



**Report to the USS paper:
2014 Actuarial Valuation
A Consultation on the proposed
assumptions for the scheme's technical
provisions and recovery plan**

Submitted by UCU

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1 INTRODUCTION

STATUS OF THIS DOCUMENT

- 1.1 This document has been prepared as a response to the USS document “2014 Actuarial Valuation: A consultation on the proposed assumptions for the scheme’s technical provisions and recovery plan”. Whilst the document has been compiled by First Actuarial at the request of UCU, it has been produced as the outcome of a number of internal UCU discussions, earlier responses to papers including the USS paper on de-risking and discussions with USS and UUK and their actuarial advisers. It seemed helpful to have a single source document for all of this material.

CHRONOLOGY OF THE DISCUSSIONS

- 1.2 USS published its approach to the valuation almost a year ago. Initial thinking was developed following the issue of the USS paper “scheme funding within USS: an engagement with Universities UK” in December 2013. This raised issues about the potential increases in the cost of benefits following the 2014 valuation and proposed an approach of derisking within the scheme.
- 1.3 Following this, there were discussions between UCU, USS and the institutions. In July 2014, USS produced a further paper “An integrated approach to scheme funding” which set out three tests which had been developed by USS to analyse scheme risk over time. Opportunities for meaningful consultation on the associated paper were limited. Whilst the three tests have been introduced into the valuation process at a very late stage, USS now claim these are the bedrock on which their valuation methodology is founded and any proposals on future benefits are being measured by their ability to meet the three tests. Similarly when the institutions have raised questions about the specific assumptions used in the valuation, the response has been that changing assumptions mean proposals would not then meet the three tests.
- 1.4 This chronology given above is important in that it demonstrates how, when challenges were made to the original methodology, USS have moved to an insistence that it is the three tests which are important. It should be noted that USS have said on a number of occasions that the tests would be used in a sensible and pragmatic way – the following quotes provide examples:
 - “The tests are a guide and a reference for the trustee and for stakeholders in finding sustainable long-term funding solutions – they are not intended to provide a single and formulaic answer” (in the July document on an integrated approach to scheme funding)

- “The scheme’s stakeholders can be reassured that the trustee’s intention is to use these tools as a reference and as a guide to determine the nature and timing of any response that might be required, rather than to produce prescriptive binary decisions” (in the consultation document on the proposed assumptions)
- 1.5 Despite these statements of reassurance, it is a concern that the three tests are prone to being used in a prescriptive way. So for example in the funding assumptions, it is made clear that the level at which future benefits are set **will** affect the targeted discount rate the trustee will use in the future – which in turn will affect the actual investment strategy.
 - 1.6 And in proposals submitted by UCU on possible ways to change future benefits, USS has indicated that some proposals will and others will not meet the three tests. It has been made clear in discussions that USS are unlikely to support solutions where the tests are not met. (We leave aside here any consideration of whether support from USS is required for a proposal agreed by the JNC.)
 - 1.7 It should be noted that despite the claim to the primacy of the three tests, they do not appear in the draft Statement of Funding Principles which will be the main public document setting out the principles governing scheme funding.
 - 1.8 The October 2014 consultation paper reveals more detail of the trustee’s approach than was previously available. We have conducted the debate as if the trustee’s approach to setting a discount rate is to be used in an “ongoing” valuation. However, it is clear from this paper that the trustee’s focus is on a “self-sufficiency” valuation, which is a proxy for a buy out solvency valuation. These two kinds of valuation (ongoing and self-sufficiency) are not the same, and it has not helped the conduct of the debate that the distinction has not been made clear from the start.

STRUCTURE OF THE DOCUMENT

- 1.9 This document considers first issues around the different approaches to valuations (section 2) then looks in detail at the three tests (section 3) and in particular the discussions on the reliance on the employer covenant (section 4). Section 5 looks at specific details on the assumptions proposed for the valuation. Section 6 considers the scheme from an ongoing point of view and Section 7 considers investment strategy. Sections 8 and 9 consider broader points not covered elsewhere in the document.
- 1.10 At various points, discussion is hampered by a lack of figures in the consultation document and a lack of any broader analysis. Where there is additional data which would shed light on issues, we have raised questions for USS in the course of the document. These are summarised in Appendix A.

2 ONGOING AND SOLVENCY VALUATIONS

ONGOING VALUATION

2.1 The characteristics of an ongoing valuation of a pension scheme are:

- It assumes that the scheme continues to exist.
- The principal purpose is to determine the contribution rate required to pay for accruing benefits and any funding shortfall.
- It is essential to estimate the expected return on the actual and intended investments of the scheme.

2.2 This last point is clear if, instead of planning contributions based on present values, we plan contributions based on a roll forward of assets and liabilities to a point in, say, 50 years' time. It is the return actually earned on the investments which is crucial to determining the contribution requirements.

SOLVENCY VALUATION

2.3 The characteristics of a solvency valuation are:

- It assumes that the scheme terminates.
- How the scheme is invested is irrelevant, it is assumed that the assets are sold and used to purchase annuities.

2.4 The solvency valuation has two close cousins:

- The self-sufficiency valuation, and
- The "economic" valuation.

