our assets into 'matching' (low risk) and 'growth' (higher risk) investments:

- Matching (low risk) assets protect the scheme against movements in the value of the liabilities, which are mainly driven by long-term interest rates and inflation expectations.
- Growth (higher risk and higher expected return) assets are held with an expectation that they deliver a higher investment return than matching assets over the long term.

Consistent with the dual discount rate approach that we propose is retained for this valuation, we assume different notional investment strategies for pensioner members and members who have not reached retirement yet. We use the following approach:

- A low-risk investment strategy for pensioners.
- A growth strategy for active and deferred members for the period before they reach retirement (that is, higher risk and higher expected return).

As USS is an open scheme, the investment strategy we expect to implement in practice is expected to remain reasonably stable over time as retiring members are replaced by new entrants to the scheme.

7.2 Assumed investment strategy for the 2023 valuation

For the purposes of the valuation, we use a theoretical but investible broad investment strategy, referred to as the Valuation Investment Strategy (VIS), which is calibrated to the trustee's risk appetite and return objectives.

In practice the actual portfolio ('the implemented portfolio') holds a wider range and a different mix of investments. We set risk and return objectives for our investment manager, USSIM, paying regard to the level of risk and expected return associated with the VIS. The implemented portfolio is monitored and controlled within USSIM and overseen by the trustee's Investment Committee using a wide array of risk and return metrics.

With the covenant once again rated 'strong' we believe that the current level of investment risk in the scheme is a reasonable assumption to use for this consultation.

Accordingly, we have assumed that the current investment strategy, as developed and consulted on following the 2020 valuation, should be the central basis for deriving the discount rates at this valuation. This means we have assumed the VIS is as follows:

Asset allocation[1]		
	Growth assets exposure	60%
	Credit assets exposure	25%
	Liability hedge ratios (on a self-sufficiency basis)	40%

Note
1 Please note that these percentage allocations do not add up to 100%, because we show liability matching assets in terms of their hedge ratio.

In order to determine our expected risk and return on the VIS we use USSIM's expected long-term investment returns for the main asset classes relevant to the scheme, in conjunction with modelling tools that allow us to understand the potential spread of investment return outcomes for the different asset classes. USSIM has considered a wide range of macro-economic and financial market inputs, including the potential impact of climate risk factors. These have also been discussed with the Valuation Technical Forum.

Long-term investment return expectations	Annual expected return as at 31 March 2023 (relative to expected CPI)[1]	Annual expected return as at 31 March 2020 (relative to expected CPI)[1]
Equities	4.1%	4.4%
Property	1.9%	1.8%
Listed Credit	2.1%	1.7%
US TIPS	0.6%	-0.3%
LDI (Liability Proxy)[2]	0.5%	-1.6%
Cash	0.7%	0.0%

Notes
1 Expected CPI assumption is 3.0% p.a. over a 30-year horizon from 31 March 2023. This compares to an expected CPI assumption at the 2020 valuation of 1.9% p.a. over a 30-year period.
2 The Liability Proxy is a blend of six gilt indices which could theoretically be used to hedge the market (interest rate and inflation) sensitivities of the liability cash flows.

Valuation investment strategy
Continued

A summary of the overall return metrics for the VIS is shown below.

Expected return[1]	30-year expected real return (above CPI)	3.5%
	30-year expected return above gilt yields[2]	2.9%

Notes
1 Expected returns taken from the 'GLASS' asset and liability financial modelling tool we have commissioned from Ortec Finance, which is calibrated to the USSIM long-term expected returns.
2 Allows for a small adjustment made to the 2023 distribution of returns to achieve consistency across the expected return, discount rate, and CPI assumptions.

Details of the full implemented portfolio can be found on our website (see Useful links in Appendix 1).

7.3 Illiquidity premium

We note that the overall expected returns shown in the table above are based on publicly-traded assets. The scheme does, however, hold a substantial amount of private market assets, on which an illiquidity premium should be available. An illiquidity premium is the additional return we might reasonably expect to receive (over and above the return expected for a broadly equivalent liquid asset) as compensation for investing in assets that cannot be easily liquidated.

The private market assets we hold span a wide range of asset classes, sectors, geographies and risk profiles. In aggregate, we estimate the inclusion of their associated expected illiquidity premium would increase the aggregate VIS expected return by approximately 0.2% p.a. at 31 March 2023.

Given the complexity of modelling illiquid asset risk, however, simply 'adding' 0.2% p.a. across the entire expected return distribution could lead to an overstated illiquidity premium where we are considering prudent overall returns and an understated illiquidity premium for more optimistic scenarios.

We, therefore, do not include the illiquidity premium in the quoted portfolio returns or associated confidence levels later in this document. This represents a modest margin in the funding arrangements. We have, however, included it when calculating the liabilities on a Best Estimate basis.

7.4 Reviewing our strategy

As part of the actuarial valuation process, we plan to review the DB investment strategy to decide whether it remains suitable in the context of the funding strategy (and vice versa). We will take into account a variety of factors including the scheme funding position, our risk appetite, employer feedback, and broad stakeholder objectives for benefits and stability.

Following our review, we would expect to consult employers on the Statement of Investment Principles (SIP). More extensive engagement with employers on investment strategy will take place in the later stages of the valuation process, early next year.

The financial assumptions we have proposed would be compatible with a range of different investment strategies. That means that, within certain tolerances, an investment strategy with an alternative growth and matching profile could potentially be adopted for the purposes of the valuation and leave the provisional results set out in this document unchanged.

That range is not unlimited however. In section 10 we illustrate two potential alternative investment strategies to demonstrate their impact on future financial projections of the scheme.

Consultation point: We welcome initial comments on the assumed Valuation Investment Strategy (VIS) and strategic mix of growth assets and matching assets. (Note that more extensive engagement with employers on the investment strategy will take place in the later stages of the valuation process.)

8 Key actuarial assumptions

8.1 The main actuarial assumptions

The assumptions we have proposed for valuing the scheme's liabilities and setting the contribution rate for future service – including the reasons for any changes to our assumptions and methodology – are a key item for consultation. In forming a view on an appropriate set of assumptions, we have considered advice from the Scheme Actuary and the change in demographic and economic factors over the 3 years to 31 March 2023. Any changes in assumptions from the last valuation are due to a change in demographic and/or economic circumstances.

The Valuation Technical Forum held discussions on a number of these assumptions to understand the evidence and inputs and the materiality of the assumptions to the overall valuation outcomes.

The assumptions adopted at this valuation will form part of the Statement of Funding Principles (SFP) and a draft is included in Appendix 3, which details all of the proposed individual assumptions.

Here, we discuss the demographic and financial assumptions where we are proposing changes from the last valuation. These are:

- life expectancy after retirement
- post-retirement discount rate
- pre-retirement discount rate
- expected future rate of CPI inflation.

We are required to take a prudent approach

Scheme funding regulations require us to make prudent assumptions in our valuation. We have retained the approach adopted at the previous valuation of isolating the prudence we apply to specific individual assumptions, rather than applying margins across all the assumptions.

The discount rate is the principal source of prudence in the valuation. In addition, we also include a small margin for prudence in the assumed initial mortality rates (equivalent to approximately 0.5% of the liabilities).

The remaining assumptions represent our 'best estimate' of expected future experience.

To measure and explain our position on prudence we use a number of prudence and risk metrics. These metrics are reported in Section 9.

8.2 Life expectancy after retirement

The Scheme Actuary has conducted a review of the assumption for post-retirement life expectancy, studying both the general mortality trends and projections, and the specific characteristics of the scheme's membership. His advice included views from a range of experts, including epidemiologists and medical doctors on the impacts of the pandemic and other drivers for change, such as pressures on the healthcare system.

