



Universities Superannuation Scheme

2018 Actuarial Valuation

**Trustee's reply
to
UUK's feedback and questions
on the
Consultation on the 2018 Technical Provisions**

7 May 2019

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1. Introduction

This document sets out the Trustee's response to the feedback received from Universities UK (UUK) on the Consultation on Technical Provisions and Statement of Funding Principles for the 2018 actuarial valuation (the "Consultation"). The Consultation relates to the funding position as at 31 March 2018 for the USS Retirement Income Builder, and ran from 2 January 2019 to 15 March 2019.¹

UUK's response to the Consultation was received in a letter dated 19 March 2019. This response included:

- A proposal from UUK (developed with Aon) on a contingent contribution arrangement;
- Feedback from employers on the Consultation;
- Feedback from employers on UUK's proposal for contingent contributions.

Full details of these documents are listed in the References section at the end of this paper.

Based on the feedback received through the Consultation process, Section 2 of this paper summarises the Trustee's proposal for contributions, involving three alternative structures. Each of these alternatives is consistent with the Trustee's risk appetite and predicated on the employers' covenant remaining strong.

In its Consultation feedback UUK explicitly posed several questions to the Trustee, which are addressed in Section 4. More generally, the feedback received suggests that it might be helpful for the Trustee to clarify certain aspects of the valuation before responding to these questions. This clarification is provided in Section 3.

In Section 5 we present the Trustee's response to UUK's proposal for contingent contributions. In summary, the Trustee views UUK's proposal – as described in the consultation feedback – as being insufficiently strong to support a reduction in contributions from the Trustee's Upper Bookend to the Lower Bookend. However, a version of the UUK proposal for contingent contributions with modified parameters would be acceptable to the Trustee. This is also presented in Section 5.

The 2018 valuation, as with the 2017 valuation, is taking place against a backdrop of significant uncertainty. This uncertainty brings some difficult challenges. Not only are interest rates from secure investments at very low levels from a historical perspective, the outlook for future real investment returns from all assets is substantially lower than in the past. The ability of the scheme to depend on its sponsoring employers to 'insure' returns higher than those currently available for secure long term investment is hampered by uncertainty about the future of the higher education sector. This uncertainty is evident from:

1. Uncertain government policy on issues such as student funding and foreign student migration, as well as the uncertainties to future research funding and other issues associated with Brexit.
2. The risks that stronger employers will leave the scheme (a route chosen by Trinity College Cambridge).
3. The unwillingness of our sponsoring employers to pay higher contributions in the short term as a buffer against future uncertainty (as expressed in all consultation responses to date).

Much of the more vocal public discussion on the valuation has stemmed from those who believe that the Trustee should not use the next two decades to gradually reduce the reliance on equity returns in funding pension promises, as an increasing allocation to lower yielding, but more certain, investments

¹ The USS Retirement Income Builder is the name for the defined benefit (DB) section of the scheme.

is more expensive. It is indeed likely that pensions could be initially funded more cheaply than under the Trustee's proposals. It is also true that an alternative higher-risk strategy, if it failed, could have very significant impacts for the higher education sector, and ultimately for the security of the defined benefit pensions promised under trust, which is the primary responsibility of the USS Trustee.

2. Trustee’s contribution proposal

In the light of feedback received from UUK through the Consultation, the Trustee proposes three alternative contribution structures (see Table 1):

- **Option 1: The Trustee’s Upper Bookend** as set out in the Consultation document on technical provisions where no contingent contributions are provided. This corresponds to a total contribution rate of 33.7%.
- **Option 2: The Trustee’s Lower Bookend** with a base contribution rate of 29.7% supported by UUK’s contingent contribution proposal, as outlined in the Aon paper, but with modification to the Trigger Threshold, contingent contribution step-up profile, the averaging for the technical provisions-based Trigger Metric and the updating of the gilts-plus basis for the technical provisions-based Trigger Metric (see Section 5 of this document).
- **Option 3: A 2020 valuation approach**, under which the initial contribution would be set slightly higher than the Lower Bookend at 30.7% with a commitment to the next valuation being undertaken at 31 March 2020. This approach would not involve any contingent contributions. The rationale here being that the contribution over the period 1 October 2019 to 1 October 2021 would be equal to that payable on average under Option 2 over this two-year period if maximum contingent contributions were triggered at the earliest opportunity. Should no agreement on the contribution rate from the 2020 valuation be implemented before 1 October 2021, then the contribution rate would rise to 34.7% from that time. The rationale for this is similar: the contribution over the period 1 October 2021 to 1 October 2023 would be equal on average to that payable over this two-year period under Option 2 if maximum contingent contributions were triggered at the earliest opportunity (including the step-ups).

