Technical Clarification for USS sponsoring employers:

Discussion Document "Methodology and risk appetite for the 2020 valuation" and Tables 7.1 and A.1

Following further discussions with the Valuation Methodology Discussion Forum (VMDF), this technical note provides additional clarification for employers in relation to the results included in the tables in Section 7 (Table 7.1, page 34) and the analysis in Appendix A (Table A.1, page 45) of our discussion document.

For convenience we reproduce both of these tables below.

The tables in Section 7 are consistent with previous analysis provided by the trustee and assume the Scheme is fully-funded on a Technical Provisions basis in 20 years' time. They assume that contributions would be adjusted on the way to achieving full funding, as the funding position improves over time.

Through the VMDF we were separately asked to model a set of results based on a different approach effectively involving 'over-funding' the Scheme – by paying a constant level of contributions above the level we would need over time – in order to build up a 'capital buffer' to cope with investment returns being lower than expected.

In order to compare these cases, assumptions were required for the investment strategies and expected returns for the two cases, with implications for the underlying discount rates that can be derived from these results. Both sets of results were run on a prudent basis, i.e. the expected returns that have been assumed are not 'best estimate' but lower, prudent returns.

Specifically, the results for the "no derisking case" in the final row of Table 7.1 (page 34) are consistent with an effective discount rate of gilts + 2.23%, which is in turn consistent with the 67th percentile expected investment return, as adopted for the 2018 valuation methodology, on an investment strategy with 65% growth assets.

Table 7.1: 2018 methodology: *Indicative results for Technical Provisions and future service contribution requirements as at 31 December 2019 using the methodology for the 2018 valuation. Figures in 2040 for the self-sufficiency deficit are based on the projected difference between the self-sufficiency liability and the expected level of assets.*

31 Dec 2019 **2018 Methodology**	TP Liability (£bn)	TP Deficit (£bn)	FSC (Future Service Cost)[1]	TP Discount Rate[3] (Gilts+)	FSC Discount Rate[3] (Gilts+)	SS Deficit in 2040 (£bn)	Risk Impact in 2040 (£bn)	Covenant support requirement 2040 (£bn)
2018 valuation result in 2018	*67.3*	*3.6*	*28.7%*	*1.33%*	*1.48%*	*10*	*c. 6*	*c. 16*
2018 methodology (no RPI allowance)	75.5	2.6	30.6%	1.33%	1.48%	11	6	17
2018 methodology (with RPI allowance) [2]	**78.3**	**5.4**	**32.5%**	**1.33%**	**1.48%**	**11**	**6**	**17**
2018 methodology no derisking (with RPI allowance) [2]	66.1	(6.8)	24.2%	2.23%	2.57%	31	17	48

[1.] Future service cost (FSC) is given as a percentage of payroll.

[2.] TP liability and FSC adjusted by assuming a 'gilts+' basis.

[3.] Discount rate expressed as a single rate equivalent for ease of comparison.

The results in Table A.1 (page 45) are not reliant on an effective discount rate of gilts + 2.23%. Table A.1 is compiled from assets as at 31 December 2019 projected forward to 31 December 2040 allowing for:

- Contributions in line with the 2018 valuation schedule of contributions; less
- Benefits payments; plus
- Prudent investment returns on the basis of gilts + 2.5% on the pre-retirement portfolio and gilts + 0.75% for the post retirement portfolio.

As in Table 7.1, the assets have been compared with the self-sufficiency liability in 20 years' time, which has been calculated using a discount rate of gilts + 0.75%, plus an inflation assumption uplifted by an additional 0.5%, as per our approach for 2018. The underlying gilt yield differs in the reversion and no reversion scenarios, leading to different liability values. This provides the **self-sufficiency deficit,** i.e. the difference between the assets and the liabilities calculated on the basis of an investment strategy where the probability of requiring any additional contributions from employers if appropriately funded is c5%.

The risk impact is defined in terms of the VaR of the deficit. As such, it is a function of the mix and amount of assets held, and the self-sufficiency liability.

Table A.1. Preliminary projection results for the current portfolio with no derisking vs. the 'strong' covenant case. *We assuming the current Schedule of Contributions and prudent investment returns for both cases.*

31 Dec 2019	**With yield reversion**			**Without yield reversion**		
	SS Deficit in 2040 (£bn)	Risk Impact in 2040 (£bn)	Covenant support requirement 2040 (£bn)	SS Deficit in 2040 (£bn)	Risk Impact in 2040 (£bn)	Covenant support requirement 2040 (£bn)
2018 methodology no derisking	6	17	23	22	23	45
DDR methodology 'Strong' covenant	10	15	25	25	21	46

For the "DDR methodology" row, we have allowed for the gradual change in balance of the overall asset portfolio between pre- and post- retirement portfolios over time, including an assumed immediate re-alignment from 65% to 55% growth assets, falling to 50% by Year 20. For the "no derisking" row above, the initial portfolio (taken as 65% growth assets) has remained the same over time.

It is therefore the case, for consistency within Table A.1, that the assumed prudent investment return for the no-derisking case is a weighted composite of the two pre- and post- retirement portfolios assumed of gilts +2.5% and gilts +0.75% respectively (see section 6.2, page 31) with an implied effective discount rate of 1.89% (= 0.65x2.5% + 0.35x0.75%) compared to the 2.23% that applies in Table 7.1.

While it is the case that this implies a higher level of prudence than the 67th percentile return used for the 2018 valuation methodology, and the corresponding figures on the SS deficit an risk impact would be different if fully calibrated to the 67th percentile, the over-arching conclusion of this analysis would be the same if we had used a 'best estimate' or another basis. Specifically, and as stated in Appendix A on page 45, while the 'risk buffer' built up over the next 20 years could provide effective risk mitigation by

2040 with sufficiently high contributions, over the short-to-medium term it is higher risk than the 'strong' covenant dual discount rate approach.

It is worth reiterating that at this stage the trustee has not made any decisions on the methodology, inputs and assumptions and the examples included within the discussion document are provided for illustrative purposes to facilitate further discussion with employers. The trustee's consideration of dual discount rates, as part of the 2020 valuation methodology workstream, is ongoing, and requires the relationship between the investment strategy, expected returns, prudence and discount rates to be fully explored and calibrated.

We continue to discuss these issues with UUK and UCU representatives and their actuarial advisors through the VMDF, and have been clear that we are willing to consider alternative approaches to the methodology put forward by our stakeholders provided they are consistent with the principles and considerations set out in section 2.3 of the discussion document, and our legal and regulatory duties as trustee.

17 April 2020