The life expectancy assumption is made up of two elements:

1. the base mortality table (initial mortality rates)
2. an assumption for future improvements in life expectancy.

Impacts of COVID-19

The global pandemic was a major event in the mortality landscape and has had a marked impact on many aspects of healthcare quality and ultimately on morbidity forces. The way in which life expectancy is potentially affected may take time to be revealed. We will, therefore, keep this area under review with the Scheme Actuary's guidance.

Base mortality table

Our proposed approach to setting initial mortality rates is to: identify the mortality characteristics of the scheme membership; select the most appropriate set of corresponding historical mortality data, that is, a suitable 'base table'; and apply an adjustment to reflect the scheme's characteristics. We then apply a small margin for prudence, which is consistent with the approach adopted at the last valuation.

The pandemic has made it difficult to rely on recent mortality experience and the new data available now relating to the period prior to the pandemic does not suggest any material changes to the initial mortality rates.

The Scheme Actuary has, therefore, recommended that the base mortality table remains unchanged.

Key proposed assumptions
Continued

Future improvements in life expectancy
Our proposed approach is to set the assumption for expected future life expectancy improvements in line with our best estimate, that is, with no explicit margin for prudence. This is consistent with the approach adopted at the last valuation.

Overall, the pandemic brought significant downward implications for life expectancy, both through the direct impacts of the disease as well as consequential delayed diagnoses and pressures on the healthcare system. The Scheme Actuary has advised that it would be appropriate to revise the assumption for future improvements in life expectancy as a result of these developments, and also to reflect updated population estimates. This has included updating the assumptions for the more recent CMI 2021 projection data from the Continuous Mortality Investigation (CMI), where CMI 2019 was used at the 2020 valuation, and adjusting the parameters used in the CMI model. Overall, this results in a reduction in life expectancies. The CMI 2021 model was the latest available at the time the analysis was carried out, and the Scheme Actuary also had regard to more recent data in arriving at his recommendations.

With assumed life expectancies rising less quickly in future, the value of liabilities and future service contributions would fall, all else being equal.

Overall, these assumptions lead to life expectancies which increase over time. Example best estimate life expectancies under the proposed assumptions are set out below.

	Best estimate[1] life expectancy from age 65	
Member	2023 valuation	2020 valuation
Male aged 65 in 2023	23.6	24.0
Male aged 65 in 2043	25.5	26.0
Female aged 65 in 2023	25.3	25.6
Female aged 65 in 2043	27.1	27.4

Note
1 The margin incorporated in the initial mortality rates (the base table) has not been included.

Other demographic assumptions
We make assumptions about other demographic factors, including the following:

- rates of early retirement
- rates of ill-health retirement
- rates of withdrawals from active service
- proportion of members leaving a dependant on death, and age difference.

Following analysis of the scheme's experience in relation to other demographic factors, the Scheme Actuary has advised that it would be reasonable to maintain the same assumptions that we used in the 2020 valuation. These are set out in the draft Statement of Funding Principles in Appendix 3.

8.3 Discount rate

Approach to setting discount rates
We have proposed a similar methodology to that consulted on and used at the previous valuation. Our discount rates are based on the investment returns we expect to earn on the assets we hold now and in the future. We then deduct a margin to arrive at a prudent set of dual discount rates.

There is no single correct answer in setting the discount rate. In deriving the proposed discount rates set out below, we have considered a range of factors, making a balanced overall judgement. We believe the assumptions we have chosen are appropriate in the context of the scheme funding evolution, the requirement for prudence, the strength of the employer covenant and the desire for stability that the stakeholders have indicated.

We believe our proposed assumptions also offer a platform for prompt progress on the valuation and associated work streams such as consideration of benefit improvements.

Post-retirement discount rate
Our proposed post-retirement discount rate is an addition of 0.9% p.a. to the gilt yield curve at the valuation date.

The low-risk investment strategy which notionally underpins this assumption is based on the self-sufficiency investment strategy. We use this as a proxy for a low-risk investment approach for pensioner liabilities. The proposed post-retirement discount rate is higher than the self-sufficiency discount rate. The self-sufficiency approach is more prudent, reflecting the position we would wish to be in were there no further employer support. In practice, therefore, the scheme would be funded some way below self-sufficiency even if the Technical Provisions figure was based entirely on the post-retirement discount rate and the scheme were fully funded on that Technical Provisions basis.

The details of the notional post-retirement investment portfolio are set out in Section 1 of the Supporting Information.

Key proposed assumptions
Continued

Pre-retirement discount rate
Our proposed pre-retirement discount rate is an addition of 2.5% p.a. to the gilt yield curve at the valuation date.

Once we carve out the post-retirement investment strategy from the VIS, we are left with the portfolio which notionally underpins the pre-retirement discount rate. This follows a predominantly growth investment strategy, which reflects the longer time horizon over which the assets can be invested.

Below we compare the proposed Technical Provisions discount rates to the best estimate investment returns and the corresponding confidence level. We include the equivalent assumptions for the previous valuation for comparison.

	31 March 2023	31 March 2020
Pre-retirement		
Best estimate discount rate[1]	Gilts + 4.75%	Gilts + 5.79%
Technical Provisions discount rate	Gilts + 2.50%	Gilts + 2.75%
Confidence level[2]	70%	81%
Post-retirement		
Best estimate discount rate	Gilts + 1.20%	Gilts + 1.55%
Technical Provisions discount rate	Gilts + 0.90%	Gilts + 1.00%
Confidence level[2]	69%	73%

Notes
1 Best estimate figures based on USSIM analysis (with explicit allowance for the illiquidity premium in the 2023 valuation).
2 Based on USSIM analysis at the time of each valuation.

The 2020 valuation also allowed for additional outperformance in the recovery plan and the calculation of future service contributions. This means in practice the confidence levels across the funding plan as a whole were lower than for the Technical Provisions discount rates quoted above.

The trustee's proposed dual discount rates each fall at around the 70% confidence level, meaning there is modelled to be a 30% chance that experience turns out to be worse than assumed. This is a broadly comparable confidence level to previous valuations, apart from the 2020 valuation, which was exceptional due to the challenging economic environment at that time.

As explained in Section 5, 'Confidence level' is one of a number of ways we measure prudence. We examine other measures of prudence when we look at the provisional results, in the next section.

Illustrative sensitivities of the results to the main assumptions are also shown in the next section, including an illustration of the impact of adopting a more prudent or less prudent set of assumptions.

8.4 Inflation

Our proposed assumption for the rate of CPI inflation in the future is 3.0% p.a.

This is in line with our investment adviser's capital market expectations. Their assumption for CPI inflation has been derived by considering the difference between the yield on nominal and index-linked government bonds overlaid with judgement to establish, initially, an estimate of RPI. From that, an adjustment is made to allow for the assumed difference between RPI and CPI. It is assumed that up until 2030 RPI will be 100bps above CPI and 10bps higher thereafter (as a result of RPI reform).

Consultation point: We invite feedback on the construction of the proposed discount rates, both for the purposes of valuing Technical Provisions and pricing future service benefits.

Consultation point: We invite feedback on the remaining proposed assumptions set out in the Statement of Funding Principles (covering inflation, mortality and the other demographic assumptions).

Consultation point: We invite feedback on any other matter included in the Statement of Funding Principles.

1 2 3 4 5 6 7 8 9 10 11 12

9 Provisional results

On the basis of the assumptions we have proposed, the funding position is as follows.

9.1 Provisional Technical Provisions results

Amounts in £bn	2023 valuation	2020 valuation
Assets	73.1	66.5
Technical Provisions	65.7	80.6
Surplus/(deficit)	**7.4**	**(14.1)**
Funding ratio	**111%**	**83%**

These results show an improvement in the position from a deficit of £14.1bn at the last valuation to a surplus of £7.4bn at this valuation. The primary contributing factor to the movement in the position has been the rise in long-term interest rates, which has led to higher expected returns on the assets we expect to hold according to the VIS and this serves to reduce the Technical Provisions.