These contribution alternatives are all considered by the Trustee to be within its risk appetite. Moreover, they are all predicated on the employers’ covenant being rated and remaining “strong”.

Table 1: Comparison of contributions under the 3 options.

	1/10/19 - 30/9/20	1/10/20 - 30/9/21	1/10/21 - 30/9/22	1/10/22 onwards
Option 1: Upper bookend	33.7%	33.7%	33.7%	33.7% ¹
Option 2: Lower bookend with <i>no CCs activated</i>	29.7%	29.7%	29.7%	29.7% ¹
Option 2: Lower bookend with <i>maximum CCs activated</i>	29.7%	31.7% ²	33.7%	35.7%
Option 3: 2020 valuation	30.7%	30.7%	34.7% ³	34.7% ³

1 Assumes no revised contribution agreed as a result of the 2021 valuation.

2 Assumes the contingent contribution steps up after one year.

3 Assumes no revised contribution agreed as a result of the 2020 valuation.

3. Clarifications on issues related to 2018 valuation

The formal feedback we received from UUK indicated that we have not been as clear as we had hoped in relation to certain key points associated with the valuation and the Consultation. In this section we address these points.

3.1 The valuation approach is risk-based

The Trustee takes a risk-based approach to the funding of the DB section of the scheme, in the expectation that this will deliver, over the long term, sufficiently high investment returns while keeping contribution requirements affordable should adverse scenarios be realised. This expectation is reflected in the calculation of contribution requirements, albeit at a “prudent” level as required by legislation.

The Trustee needs to form a view of how much risk is associated with its approach and the level at which that risk becomes a concern. A key consideration for the Trustee is the action that would be necessary should that limit be breached. This would likely involve either or both of a substantial reduction in investment risk and/or a substantial increase in contributions.

It is not in anyone’s interest to allow the scheme to get into that position. The Trustee, therefore, must take action (in a proportionate way) as that limit is approached in order to avoid much more drastic action should the limit be breached.

This is why we must pay attention to short-term risk despite having a credibly robust long-term plan to deal with long-term risk. Over the short-term (for example the period between triennial valuations) the risk associated with funding the scheme may increase beyond the Trustee’s limit (i.e., its risk appetite). This has been explored in the Consultation document in Sections 5 and 6, which examine risk through the lens of (i) reliance on the employers’ covenant, (ii) the average discount rate spread, and (iii) specific adverse scenarios for investment returns. As risk is multifaceted, different risk metrics and perspectives such as these are needed to develop a balanced view.

3.2 Technical provisions is the funding basis

Technical provisions define the basis for funding the DB section of the scheme and set the cost of accrual of future benefits. This is informed by the long-term risk appetite in 20 years’ time, which in turn is based on the closeness of the target level of assets to a self-sufficiency basis (see below). The output from this analysis is an investment strategy that migrates from an initial strategy on the valuation date to a lower-risk long-term strategy in 20 years’ time, from which a prudent discount rate is derived.

3.3 Self-sufficiency and reliance risk

Self-sufficiency is the level of assets and an investment strategy that together would ensure there is a high probability (greater than 95%) that all accrued benefits will be paid without the need for any further contributions from either employers or members. Note that self-sufficiency does not involve a risk-free investment strategy; it involves an investment strategy that takes an acceptable level of risk that corresponds a high probability of meeting all benefit payments without further contributions.

It is important to clarify what self-sufficiency is, and is not, used for in the valuation.

In the valuation the distance to self-sufficiency is used primarily as a measure of risk. This risk reflects the possibility that the reliance of the scheme on the employers becomes too great.

As the scheme's accrued DB benefits are fixed real cash flows, the uncertainty in future investment returns goes hand-in-hand with a level of uncertainty in future contribution rates. Given that the current level of reliance is well above the long-term target these uncertainties have the potential in the short term to push us further from achieving that long-term goal. So it is important to distinguish the following:

- The projected distance to self-sufficiency in 20-years' time is a measure of *long-term reliance risk*. By setting this distance at £10bn in real terms in the Upper Bookend, the Trustee is controlling long-term reliance risk consistently with the employers' long-term risk appetite (as initially communicated to the Trustee in the 2017 valuation).
- The current distance to self-sufficiency (i.e., the current self-sufficiency deficit) is a measure of *short-term reliance risk*. Monitoring short-term reliance risk is important to ensure the scheme does not get too far away from its track of reducing long-term reliance to £10bn.

It is also important to be clear about what self-sufficiency is *not* used for:

- Self-sufficiency is *not* the Trustee's primary funding metric (the funding metric is technical provisions). As such, self-sufficiency does *not* define the target funding level.
- A self-sufficiency portfolio is *not* the target for USS' investment portfolio, even in 20 years' time.

The Trustee can accept a short-term reliance risk that is materially higher than the target long-term reliance risk because the period of visibility of the covenant is long. However, there is still a limit to the level of short-term reliance risk that the Trustee would feel comfortable with and the Trustee's view is that the current level is high. As such the Trustee wishes to:

- Manage the possibility of short-term reliance risk going beyond acceptable levels, and
- Move more reliably towards the long-term reliance target.

What is key here is that the distance to self-sufficiency is used as a risk metric, and, importantly, that the acceptable level of that risk metric is different for the short term and the long term.

3.4 Self-sufficiency and contributions

As stated above, the current self-sufficiency deficit is a measure of short-term reliance risk and, consistent with this role, it impacts the required contributions in the following way:

- The current self-sufficiency deficit impacts *only* the deficit recovery contribution (DRC). This is because an elevated level of this deficit reflects an elevated level of short-term reliance risk, and one way of addressing this elevated level of short-term reliance risk is by accelerating deficit repair with a higher DRC. Or more simply put, if in the future our assumptions turn out to have been inadequate, a higher DRC puts us in a better position to respond.
- The current self-sufficiency deficit does *not* impact the future service contribution.

3.5 DRCs and the Consultation

Although this Consultation was not the formal consultation on the deficit recovery plan, this Consultation did in fact encompass the deficit recovery contribution (DRC) and feedback was indeed received on this. The quantum of DRC that was included in the Consultation document was:

- DRC = 5% for the Upper Bookend (corresponding to a future service contribution of 28.7% of salary and 33.7% total);

- DRC = 2.1% for the Lower Bookend (corresponding to a future service contribution of 27.6% of salary and 29.7% total).

What we did not consult on in this consultation were the detailed parameters of the full recovery plan, which will be part of a later formal consultation on the Schedule of Contributions (SoC). As has been the case with previous actuarial valuations, the SoC Consultation will take place once the technical provisions have been finalised.

4. Trustee's responses to questions raised by employers

In the Consultation feedback provided to the Trustee by UUK four major questions were asked:

1. Why were two of the Joint Expert Panel's proposals – deferring de-risking and smoothing contributions – not included in the Lower Bookend?
2. How does the Trustee justify the Upper Bookend as the correct price for pensions?
3. What is the rationale for the DRCs for the 2017 and 2018 actuarial valuations, and how are they consistent?
4. Why are contingent contributions needed?

In this section we answer these questions.

4.1 Why were two of the JEP's proposals – deferring de-risking and smoothing contributions – not included in the Lower Bookend?

To address this question it is helpful to review the relevant discussion in the Consultation document (especially sections 4.2, 6.1 and 7.2) and also in the presentation delivered at the 2018 Institutions' Day last December by the Chief Risk Officer and the Scheme Actuary (available on the USS website).

The answer to the above question essentially boils down to *managing risk*. The contribution rate the Trustee requires in this valuation – or indeed, in any valuation – depends on the amount of risk that is being taken: risk that the contributions will prove insufficient and higher contributions will be required later.