A detailed breakdown of the change in funding position, including the impact of changes in our proposed assumptions, is set out in the Supporting Information.

We report here the risk and prudence metrics resulting from our proposed assumptions.

	2023 valuation	2020 valuation
Risk metrics		
Target reliance[1]	£20.5bn	£29.4bn
Target reliance as a percentage of AffRC	73%	94%
Prudence metrics		
Confidence level for chosen discount rate		
Pre-retirement discount rate	70%	81%
Post-retirement discount rate	69%	73%
Distance from Best Estimate[2]	£8.2bn	£17.2bn
Ratio TP to Best Estimate[2]	114%	127%
Prudence/dependency percentage[3]	40% : 60%	45% : 55%

Notes

1 Target reliance = self-sufficiency + Transition risk – Technical Provisions. (At 2023, the self-sufficiency liability is £78.2bn and Transition risk is £8bn.) This may be compared with the Affordable Risk Capacity which we calculated as £28.1bn (our central estimate).

2 Best Estimate liabilities have been calculated using expected returns on the VIS. For the 2023 valuation there is explicit allowance for the illiquidity premium. Other assumptions are in line with the proposed Technical Provisions basis.

3 The prudence/dependency prudence metric is calculated as the ratio of the distance between the Best Estimate liabilities and the Technical Provisions, and the distance between the Technical Provisions and the self-sufficiency liabilities.

Provisional results
Continued

9.2 Future service contribution requirements (% of salaries)

	2023 valuation[1]	2020 valuation (current contribution rates[2])
Future service contribution rate for current benefits	**16.2%**	**25.2%**
Deficit contributions	Nil	6.2%
Overall contribution rate – current benefits	16.2% (before allowing for any surplus[1])	31.4%
Future service contribution rate for pre-April 2022 benefits	***20.6%***	***N/A***
Deficit contributions	*Nil*	*N/A*
Overall contribution rate – pre-April 2022 benefits	*20.6% (before allowing for any surplus[1])*	*N/A*

Notes
1 The contribution rates shown for the 2023 valuation do not include any potential adjustments which may in due course be considered in light of the surplus.
2 From April 2024, the current Schedule of Contributions provides for the employer contribution rate to reduce from 21.6% to 21.4% and the deficit contribution element of the employer rate to increase from 6.2% to 6.3% (unless succeeded by a subsequent Schedule).

The JNC can determine how the required contribution is split. If the JNC does not reach a decision in the time allowed under the 'cost-sharing process' the default cost-share rule would apply requiring the decrease to the contribution rate to be split 35%:65% between members and employers respectively. The current contribution rates are 9.8% for members and 21.6% for employers and for illustration, cost-sharing applied to the above future service contribution rates would lead to rates for pre-April 2022 benefits of 6.1% for members and 14.5% for employers (or 4.5% and 11.7% member and employer contributions for existing benefits).

On our proposed assumptions, the future service contribution requirements are an overall employer and member contribution requirement of 16.2% of salaries on the current benefit structure or 20.6% on the pre-April 2022 benefits basis.

These include the DC contribution elements (5.7% of pay and 1.8% of pay for current and pre-April 2022 benefits respectively), and 0.5% of pay for the administrative expenses of running the scheme (increased from 0.4% at the last valuation).

The main factors behind the reduction in contributions at this valuation are similarly the rise in long-term interest rates and expected asset returns, as well as the absence of any requirement to pay deficit reduction contributions if the final results confirm that there is a surplus.

The provisional results set out here assume that the pre-April 2022 benefit structure is implemented following the Member Consultation expected to take place this autumn. This benefit structure reflects the joint UUK and UCU statements to prioritise benefit improvements and the request from the JNC to the trustee to price benefits at pre-April 2022 levels, subject to the 2023 valuation process and consultations. If any elements of the benefit structure are changed following consultation, we may need to revisit the calculation of future service contribution rates.

Consultation on a new Schedule of Contributions
Once the proposed benefits and member and employer contribution splits have been confirmed following the trustee's determination of overall contributions and any decisions of the JNC (or the 35%:65% default cost-sharing position, if triggered), we will prepare an updated Schedule of Contributions and run a short consultation process with UUK, in the same manner as previous valuations.

This will be based on the final assumptions and methodology, taking into account the outcome of this consultation.

9.3 Single equivalent discount rate

While we are proposing to retain a dual discount rate approach, for reference we show below the equivalent single discount rates which would produce the same Technical Provisions or future service contribution requirement results at the valuation date, alongside the equivalent 2020 rates.

The most notable difference is that the figures relative to CPI are much higher for the 2023 valuation than in 2020, although it should also be noted that relative to gilts the discount rates have fallen. Both are a result of gilt yields rising since the last valuation.

The single equivalent discount rate is different for past and future service because the reference yields and rates change at different maturities. The future service single equivalent discount rate is higher because a greater proportion of it relates to the pre-retirement period.

Single equivalent discount rate	2023 valuation	2020 valuation[1]
Technical Provisions	Gilts + 1.4%	Gilts + 1.6%
	CPI + 2.2%	CPI + 0.3%
Future service	Gilts + 1.8%	Gilts + 2.0%
	CPI + 2.5%	CPI + 0.7%

Note
1 These figures were not all calculated as part of the original work on the 2020 valuation and so indicative rates have been included here for comparison purposes.

Provisional results
Continued

9.4 Sensitivity of results to different assumptions

For the purposes of illustrating the relative importance of the different assumptions, we set out below sensitivities of the main results to changes in the discount rates.

Basis	Technical Provisions (£bn)	Future service contribution rate	
		Current benefits	Pre-April 2022 benefits
Proposed basis (as per tables 9.1 and 9.2)	65.7	16.2%	20.6%
Pre-retirement discount rate + 0.5% (Gilts + 3.0%)	64.1	15.6%	19.2%
Pre-retirement discount rate - 0.5% (Gilts + 2.0%)	67.4	17.0%	22.0%
Post-retirement discount rate + 0.1% (Gilts + 1.0%)	65.0	16.1%	20.4%
Post-retirement discount rate - 0.1% (Gilts + 0.8%)	66.4	16.4%	20.8%

These assumption illustrations should not be taken to be endorsed by the trustee as acceptable alternatives to those proposed. They are intended to aid understanding of the extent to which a change in assumption would impact the results.

Appraisal of covenant support measures

We have assumed throughout our analysis that the covenant support measures described in section 6.4 to support the employer covenant will remain in place. The covenant support measures play an important role in our assessment of the covenant as 'strong' and in our estimation of employers' capacity to support risk. For these reasons, we believe the measures provide significant value to the scheme, employers and members.

To illustrate the potential sensitivity in the hypothetical scenario that the covenant support measures were not in place, we estimate that future service contributions would need to be 1.7 percentage points of payroll higher to fund current scheme benefits and 3.2 percentage points higher to fund the pre-April 2022 level of benefits than the contribution rates shown in section 9.2.

It is important to note that the impact on contributions of not having the measures in place could be significantly higher should the scheme return to a deficit position in the future, and that there could be broader ramifications such as an impact on the investment strategy.

We have included a summary of our assessment of the enduring value of the covenant support measures in the Supporting Information.

9.5 Employer and member contribution rates

The future service contribution requirements shown above represent the total employer and member future service contribution required to fund future benefits.

The allocation of contribution rates between employers and members falls under the remit of the JNC. If the JNC does not reach a decision in the time permitted under the Rules, the default cost-share position would apply – this pre-set position would apply any decrease in the required contribution rate in the proportion 35%:65% between members and employers respectively.