Individually, each of the JEP's proposed changes is worthy of consideration, but they must be considered collectively in terms of their overall impact on the aggregate risk in the valuation – and set against a balanced judgment on an acceptable risk position.

Four of the JEP's suggestions, detailed below, each involve a greater dependence on uncertain investment returns, and therefore a greater risk that those returns do not materialise. These suggestions are:

- Increasing the long-term reliance in 20 years' time.
- Allowing for future investment outperformance (relative to the technical provisions discount rate) in calculating DRCs.
- Deferring de-risking of the investment strategy.
- Smoothing future service contributions over future valuation cycles.

Each of these potential adjustments increases the dependency on the valuation assumptions (especially investment returns) being realised and reduces the robustness of the valuation to adverse outcomes. Should the value of investments, for example, suffer a major fall in the short-to-medium term then the scheme would be in a materially worst position as a result of any of these adjustments.

The last two of the JEP's four proposed adjustments listed above – deferring de-risking and smoothing future service contributions – were not considered explicitly in the development of the Lower Bookend. We now discuss these in turn.

4.1.1 Deferring de-risking

Before we discuss this proposed adjustment, it should be noted that any investment de-risking strategy sets the direction for investment management over the next three years before being reviewed as part of the next valuation.

De-risking the investment strategy over time builds greater certainty into the funding plan and reduces the risk that we are unable to generate the cash flows required in future to pay benefits. True, de-risking comes at the cost of foregoing the likely – but not certain – higher returns of investing in ‘riskier’ assets. It also helps to ensure that the amount that employers and members might need to pay in future to secure benefits is more likely to be within their means to fund even in adverse scenarios. The price of de-risking ultimately reflects the nature and the value of the promise that has been made to members, in terms of a defined level of income in retirement.

Delaying this de-risking has the impact of back-end loading the de-risking programme thereby exposing the scheme to greater funding risk over the medium term. It also exposes it to additional risks over the long-term associated with an accelerated de-risking tempo. Importantly, delaying de-risking would increase the possibility of future shortfalls could be too great for employers to support.

4.1.2 Smoothing contributions

Smoothing contribution rates (and so paying the average expected contribution rate) over several valuations would involve paying less now than is currently required to fund the future benefits being accrued, in the expectation that these future benefits will cost significantly less in future years (and so make up the current shortfall). This increases the likelihood that future generations will have a larger deficit to address if funding assumptions around future investment returns and interest rates do not come to pass, i.e., if experience is poorer than expectation.

It would also be inconsistent with the Trustee’s view that a relatively high DRC is needed in the short-term if that level was then effectively cut by an averaged future service contribution rate that is below the short-term cost of accrual.

Adopting all of the JEP’s proposed adjustments would fall outside the Trustee’s risk appetite, but different combinations of these could be implemented whilst staying within the Trustee’s risk appetite (both with and without contingent contributions).

The Trustee’s approach to risk is to balance its investment strategy and its contribution strategy such that enough risk is taken in the investments to generate returns that help keep the costs down – but not so much risk that it puts the achievement of the strategy itself as a whole at risk.

The potential consequences of taking greater risk must be quantified (see Sections 5 and 6 of the Consultation document), and credible options for managing material downsides coming from that risk must be available. The Trustee has certain legal, regulatory and fiduciary duties to ensure that the pensions promised to members are secure and can be paid when due.

The Trustee acknowledges that the conclusion requires judgment to be exercised as there is no uniquely “right answer” to the methodology used or the individual parameters. The unwelcome but incontrovertible fact is that different objective perspectives on this valuation have come to a conclusion that it is at the limits of the acceptable risk position. In particular, see the discussion in Section 5.1 of the Consultation document, which summarises the views of employers, Aon (UUK’s actuarial advisor), PwC (the scheme’s covenant advisor), the Pensions Regulator and the Scheme Actuary.

Although it did not quantify the risks associated with its proposals, the JEP report did recognise that there were a number of different paths the Trustee could adopt which would lead to a required contribution rate of below 30% of salary.

We do believe that a contribution rate slightly below 30% could be acceptable provided it was subject to an appropriate level of contingent support being put in place to help offset the additional risks involved should they materialise. Clearly the amount of contingent support required will increase with the amount of additional risk built into the valuation.

In summary, adopting all four of the JEP's above suggestions would increase the risk in the valuation to such a degree that it would lie outside the Trustee's risk appetite (even with contingent support in place).

4.2 How does the Trustee justify the Upper Bookend as the correct price for pensions?

To address this question it is helpful to review the relevant discussion of the Upper Bookend in the Consultation document (especially Section 7.1 and Appendix B).

The Upper Bookend for the 2018 valuation reflects the Trustee's decision on the appropriate contribution to cover (i) the cost of accrual of future pension benefits along with (ii) the cost of deficit recovery. It involves a number of changes to the assumptions used in the 2017 valuation, including several suggested by the JEP that don't materially increase risk. The specific changes incorporated into the Upper Bookend are as follows:

- Updated asset values to allow for actual investment returns realised over the period 31 March 2017 to 31 March 2018.
- Higher base mortality and lower rates of future mortality improvement.
- Change in retirement age which increases to 66 for service after October 2020.
- Higher discount rates reflecting the higher expected investment returns produced by the FBB approach as at 31 March 2018.

These changes are justified based on evidence and analysis conducted by the Trustee and its advisors. Moreover, there is little evidence to support material changes to any of the other assumptions used in the valuation. Applying these changes to the valuation leads to a higher effective discount rate for technical provisions of 0.92% above CPI (vs. 0.71% for 2017) and a lower future service contribution requirement of 28.7% of salary (vs. 30.6% for 2017).

The other component of the price of pensions embodied in the Upper Bookend is the cost of deficit repair, i.e., the DRC. The DRC for the Upper Bookend for the 2018 valuation has been set at 5% of payroll (vs. the initial value of 6% for 2017), making a total contribution for the Upper Bookend of 33.7% of payroll (vs. the initial value of 36.6% for 2017, which was later revised down to 35.6%). The rationale for the level of DRC set for the Upper Bookend is discussed in the next question.

Together, these two components of the price of pensions (the cost of future accrual of benefits and the cost of deficit repair) justify the contribution rate for the Upper Bookend.

4.3 What is the rationale for the DRCs for the 2017 and 2018 actuarial valuations, and how are they consistent?

To address this question it is helpful to review the relevant discussion of the DRC in Section 7.1 of the Consultation document.

The answer to this question again essentially boils down to *managing risk*. Both valuations have high levels of risk and the level of DRCs for both the 2017 and 2018 valuations were set taking account of not only the technical provisions deficit but, importantly, the prevailing level of risk. Setting a higher DRC is a way of reducing the short-term reliance risk. This is because getting higher contributions earlier reduces the current distance to self-sufficiency, which is our measure of short-term reliance risk.

Short-term reliance risk has been a growing concern for the Trustee as the current self-sufficiency deficit has grown to well over £20 bn. As a result the DRC for the Upper Bookend was set at 5% for 2018. This compares with an initial value for the DRC in 2017 of 6%, which was subsequently revised downward to 5% to reflect some of the positive post-2017 valuation experience. See Table 1.

Table 1. Comparing the DRCs and technical provisions deficit for the 2017 and 2018 valuations.

	2017 valuation	2018 valuation (Upper Bookend)
DRC	6%	5%
Revised DRC	5%	N/A
Technical Provisions (TP) deficit	£7.5 bn	£3.6 bn

The obvious question that arises from Table 1 is: Why is the 2018 Upper Bookend DRC the same as that for the 2017 valuation despite the technical provisions deficit being so much lower?

The answer is that the setting of the DRC involves an assessment of risk: the higher the risk, the higher the Trustee’s view on the DRC, all other things equal. Both valuations involved high levels of short-term reliance risk and this, not just the technical provisions deficit, was a major factor in setting the level of DRC in both cases. In other words, the DRCs have been set with an emphasis on the pace of improvement in the funding position rather than simply spreading the TP deficit at the respective valuation dates over the same period.