Given the uncertain economics of funding defined benefit pensions, employers should note the possibility of increases in contribution requirements at future triennial valuations and make contingency plans where necessary.

Provisional results
Continued

9.6 Implications of a technical surplus

On the provisional results set out above, the scheme is in a position of surplus on an ongoing funding basis for the first time since 2008. This is a 'technical surplus': in practice a true surplus would only be revealed once the scheme had fulfilled its benefit payment obligations in full, an eventuality which is not anticipated on the basis that the scheme remains open with new members earning further benefits.

The provisions for handling a surplus are less stringent than where the Scheme is in deficit. There is currently no legislative requirement to take any steps in situations where there is a surplus.

Any surplus that arises in an actuarial investigation can only be applied in accordance with the scheme rules, the statutory funding regime and the trustee's fiduciary duties. There is no power under the scheme rules to return a surplus by making payments to employers on an ongoing basis.

The valuation and cost-sharing provisions of the scheme rules focus on contribution rates and are silent on the application of surplus beyond that. Therefore, if we decide that a decrease in the overall contribution rate is appropriate, the JNC will have a role under the scheme's cost-sharing arrangements to decide how that reduction is addressed.

The JNC could – in parallel – initiate discussions on the application of any wider surplus, for example by recommending rule amendments to enhance benefits and/or further changes to contributions for us to consider. We will need to understand and consider the implications of any JNC decisions and/or recommendations, in particular around equality and fairness (including intergenerational fairness).

A technical surplus – an excess of assets above Technical Provisions – could in general be approached in a number of ways, including:

- subsidising contributions for future service benefits
- making improvements to past service benefits
- retaining as a buffer against future adverse market movements to enhance future stability (see next section)
- a prompt for reviewing funding and investment risk.

In the provisional results we have set out here, we have not made any allowance for the potential utilisation of any surplus. Decisions around deployment of surplus in due course could have an impact on the results.

To illustrate the potential impact of the first point above, a reduction of 1% of salaries in the overall contribution rate would change the funding position as follows:

Reduction in contributions	Impact on surplus
1% of salaries for 10 years	-£1.0bn
1% of salaries for 15 years	-£1.4bn

Consultation point: We invite feedback on any other aspect of the assumptions and methodology underlying the Technical Provisions.

Consultation point: We welcome comments on any other aspect of this consultation.

10 Stability

10.1 Future focus on stability

Over recent valuations, we have seen financial market conditions lead to changes in required contribution rates for the scheme. We have also seen benefits being changed in the wake of significant changes in the contributions required to provide benefits.

The improvement we have seen in the funding position at this valuation provides an opportunity to consider improving the stability of contribution rates and benefits. We know this is now a key area of stakeholder focus and to that end, the JNC has recently established a working group to explore options which may help achieve greater stability for the scheme.

10.2 Source of volatility

There are several factors that can cause volatility in the funding position and in contribution rates.

We have set out earlier in this document how movements in real UK long-term interest rates and expected returns have caused a major change in the financial position of the scheme at this valuation. **As a guide, we estimate that a fall of 1.4 percentage points in rates at the valuation date would have meant that there would not be a surplus over Technical Provisions**. This assumes a similar decline in return expectations across all asset classes and no change in capital value for non-matching assets (with all other factors the same).

There are also other factors which can give rise to uncertainty in the future. These other factors include changes in employer covenant or the HE sector, changes in the value of growth assets, changes in life expectancy, the scheme's membership experience and changes in the law.

Our focus in this section is on volatility arising from movements in financial markets, because we believe that is likely to be the most frequent source of volatility for the scheme.

Why the scheme funding level can be volatile

The current scheme funding regulations require actuarial valuations to be 'market-based', reflecting the market value of the scheme's assets at the valuation date. In turbulent financial market conditions, this can lead to volatile funding positions.

That is because the assets in which the scheme invests include 'growth' assets such as holdings in companies' shares. These assets are chosen – as part of a well-diversified portfolio – because they offer a higher expected investment return than if the scheme invested exclusively in lower risk physical 'matching' assets. This means the contributions from employers and members which are ultimately required to fund the scheme can be lower, because we allow investment returns to help meet the overall cost of future benefits. But it also means that the scheme's assets and liabilities can move differently, making contributions more volatile.

At the same time, scheme funding regulations require an ongoing funding check – a formal actuarial valuation – to be carried out at least once every three years.

The combination of a mismatch between assets and liabilities, and the need to carry out regular funding assessments means volatility can arise in the funding level.

At the time of the 2020 valuation, the funding position was much worse than it is in 2023, and our risk position was under significant pressure. The reliance we were placing on the employers was in excess of the Affordable Risk Capacity at the valuation date, and this constrained the overall outcome of the valuation. Building stability is a more realistic prospect against the backdrop of the more favourable financial conditions at this valuation.

Why contribution requirements can fluctuate

Volatility in the required contribution rate arises from both:

- the mismatch described above between the values of the assets and liabilities, which can give rise to surpluses or deficits at the valuation date, with the latter being required by law to be addressed through a recovery plan
- changes in future investment return expectations which drive the contribution rates required for a given set of DB benefits.

The contribution rates payable must be certified by the Scheme Actuary according to market conditions at the valuation date (or the date the certificate is prepared). The future service element of the contribution rate is, therefore, driven principally by movements in expected real investment returns on the assets expected to be held to fund the new benefits being built up.

All else being equal, a fall in expected investment returns would increase the cost of providing future service benefits. Whereas a rise in expected investment returns, as we have seen over the period since the last valuation, would reduce the cost of providing future service benefits.

Stability
Continued

Managing volatility
The main tools available to help mitigate volatility in contributions are:

1. The scheme's funding strategy

Retaining surplus in the scheme to act as a buffer against future adverse experience would help to offer stability at future valuations – allowing lower contributions in future adverse scenarios than would apply without a buffer.

A similar effect would emerge if total contributions to the scheme were higher than the future service contribution rate, as that would also create a buffer.

Alternatively, a more prudent discount rate at this valuation could help yield a more stable funding strategy over time. Benefits funded using more prudent discount rates would result in a higher contribution rate now and would be easier to maintain at subsequent valuations, as there would be greater scope to reduce prudence in response to any deteriorations in expected future investment expectations and the funding position – while retaining an overall funding approach that is sufficiently prudent.

In contrast, a less prudent discount rate, with lower contributions, would be more likely to give rise to a need to increase the contribution requirement in future in order to maintain a given set of benefits.

2. The scheme's investment strategy

By holding assets which more closely match the liabilities, the impact of movements in market conditions (relative to the accrued liabilities) is dampened, creating greater stability.

The degree of liability matching in the scheme's investments has gradually increased over time. While matching assets dampen volatility, they also potentially provide lower long-term returns compared to growth assets. There is therefore a balance to be struck regarding the appropriate mix of 'growth' and 'matching' assets in the investment strategy, and decisions about acceptable longer term contribution levels factor into this decision.

3. Benefit design

Benefit design features can help to manage or dampen contribution and funding volatility. They can either change the level of benefits building up or provide a mechanism to respond to the impacts of volatility in future.

- Examples of the former are previous changes to the benefit design, including the movement from final salary benefits to career revalued benefits, and the introduction of the salary threshold and the DC element of the scheme.
- Examples of the latter are alternative scheme design models such as Conditional Indexation models, which UUK recently consulted employers on.

Benefit design features could offer greater contribution stability and are ultimately matters for the JNC to consider.