One way to see that the levels of risk were high in both valuations is to compare different risk metrics for each. Table 2 shows four different risk metrics for the two valuations, the first two of which were addressed in the Consultation document. The first risk metric (current reliance) suggests that the 2018 funding position is slightly lower risk than the 2017 funding position, but the other three risk metrics suggest the opposite, that more risk is being taken in funding the scheme in the 2018 valuation relative to the 2017 valuation.

Table 2. Comparing risk metrics for the 2017 and 2018 valuations.

Risk metric	2017 valuation	2018 valuation (Upper Bookend)
Current level of reliance (current distance to self-sufficiency)	£22.4bn	£20.8bn
Average TP discount rate as a spread over CPI	CPI + 0.71%	CPI + 0.92%
<u>Ratio:</u> TP / self-sufficiency liability	82%	80%
<u>Ratio:</u> Future service contributions / self-sufficiency cost	68%	65%

Note also that second risk metric in Table 2, the discount rate spread over CPI for the 2018 valuation's Upper Bookend, is almost identical to that in the original September 2017 version of the 2017 valuation, which the Trustee views as setting the benchmark for the maximum level of risk in the valuation without contingent contributions (see Section 5.1 of the Consultation document). So the Upper Bookend is considered close to the maximum acceptable level of risk.

In summary, the level of DRCs for the 2017 and 2018 actuarial valuations are largely determined by the elevated levels of short-term risk in both valuations.

4.4 Why are contingent contributions needed?

To address this question it is helpful to review the discussion of the rationale for contingent contributions in Section 2 of the supplementary document published by the Trustee entitled: "A framework for Contingent Contributions". It is also helpful to review the discussion of risk in Section 5.1 of the Consultation document and the discussion of DRCs in Section 7.1.

The answer to this question again essentially boils down to *managing risk*.

As noted in the answer to the previous question, the Upper Bookend for the 2018 valuation is close to the maximum acceptable level of risk. Moreover, a major reason for the high DRC was the high-level of risk associated with the scheme's short-term reliance on the covenant. As a result any increase in risk, or weakening of the valuation basis, or reduction in contributions, from this level would need to be compensated by other risk-mitigating measures. Contingent contributions are a suitable risk-mitigating measure for this purpose.

Reducing contributions to the Lower Bookend without a risk-compensating mechanism would increase the short-term reliance risk beyond the Trustee's risk appetite.

5. Trustee's response to UUK's contingent contribution proposal

The Trustee has reviewed UUK's proposal for contingent contributions that was developed with its actuarial advisor Aon. The results of that review are presented in this section.

In summary the Trustee's assessment of the contingent contribution arrangement proposed by UUK is that, **in its current form it is of insufficient strength to support a reduction from the Trustee's Upper Bookend to the Trustee's Lower Bookend.**

The key points in relation to the Trustee's assessment of the proposal are as follows:

- **Mechanism:** The mechanism for contingent contributions proposed by UUK is slightly different from that suggested in the Trustee's document "A framework for Contingent Contributions".
- **Principles:** UUK's proposal unfortunately fails to satisfy two of the Trustee's eleven principles, which were outlined in the above document. These are the principles of Alignment (Principle 3) and Quantum (Principle 7). It is also not completely consistent with the principle of an Objective Metric (Principle 2), but the Trustee considers UUK's proposal with respect to this principle is workable.
- **Bookends:** UUK's proposal to shift the Upper and Lower Bookends is not consistent with the Trustee's risk appetite.
- **Parameters:** UUK's proposal for the Trigger Threshold and step-up size for contingent contributions is not consistent with the Trustee's risk appetite.
- **An acceptable version of UUK's proposal:** The Trustee has identified a version of the UUK proposal that is consistent with its risk appetite. The main differences with the UUK proposal involve:
 - A different Trigger Threshold level.
 - A different step-up size for contingent contributions.
 - The trigger metric is agreed to be the technical provisions deficit on a gilts-plus basis, as suggested by UUK but:
 - Without the proposed annual recalibration of the gilts-plus spread, and
 - With the averaging changed to an average over 40 business days, instead of UUK's proposal of a three-day average over the previous three month-ends at the end of a quarter.
 - A different trigger event definition.