10.3 Future projections

Our investment adviser has carried out a range of projections to show how the funding position and contribution requirements could vary at the next two valuations, that is, up to the 31 March 2029 valuation. We have modelled the following:

- Probability that the required total contribution rate exceeds 20.6% or 26% in future valuations[1], having paid each respective contribution rate from the valuation date.
- The required total contribution rate following a specific future downside economic 'stressed' scenario, which combines a 100 basis point (1%) fall in real UK interest rates and a 15% fall in the value of growth assets.

They have also considered how these future projections would be affected under the following courses of action:

- Changing the investment strategy; for illustrative purposes, we have looked at two simple alternative investment strategies, one with a higher growth allocation and less hedging, and one with a lower growth allocation and more hedging.
- Whether the surplus is used up (for example, through benefit improvements), or retained.

The detailed results of our analysis of future outcomes is set out in Appendix 2. We comment here on the key conclusions of that analysis.

It is important to note that there are limitations involved in projecting future outcomes. These projections involve assumptions about the future and do not account for potential actions which may be taken depending on the scenario. Accordingly, they should be treated as illustrative and approximate, and are intended to serve as an aid when considering how the financial position of the scheme may evolve and the impact of specific scenarios.

Key conclusions

We would draw the following key conclusions from our investment adviser's analysis:

- Retaining the surplus provides more stability than using it up. To the extent that this surplus is reduced, for example to improve benefits, this could make future required contributions more volatile.
- Adopting a lower growth/higher hedging investment strategy could enhance stability, particularly during 'downside' economic scenarios, though this may be less material than potential actions regarding the use of surplus.
- Conversely, an upside economic scenario (with real interest rates and growth assets both increasing) would likely lead to a greater monetary surplus being achieved for a higher growth/lower hedging strategy (and a lower monetary surplus with a lower growth/higher hedging investment strategy).

In general, our IRMF allows some flexibility when setting the discount rate and this flexibility could in practice help to dampen the projected increase in the required contribution rate. The ability to moderate increases in contributions by varying the discount rate would, however, be dependent on future investment return expectations and the risk position of the scheme, as indicated by the IRMF, at that point in time. The risk position is likely to be under more pressure following a downside scenario.

We would also highlight that upside, or favourable, future outcomes are not themselves without risk. If a substantial surplus persists at multiple actuarial valuation cycles, issues of intergenerational fairness between groups of scheme members may need to be considered.

Consultation point: We welcome comments on the balance and trade-offs between investment strategy, the degree of prudence and stability (of benefits, contributions and funding levels), both at this valuation and looking ahead.

Note
1 These contribution rates being, respectively, the provisional rate on the proposed assumptions for the new benefits expected to be introduced from April 2024 and the contribution rate when the hybrid section was introduced in 2016.

11 Developments after the valuation date

11.1 Post-valuation experience

Developments could occur after the valuation date (and before the valuation is finalised), which are relevant to the proposals in this consultation. These could arise from movements in financial markets, such as changes in long-term interest rates. We are guided to be alert to material changes after the valuation date which may lead us to review our funding and investment strategy.

If such changes would cause our proposed assumptions and methodology to no longer be suitable, we may need to review these consultation matters and seek advice from the Scheme Actuary on the updated position.

Since the valuation date, employers and members have been making contributions at a higher level than we have indicated would be required to fund benefits accruing at the current level on the proposed assumptions. All other things being equal, this will serve to increase the provisional surplus. For illustration, over a 12-month period the impact of this would be of the order of £1.5bn.

11.2 Contribution and benefit changes

We expect the JNC to make decisions in due course on benefits and the contribution split between members and employers.

We expect that some of the future benefit changes will be subject to a consultation process with affected employees (and their representatives). The anticipated start date for employers to begin this consultation process is the week commencing 25 September 2023.

Once the position on future service benefits and contribution rates has been confirmed we will provide a draft Schedule of Contributions for consultation with UUK.

12 Appendices

Appendix 1 – Key terms used in this document

2023 valuation: The formal valuation exercise being carried out with a valuation date of 31 March 2023.

Asset-Liability Modelling (ALM): A financial modelling tool that shows the range and likelihood of potential future outcomes for assets and liabilities from a given investment strategy, or variety of strategies. The trustee commissions modelling from Ortec Finance, an external provider.

Assets: The investments the scheme owns, like shares, property, and government bonds. Assets generate the money we need to pay benefits and expenses now and in the future. 'Assets' can also mean the total value of our investments as a figure in pounds.

Best Estimate: The value of the liabilities assuming no margins for prudence. On this basis there is expected to be an equal chance of experience turning out to be worse or better than assumed.

Capital Market Expectations (CMEs): USSIM's central expectations of future investment returns for each asset class relevant for the scheme, including equities, bonds and property.

Confidence level: The probability that future experience is in line with, or better than, our assumptions.

Contribution Determination: The determination made by the trustee following receipt of the Rule 76.1 Report that either an increase or decrease in the aggregate contribution rate payable by employers is required. A notice providing formal confirmation to the JNC of the trustee's determination will be issued to the JNC alongside a copy of the Rule 76.1 Report.

Cost-sharing process: The process under the Rules which is engaged following receipt by the JNC of a copy of the Rule 76.1 Report and notice of the Trustee's Contribution Determination. The JNC will have up to 3 months (or such longer period as the Trustee may allow) to decide how any increase or decrease in contributions required is to be addressed, whether by changes to the future benefit structure, changes to member and employer contributions or both. In the event the JNC does not make a decision the default cost-share provision would apply. This pre-set position would require the decrease (or increase) in the overall contribution rate to be split 35%:65% between members and employers respectively.

Covenant: The legal obligation and financial ability of employers to financially support the scheme now and in the future. When the scheme takes risk, it is relying on the covenant for support. If any of those risks materialise, for example, investment returns are lower than we expected, then the covenant needs to be sufficiently strong for the shortfall to be made good.

Deficit recovery contributions (DRC): The contributions required to help repair any funding shortfall (deficit) in the Technical Provisions identified by a valuation.

Defined Benefit (DB): A type of pension scheme where members' benefits are defined according to a combination, typically, of their salary and length of service. The USS Retirement Income Builder is an example of a DB pension arrangement.

Defined Contribution (DC): A type of pension scheme where members' and employers' contributions are invested, and the proceeds used to buy a pension and/or other benefits at retirement. The value of the ultimate benefits payable depends on the amount of contributions paid, the investment return achieved less any fees and charges, and the cost of buying the benefits.

Dependency: The gap between the Technical Provisions and self-sufficiency. It is a measure of the risk being underwritten by the employers.

Discount rate: The rate of interest that is applied to all the benefits that members have already been promised to calculate their present-day value and applied to the benefits members may earn in the future to identify the required contribution rate for future service. We work out this rate using a forecast of investment returns and a margin for prudence.

Dual Discount Rate (DDR): An approach to setting the Technical Provisions that uses one discount rate to value the benefits in payment (in respect of members when they have retired) and another for benefits before they come into payment (in respect of active and deferred members before they retire).

Employers: The sponsoring employers of USS – the institutions whose employees or ex-employees are members (or prospective members) of USS.

Future service contribution: The contributions required in relation to new benefits being built up.

Integrated Risk Management Framework (IRMF): The framework the trustee uses to manage the risks associated with scheme funding. It brings together three key areas: funding, investment and the employer covenant.

Liabilities: An estimate of the money that the scheme needs to pay the benefits that members have built up so far. When talking about scheme funding, we express liabilities as the present value of the money we will have to pay out from the valuation date onwards.

Member Consultation: Employer-led consultation with affected employees and their representatives where employee benefit changes are being sought. For certain types of benefit changes ('listed changes'), a statutory 60-day consultation process is mandatory. Examples of listed changes include reductions in the level of future service benefit accrual, increases in employee contributions and changes in the nature of the pension benefit (for example between defined benefit and defined contribution).