Each of these points is elaborated in the sub-sections below.

5.1 The contingent contributions mechanism

UUK's proposal for contingent contributions differs from what would be acceptable to the Trustee.

First, the design of the UUK proposal seems to be motivated to a large degree by a desired outcome for the probability of contingent contributions being triggered. The Trustee does not consider this an appropriate way to design a contingent contribution mechanism, especially as it has made it clear that the purpose of contingent contributions is to mitigate short-term reliance risk. The Trustee believes that the mitigation of short-term reliance risk should be much more central to the design of the mechanism than a desired trigger probability.

Second, the UUK proposal is based on a trigger metric linked to the technical provisions deficit measured on a gilts-plus basis that is recalibrated annually. This technical provisions-based metric is

averaged over a quarter of month-end values for the deficit to reduce volatility which is associated with a measurement on a single day. Furthermore, for contingent contributions to be triggered UUK propose that this metric needs to be observed to be above the Trigger Threshold level for two consecutive quarters. The Trustee is prepared to accept the proposal to use a technical provisions-based trigger metric, but only if it is (i) measured as a 40-business-day moving average (in order to further minimise volatility and reduce the chances of false triggers) and (ii) monitored on a gilts-plus basis without being recalibrated (which would introduce an element of judgement into the arrangement, as well as some uncertainty as to whether the Trustee’s concern for short-term reliance risk would be adequately addressed).

Third, UUK proposed an implementation timescale of six months after a trigger event. Whilst this is a little longer than the Trustee had envisaged, it is nonetheless prepared to accept UUK’s proposal for the implementation timescale, provided the trigger parameters are consistent with its risk appetite.

5.2 Consistency with the Trustee’s 11 contingent contribution principles

The Trustee considers that the UUK proposal falls well short in relation to two of its eleven principles and falls slightly short in relation to a third.

In terms of the latter, the proposal falls slightly short in term of Principle 2 (Objective Metric) because it advocates that the appropriate trigger metric for contingent contributions should be the technical provisions deficit, which involves an element of subjective judgement. The Trustee is prepared to accept this suggestion as it can be made workable if the monitoring of the trigger is based on a calculation of the technical provisions deficit evaluated as a spread over gilt yields (i.e., on a gilts-plus basis).

The two principles that UUK’s proposal fails are Alignment (Principle 3) and Quantum (Principle 7), which are discussed below. However, with a change in the trigger parameters (described below) the Trustee believes that the UUK proposal can be made consistent with both of these principles.

Principle 3. Alignment

“The mechanism for triggering contingent contributions should be sufficiently sensitive to data that could signify that current contributions may not be adequate.

“This means that the mechanism for contingent contributions must be aligned to the underlying reason or concern behind the requirement for contingent contributions, and must lead to a trigger event that reflects that concern at the appropriate time.”

The UUK proposal is not consistent with this principle. This is because it is not well aligned with the Trustee’s key concern which led to the requirement for contingent contributions, namely the concern of short-term reliance risk.

The Trustee has been clear that contingent contributions are a risk-mitigating arrangement to address the risk to short-term reliance. This is required because moving below the Trustee’s Upper Bookend through the implementation of certain of the JEP suggestions introduces additional risk, as has been spelled out at the December 2018 Institutions Meeting and the Consultation Paper. It is important that the trigger mechanism is aligned with increases in short-term reliance risk.

This lack of alignment is evident in two respects:

- (i) Using a TP-based (funding) metric is not completely aligned with addressing this short-term reliance risk, as the self-sufficiency based metric is. However, as mentioned above, this shortcoming can be adequately addressed.
- (ii) The level of the Trigger Threshold that UUK propose (£10bn on a TP basis) is approximately equivalent to £30bn on a self-sufficiency basis. This is outside the risk appetite of the Trustee for short-term reliance. Hence this aspect of the UUK proposal is not aligned with the Trustee's concern for the requirement for contingent contributions, namely short-term reliance risk.