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Prudence: Taking a margin on the cautious side of the best estimate of future experience. The outcome of this is that the chance of experience being better than assumed is higher than the chance of experience being worse than assumed. Prudence in the context of the proposed Technical Provisions may be achieved by including margins in some or all of the actuarial assumptions.

Reliance: A measure of the extent to which the scheme is dependent on the employers to support the funding and investment risk being taken.

Retirement Income Builder: The Defined Benefit (DB) section of the scheme.

Risk appetite: Willingness to take risk in the way the pensions promised to members are funded, now and in the future, while continuing to comply with legal and regulatory obligations.

- The trustee's risk appetite reflects our willingness to place reliance on the employer covenant to fund the scheme if there is, or could in the future be, a deficit against Technical Provisions.
- The employers' risk appetite is the collective ability and willingness of employers to bear funding and investment risk, with potentially higher contributions required where experience turns out to be worse than assumed.

Risk capacity: The financial ability of the employers as a group to withstand risks. This reflects the total amount of money that can be called on to respond to risks materialising.

- Available Risk Capacity is our estimate of employers' total risk-bearing capacity in respect of all of their operations (including pensions funding).
- Affordable Risk Capacity is the main covenant-related input to the scheme's IRMF. It sets a limit for the total amount of risk that we are comfortable employers can support. It is our estimate of the financial resources that employers are willing and able to commit to the scheme over and above future service contributions, to underwrite risk in the scheme to eliminate a deficit if required. The affordable risk capacity is likely to be significantly lower than the available risk capacity.

Rule 76.1 Report: The Report from the Scheme Actuary to the trustee on the financial condition of the scheme following an actuarial investigation and including such recommendations on contributions as the Scheme Actuary shall think fit. The Rule 76.1 Report will take account of decisions which will be made by the trustee on assumptions and methodology having considered UUK's feedback to this consultation. A copy of the Rule 76.1 Report will be issued to the JNC alongside a notice providing confirmation of the trustee's Contribution Determination.

Schedule of Contributions (SoC): The document setting out the contributions we need for any Recovery Plan plus the contributions we need to be able to fund future pension benefits being built up.

Self-sufficiency: A low-risk strategy for funding the scheme in the hypothetical scenario where the Trustee doesn't believe it will be able to call on the employers for financial support in the future. It is intended to provide a benchmark from which the level of reliance on the employer covenant can be measured, rather than being a target level of funding. We provide further detail on the construction of the self-sufficiency measure in the Supporting Information.

Statement of Funding Principles (SFP): A written statement which sets out our policies on how we fund the scheme so that we can pay all the benefits that have been promised to our members. It includes details of the actuarial assumptions we have adopted in the valuation.

Statement of Investment Principles (SIP): A written statement of the investment principles governing decisions about investments. The purpose of a SIP is to set out our investment strategy, including the investment objectives and investment policies we adopt.

Surplus: A technical surplus which arises where the valuation reveals an excess of assets over the Technical Provisions at the valuation date

Technical Provisions (TP): The target level of funding for the scheme's liabilities built up before the valuation date. The liabilities are valued on assumptions determined by the trustee on a prudent basis, as is required by law. They are driven by the benefits members have already earned and the actuarial assumptions we make about what will happen in the future.

Transition risk: The potential additional market and demographic risk of moving from the current funding position to self-sufficiency.

Trustee/we: The people responsible for the management and administration of the scheme.

USSIM: USS Investment Management Limited, the scheme's principal investment manager and adviser to the trustee.

Valuation: An assessment of the scheme's financial position. It is carried out by the trustee with the support of the Scheme Actuary, an appointed independent specialist who advises the Board, as required under the scheme rules and by law. A valuation is a budgeting exercise that establishes a plan for how the scheme will generate enough money to be able to pay the pensions that members are expecting, now and into the future. We must carry out formal valuations at least every three years.

Valuation date: The effective date at which we carry out a valuation. For the 2023 valuation, this is 31 March 2023.

Valuation Investment Strategy (VIS): Our broad investment strategy set out as a theoretical, but investible, asset allocation across equities, property, gilts, and other fixed income assets, including liability driven investments (LDI), corporate and emerging market bonds.

You: This consultation is with Universities UK (UUK), the body that represents sponsoring employers in the scheme. So 'you' in this document is specifically UUK.

Useful links

Our valuation homepage (including Supporting Information, updates to employers and information about Valuation Technical Forum meetings): https://www.uss.co.uk/about-us/valuation-and-funding/2023-valuation

Our formal response to the DWP and TPR consultations and related correspondence: https://www.uss.co.uk/news-and-views/briefings-and-analysis

Information about scheme investments: https://www.uss.co.uk/how-we-invest

Recommendations from the Joint Expert Panel at the 2020 valuation: https://www.uss.co.uk/about-us/valuation-and-funding/2020-valuation (under "Official documents and briefings")

USS employers website (including the joint stakeholder statements): https://www.ussemployers.org.uk/news

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Appendix 2 – Future projections

This Appendix sets out further detail on our investment adviser's projections of the position at the 2029 valuation, which is referred to in section 10.3.

Please note that these projections are separate to the consultation on methodology and assumptions underlying the Technical Provisions and the resulting potential contribution rates shown. The purpose of these projections is to start to explore how stability of the required contribution rate may vary in future, under different scenarios. They are based on various simplifications and should, therefore, be viewed as indicative rather than being part of the development of the proposed contribution rate at this valuation. In particular, projections about the likelihood of contributions increasing at future valuations should be used as a guide to compare different scenarios, rather than a representation of the probability *in absolute terms* of a contribution increase.

To inform the impact of investment strategy on the projections, we show results based on the current VIS as well as two simple and illustrative alternative investment strategies.

Illustrative alternative investment strategies[1]		More growth, less hedging	Current VIS	Less growth, more hedging
Asset allocation[2]	Growth assets capital weight	70%	60%	50%
	Credit assets capital weight	25%	25%	25%
	Liability hedge ratios (on a self-sufficiency basis)	30%	40%	50%

Notes
1 See Supporting Information for the return metrics associated with these portfolios.
2 Please note that these percentage allocations do not add up to 100%, because we show liability matching assets in terms of their hedge ratio.

Our investment adviser has projected the position forward based on our current VIS as well as these illustrative alternative investment strategies. They have also assumed that our proposed assumptions and methodology are adopted and remain unchanged up to and including the 2029 valuation and/or following a stress event. Their projections assume that the pre-April 2022 benefits basis is restored.

The six year time horizon is intended to represent the theoretical position at the next valuation but one (that is, at a 2029 valuation), and helps to illustrate the potential impact of decisions around investment strategy, use of surplus and the total contribution rate over this period. We provide the results at the three year horizon (that is, at a 2026 valuation) in the Supporting Information.

These projections involve assumptions about the future and do not account for potential actions which may be taken depending on the scenario. Accordingly, these projections should be treated as approximate. Please see the Supporting Information for the key methodological inputs and assumptions.

Our investment adviser has modelled the following:

- the probability that the required total contribution rate exceeds 20.6% or 26% at a 2029 valuation, assuming each respective total contribution rate is paid from 31 March 2023
- the required total contribution rate following a specific future downside economic 'stressed' scenario, which combines a 100 basis point (1%) fall in real UK interest rates and 15% fall in growth assets.

The analysis below shows how the projected future outcomes could vary under the different illustrative investment strategies described above and whether the potential surplus is retained or used up (for example, through benefit improvements).

The table below sets out, for each investment strategy modelled, the probability of the required total contribution rate (calculated as the future service contribution requirement plus any deficit recovery contribution required) exceeding 20.6% and 26% respectively in six years' time, assuming those total contribution rates had been paid from 31 March 2023 onwards.

The two surplus cases under investigation in the first set of analysis below (that is, 'Retains surplus' and 'Does not retain surplus') refer to the provisional Technical Provisions surplus at the 31 March 2023 valuation date. In any scenarios that a surplus is revealed at the 2029 valuation, the surplus is assumed to be retained within the scheme (that is, not used to manage contribution increases, for example). However, the required contribution rate in scenarios in which a deficit emerges will include an element of deficit recovery contributions.

	Probability of exceeding a required total contribution rate of 20.6% in six years' time[1]		Probability of exceeding a required total contribution rate of 26% in six years' time[1]	
Investment strategy	Retains surplus	Does not retain surplus	Retains surplus	Does not retain surplus
More growth, less hedging	53%	59%	27%	36%
Current VIS	53%	60%	26%	35%
Less growth, more hedging	52%	61%	24%	34%

Notes
1 For simplicity of modelling, it is assumed that the contribution rate in each of these scenarios comes into force from the valuation date.

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There are alternative calibrations of starting contribution rates and required total contribution rates that could be considered. As an example, the probability of a starting rate of 20.6% exceeding a contribution rate of 25.2% (the current future service contribution rate) in 6 years' time would be between 30% and 33% if surplus is retained, depending on the investment strategy being considered, or 42% if surplus is not retained. As part of our further investigations around stability, we are happy to work with UUK and the stability working group to consider alternative calibrations that employers might find helpful.

We would note that the probability shown above of the required total contribution rate exceeding 20.6% is greater than 50%, which requires further explanation. This is a function of the asymmetrical approach that has been taken to modelling deficits and surpluses.

- Specifically, the small percentage of scenarios that project the scheme to be in deficit but with a reduction in the underlying future service contribution rate, would require additional deficit recovery contributions.
- Whereas, every scenario that the underlying future service contribution rate has increased would require additional contributions even if there was a prevailing surplus.
- In practice, if surplus was used to mitigate future contribution increases, the probability of the total contribution rate exceeding a given level would be reduced.

Notwithstanding the simplifications highlighted, the modelling output above should provide a good indication as to the relative outcomes under different courses of action. In due course, the JNC stability working group will consider a range of future economic scenarios in exploring solutions that target greater stability for benefits and contributions.

The table below sets out, for each investment strategy modelled, the potential impact on the total contribution rate following a downside economic scenario (combining a fall in real rates of interest of 1 percentage point and a 15% fall in the value of growth assets). We also show how these scenarios change depending on whether the provisional surplus at 31 March 2023 is retained or used up (for example, through benefit improvements).

	Required total contribution rate as a % of payroll after a downside stress of -1% real rates and -15% equity	
Investment Strategy	**Retains surplus**	**Does not retain surplus**
More growth, less hedging	33%	40%
Current VIS	30%	37%
Less growth, more hedging	28%	34%

Please see section 3.3 of the Supporting Information for the methodology and key assumptions for this analysis.

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Appendix 3 – Draft Statement of Funding Principles

Universities Superannuation Scheme (the Scheme)

This Statement of Funding Principles (SFP) sets out the policies of the Trustee 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 Aaron Punwani, the Scheme Actuary appointed under s47 of the Pensions Act 1995. It reflects the guiding principles on risk management adopted by the Trustee. This SFP reflects the benefit structure [in place at 31 March 2023/agreed as part of the 31 March 2023 valuation] and the covenant support measures in place at that date. 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 an actuarial calculation, to make provision for the Scheme's liabilities (the technical provisions).

2023 valuation

The Trustee's approach to the actuarial valuation as at 31 March 2023 uses the same methodology and a similar Integrated Risk Management Framework as adopted for the valuation at 31 March 2020. In particular, it uses dual discount rates, and takes into account that the Scheme is open to accrual and as a result may be expected not to mature quickly. The dual discount rate approach automatically responds to this and results in a contribution requirement for future service benefits that suitably reflects the open nature of the Scheme as well as providing an appropriate model for the technical provisions. The Integrated Risk Management Framework is designed to ensure that the reliance on the covenant remains within employers' aggregate risk capacity, and within the risk appetite of the Trustee and the employers. The Trustee has taken the opportunity as part of the 2023 valuation to reformulate the metrics to improve communication and understanding of the risk framework.

The input assumptions to the valuation have been considered carefully in light of the market conditions around 31 March 2023. The Trustee is satisfied that they are appropriate for that date, but the Trustee would not necessarily expect to adopt the same assumptions and parameters for calculations at different dates.

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 document.

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 the Trustee's Integrated Risk Management Framework.

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 makes an 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. Self-sufficiency is a low-risk strategy for funding the Scheme in the absence of a covenant. It corresponds to a very high confidence level of both being able to pay all benefits when they fall due without the need for any additional contributions, and also maintaining a high funding ratio. This is not a target level of funding, but rather it provides a benchmark from which the level of reliance on the employer covenant can be measured at any point in time.

In particular, the Trustee takes into account its Integrated Risk Management Framework, which considers the difference between the self-sufficiency basis and the technical provisions basis in order to ensure that it is within a range which is considered acceptable. This means that the choice of the discount rate for the technical provisions basis may be impacted by the level of future benefit accrual, as the latter will affect the projected quantum of liabilities over time, and therefore the projected amount of reliance on the covenant.

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 the self-sufficiency basis and the technical provisions assumptions are highlighted in the notes to this document.

Policy on discretionary increases and funding strategy

The Trustee has certain discretionary powers under the Scheme Rules to provide altered, increased, additional or new benefits to or in respect of any member, former member or other person. 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 have previously been expressed as a percentage of pensionable payroll.

In determining the actual recovery plan 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 in the Statement of Investment Principles;
- The Trustee's objective assessment of the financial covenant of the employers
- Investment market conditions at the valuation date

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- The Trustee's objective assessment of the affordability of contributions for employers – in some circumstances this may lead to a recovery plan structure where contributions increase over time to allow employers time to plan for increases.

Where necessary, the Trustee expects to adopt a recovery plan appropriate for the circumstances of the Scheme, the covenant support, the prevailing market conditions and the regulatory environment at the time.

At 31 March 2023, the Scheme's assets exceeded the technical provisions and as such no recovery plan was needed.

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 this document.

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 and no such arrangements are currently in place.

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 Scheme 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 receive a refund of any assets other than in the circumstance where the Scheme is being wound up and there are excess assets over the cost of buying out benefits of all beneficiaries with an insurance company.

GMP Equalisation
As a result of the court ruling in respect of the Lloyds Banking Group Pension Schemes, schemes are required to equalise benefits taking account of Guaranteed Minimum Pensions accrued between 17 May 1990 and 5 April 1997. There is no explicit allowance for this in the 2023 actuarial valuation and any additional funding costs required to uplift benefits will be met by either the Scheme's assets or future contributions. Owing to the benefit structure of the Scheme it is expected that any such costs 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. 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 Scheme 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 [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	Chief Executive Officer
Revised and effective from date	[date]

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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 2023

The method used was the Projected Unit method.

Principal actuarial assumptions for technical provisions as at 31 March 2023

Price inflation – Consumer Prices Index (CPI)	3.0% pa (based on a long term average expected level of CPI, broadly consistent with long term market expectations)
RPI / CPI gap	1.0% pa to 2030, reducing to 0.1% pa from 2030
Price inflation – Retail Prices Index (RPI)	In line with the CPI assumption plus the RPI / CPI gap (i.e. 4.0% pa to 2030, reducing to 3.1% from 2030)
Discount rate	Fixed Interest gilt yield curve plus:
Pre-retirement:	2.5% pa
Post-retirement:	0.9% pa
Pension increases (all subject to a floor of 0%)	Increases linked to CPI Benefits with no cap: CPI assumption + 3bps Benefits subject to a 'soft cap' of 5% (providing inflationary increases up to 5%, and half of any excess inflation over 5% up to a maximum increase of 10%): CPI assumption - 3bps Increases capped at 2.5% (where applicable): CPI assumption – 96bps
Mortality base table	101% of S2PMA 'light' for males and 95% of S3PFA for females
Future improvements to mortality	CMI_2021 with a smoothing parameter of 7.5, an initial addition of 0.4% pa, 10% w2020 and w2021 parameters, and a long term improvement rate of 1.8% pa for males and 1.6% pa for females

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.