➔ **The conclusion is that the UUK proposal fails Principle 3: Alignment.**

Principle 7. Quantum

"In adverse scenarios in which contingent contributions are triggered, the aggregate quantum of the contingent contributions should be broadly similar to the Trustee's contribution requirement in the absence of contingent arrangements over a reasonable period of time.

"This means that contingent contributions, when triggered in an adverse scenario, should perform a broadly similar improvement role in that scenario to what non-contingent, fixed contributions would have done. There should be no significant detriment to the funding position (relative to fixed contributions) over a reasonable time period after the start of an adverse scenario. Another implication of this principle is that the time lag between a trigger event and the introduction of contingent contributions must not be excessively long."

The UUK proposal is not consistent with this principle. This is because in an adverse scenario the aggregate size of the contingent contributions over multiple years are very much smaller than the size of the excess contributions associated with the Upper Bookend (the contributions in the absence of contingent contributions).

The contingent contribution mechanism proposed by UUK falls short of reaching the Trustee's Upper Bookend even in an adverse scenario. UUK propose a base contribution rate of 29.2% with contingent contributions triggering in adverse scenarios and stepping-up to a maximum of 3%. So the maximum total contribution in an adverse scenario is 32.2%, some 1.5% below the Upper Bookend of 33.7%.

If we take account of the step-up timing, the situation is even worse. In an adverse scenario the contingent contribution amounts payable in the six years after the valuation date are: 0%, 1%, 2%, 3%, 3%, and 3% on top of the UUK base contribution rate (the UUK lower bookend) of 29.2%. Adding these contingent contributions up comes to 12% of salary.

This is to be compared with the Upper Bookend of 33.7%, which is 4.5% higher than the UUK base contribution rate. The contribution rates in excess of the UUK base contribution rate that would be paid by the Upper Bookend over the six years following the valuation date are: 4.5%, 4.5%, 4.5%, 4.5%, 4.5%, and 4.5%. Adding these excess contributions up comes to 27% of salary. This is very much larger than the total of 12% of salary embedded in the UUK proposal.

➔ **The conclusion is that the UUK proposal fails Principle 7: Quantum.**

5.3 The contribution bookends

The Trustee has noted UUK's proposal for changes to the contribution bookends and finds it neither compelling nor consistent with its risk appetite. As a result the Upper Bookend remains at 33.7% of

salary (corresponding to no contingent contributions) and the Lower Bookend remains at 29.7% of salary (with a suitably strong contingent contribution arrangement).

5.4 The contingent contributions parameters

The Trustee finds the following parameters in the UUK proposal inconsistent with its risk appetite:

- The Trigger Threshold that UUK propose (£10bn on a TP basis) is approximately equivalent to £30bn on a self-sufficiency basis. This is outside the risk appetite of the Trustee for short-term reliance.
- The step-up profile for contingent contributions that UUK propose (from 1% to 2% to 3% of salary) is too small to adequately compensate for the increase in risk associated with a reduction in contribution rates from the Upper Bookend.

5.5 An acceptable version of the UUK proposal

The Trustee has identified an acceptable version of the UUK proposal that is consistent with its risk appetite. This involves the following modifications to be consistent with the Trustee's risk appetite:

- A different Trigger Threshold level of **£4bn** instead of £10bn. (Note that the technical provisions deficit on this Lower Bookend gilts-plus basis was £2.2bn on 31 March 2018 – not averaged.)
- A different step-up size for contingent contributions of **2%, 4% and 6%** instead of 1%, 2%, 3%.
- The trigger metric is the technical provisions deficit on a gilts-plus basis, as suggested by UUK, but with the following features:
 - **No annual recalibration** of the gilts-plus spread.
 - The averaging is an **average over 40 consecutive business days**, instead of an average over the previous three month-ends.
 - The technical provisions discount rate that corresponds to this basis is gilts + 1.44%.
- A different trigger event definition. In particular, a trigger event is defined by the trigger metric being above the Trigger Threshold for **40 consecutive business days** (approximately 2 months), instead of UUK's proposal of two quarter ends.

With these changes, the Trustee finds UUK's contingent contribution proposal acceptable and is prepared to implement it based on the contribution rate Lower Bookend of **29.7%**.

References

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