The assumptions set out in the table above reflect the market conditions as at 31 March 2023. The derivation of assumptions at other dates (in particular the discount rates relative to gilt yields, future CPI price inflation, and the pension increase assumptions relative to CPI), consistent with the funding principles, may be different at other dates.

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 generally 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 (CPI)

The assumption for the rate of increase in the Consumer Prices Index (CPI) will be based on the Trustee's best estimate of future CPI, informed by its investment advisor USSIM. At the 31 March 2023 valuation this is set as 3.0% p.a., which is broadly consistent with the long term average rate of CPI implied by market expectations.

For dates after 31 March 2023, the Trustee will base the CPI price inflation assumption on USSIM's long-term expectations from time-to-time, which are expected to reflect market indicators, with an overlay of judgement.

For the self-sufficiency basis at the 31 March 2023 valuation, CPI was derived from 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 cashflows beyond the longest available gilts), less the expected difference between RPI and CPI (1.0% pa until 2030 and 0.1% pa thereafter). The single equivalent of this assumption is approximately 3.1% pa.

Discount rate

The discount rates for liabilities are a prudent allowance for future investment returns on the notional portfolios developed in respect of pre- and post-retirement liabilities, taking into account the Trustee's Integrated Risk Management Framework (and in particular the strength of the covenant).

A Dual-Discount Rate methodology has been used for the 2023 valuation, with different discount rates in respect of the pre- and post-retirement periods. These are expressed as a premium to the fixed interest gilt yield (where the gilt yield reflects the 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). Note that the pre-retirement discount rate is used in respect of contingent dependants' benefits up to the date of the member's assumed retirement age.

The pre-retirement discount rate uses an addition of 2.5% pa to the gilt curve. The post-retirement discount rate uses an addition of 0.9% pa to the gilt curve.

The additions have been determined as at 31 March 2023 taking into account market conditions at that date. The Trustee's decisions reflect the covenant support package in place. A consistent approach at other dates could be expected to result in different additions relative to gilts, to reflect changes in the Trustee's expectations of future investment returns and to maintain consistency with the CPI assumption. Adjustments may also be applied if indicated by the Trustee's Integrated Risk Management Framework.

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If, following a review of the investment strategy, there are consequential changes to the Statement of Investment Principles after completion of the valuation, the discount rates may also change at subsequent funding updates.

For the 'self-sufficiency' basis the discount rate assumes a margin of 0.5% pa added to the gilt curve as at 31 March 2023. This reflects market conditions and the level of credit spreads available at that date and may be expected to be different at other dates.

Pension increases
All pension increases in the Scheme are subject to a minimum of zero. Pension increases apply on each 1 April based on inflation to the previous September, with various caps depending on the period the benefit was accrued. Realised inflation over the period from September 2022 to February 2023 (the most recent month's published inflation as at 31 March 2023) is allowed for in determining the assumed pension increase on 1 April 2024.

The adjustments to the future CPI inflation assumption in respect of different caps applicable to subsequent increases are set out below:

- Increases to pensions that are uncapped: + 3bps adjustment
- Increases to pensions that are subject to a 'soft cap' of 5% (described in the table): -3bps adjustment
- Increases to pensions that are subject to a cap of 2.5%: -96bps adjustment

As part of the 2020 valuation, it was agreed that the benefit structure applying to accrual from 1 April 2022 would, in future (from 1 April 2026 in most cases) have pension increases of CPI capped at 2.5% pa (and a minimum of zero, as currently).

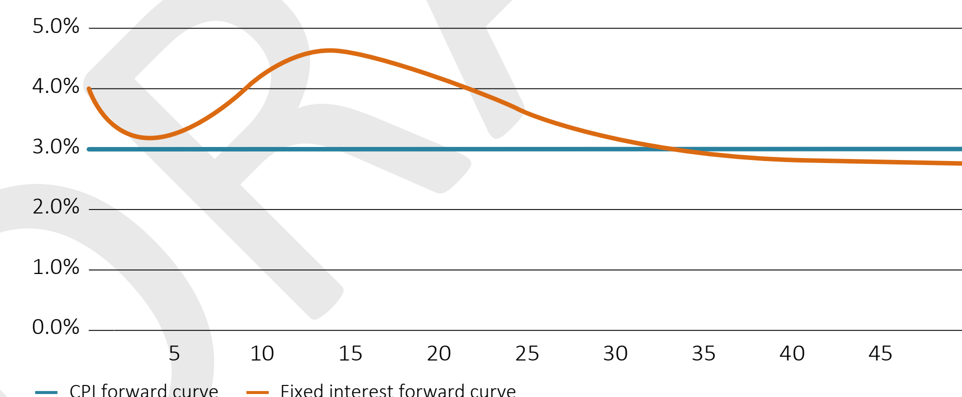
The above pension increase assumptions are based on market conditions as at 31 March 2023 reflecting the relevant caps and floors to the increases. If the CPI assumption is different at other dates then the adjustments relative to CPI for the pension increase assumptions would also be different.

Gilt and CPI curves
The Fixed Interest gilt curve used in determining the discount rates, and the CPI curve resulting from the derivation above, are shown below. Full values are available on our website.

Demographic assumptions
Mortality
The mortality assumptions are based on scheme-specific experience analysis, and are 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:

- Males: S2PMA 'Light' with 101% weighting and improvements using CMI_2021 [1.8%] with smoothing parameter 7.5, initial addition 0.4% pa, and w2020 and w2021 parameters of 10%
- Females: S3PFA with 95% weighting and improvements using CMI_2021 [1.6%] with smoothing parameter 7.5 and initial addition 0.4% pa, and w2020 and w2021 parameters of 10%

Gilt and CPI curves (forwards) as at 31 March 2023



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 2023 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 in respect of accrued liabilities). Benefits relating to service accrued prior to 1 October 2011 are assumed to be paid with no reduction, and allowances have been made for benefits accrued between October 2011 and September 2020 to be reduced from the payable age of 65, and for benefits accrued from October 2020 to be reduced from the payable age of 66.

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 in respect of accrued liabilities 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.

For future service, benefits currently being accrued are assumed to be payable from 66 in line with the Scheme's Normal Pension Age.

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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 an effective date 31 March 2023, the following is an extract from the decrement table used:

	% leaving per annum	
Age	**Male**	**Female**
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	20.11
35	10.02
45	5.64

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.

Cash equivalent transfer values
No allowance has been made for deferred members to take a cash equivalent transfer value from 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 death based on bespoke scales derived from the 2018 ONS data for co-habiting couples.

Sample rates as shown in the table below.

	% spouse / partner	
Age	**Male**	**Female**
45	80.5	66.3
55	80.1	65.0
65	77.7	59.3
75	74.7	45.8
85	68.6	22.3

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 one year older.

Expenses
Expenses including PPF Levies are met by the fund. A provision for this is included by adding 0.5% 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.

Method and assumptions used in calculating the cost of future accrual

The cost of future accrual was calculated using the projected unit method with a 1 year control period. The same assumptions as those used to calculate the technical provisions are adopted, with the exception of retirement age.

From October 2020, benefits being accrued have a retirement age of 66, in line with the State Pension Age. The cost of future accrual is based on this retirement age.

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