2.5 All three are very similar concepts, based on minimum risk, low return assets **regardless of cost**.

2.6 The implied absence of a cost constraint is important. The moment a cost constraint is included, the "minimum risk" strategy, when defined as a minimum risk to members' benefits (or minimum risk to the employers' contribution rate) may not be investment in low return assets. It is not safe to assume without examination of the circumstances that switching towards low return investments is the best thing to do.

2.7 A solvency valuation is relevant when a scheme is wound up. A wind up may be triggered voluntarily, in which case the employer needs to ensure it can meet any solvency deficit before acting, or it may be triggered by the employer's insolvency.

- 2.8 Some schemes are too large for the insurance market's capacity to provide annuities, in which case the concept of self-sufficiency comes into play. A scheme without an insolvent employer might be given permission to run on as a closed scheme without a sponsor rather than carrying out one of the two normal statutory options of either joining the Pension Protection Fund or winding up.
- 2.9 The self-sufficiency concept might also apply in the context of an unprofitable but nonetheless solvent employer whose ability to contribute to the scheme is negligible.

INTRODUCTORY DISCUSSION

- 2.10 It seems clear from the October paper that the trustee's focus is on the self-sufficiency concept, seemingly to the exclusion of the ongoing concept.
- 2.11 A key issue in discussions around the valuation has been the role of USS and its individual trustee directors in making decisions on funding. We agree with the statement made by USS in the consultation on the assumptions that "[t]he primary duty of the scheme's trustee is to ensure that there are sufficient funds available to pay the pensions promised, **as they fall due**" (emphasis added).
- 2.12 If this primary duty of the trustee is combined with the results of the employer covenant assessment which the trustee commissioned and which concluded that there is "reasonable visibility regarding the robustness of the covenant over a 20 year time horizon", this would all but demand that the primary focus of the trustee should be on the scheme as an ongoing arrangement for at least 20 years. Nothing in the covenant assessment suggests that the scheme would need to be self-sufficient from the employers in twenty years, indeed the report states categorically: "For the avoidance of doubt, we consider there to be a strong likelihood the covenant will remain robust beyond that period, however visibility/certainty is reduced". In this situation, the concentration by the trustee on self-sufficiency and on any increase in reliance on the employer covenant (as the trustee defines it) seems unwarranted.
- 2.13 To put this another way, the value of the scheme's liabilities as measured on a self-sufficiency basis only becomes relevant if the ability of employers to contribute is nil. For USS, the likelihood of this scenario is extremely small over any given time scale. The Ernst and Young covenant review does not suggest any likelihood of this occurring in the next 20 years.
- 2.14 The most likely outcome, especially given the last man standing structure of the scheme (let's say >99%) is that USS continues to exist as an ongoing scheme, at least collecting contributions from employers, asset income from the scheme's investments, and paying benefits to members – and probably remaining open to new members and collecting ongoing contributions too. The least likely outcome (let's say <1%) is that self-sufficiency becomes USS's basis for operation. And yet the approach used by USS concentrates on the 1% scenario and not the 99% scenario.

THE DIFFERENCE BETWEEN THE TRUSTEE'S DUTIES AND TPR'S DUTIES

- 2.15 For the avoidance of doubt, it is not at all unreasonable for the Pensions Regulator (tPR) to concentrate on the <1% scenario. As the regulator has a duty to protect the Pension Protection Fund (PPF), it is entirely appropriate for them to focus on a scenario where a scheme might call on the PPF. This simply illustrates that there is no community of interest between the trustee and their fiduciary duty to members and tPR and their duty to protect the PPF. Indeed their interests are diametrically opposed – tPR can best fulfil their duty to the PPF by ensuring no further benefits build up whilst the duty of the trustee is to provide benefits as set out in the Trust Deed and Rules.

VALUATION METHODOLOGY AND “DE-RISKING” PROPOSAL

- 2.16 In valuing the liabilities of a pension scheme – the promises it has made to deliver future benefits, a large number of assumptions are needed about matters such as future inflation and mortality. A key driver is the discount rate used – that is the assumption about how assets will grow in the future. The lower the discount rate used, the more money is needed to provide the same future benefits. In discussions we have tended to use the phrase “valuation methodology” to mean this key discount rate driver.
- 2.17 Whilst recent discussions have focussed around the three tests proposed by the trustee, it is still important to have a clear understanding of the initial more traditional approach to the valuation suggested by the trustee. UCU have been engaged in a lengthy and detailed discussion around this. In particular, UCU have criticised the approach taken by the trustee to both the discount rate set for funding and the way in which this is being allowed to dictate the investment strategy.
- 2.18 In some forums (for example the “myths” document issued by the Employers Pension Forum) it has been suggested that there may be an accusation that the trustee is manipulating the assumptions to artificially create a large deficit. It is worth making clear that the approach being taken by the trustee is not an unusual one and indeed may be quite reasonable for a scheme which is closed to accrual, has a weak employer and is aiming to get to a position where it can buy out benefits. (A position which does reflect the position of a large section of UK pension funds – and one reason why comparisons between USS and the approaches used by other schemes are unhelpful). The point is that USS is not in this situation. Large open schemes with strong employers do not need to take this approach to valuations – the most common examples of such schemes are the public service schemes. Needless to say these schemes do not take the approach being suggested by USS.

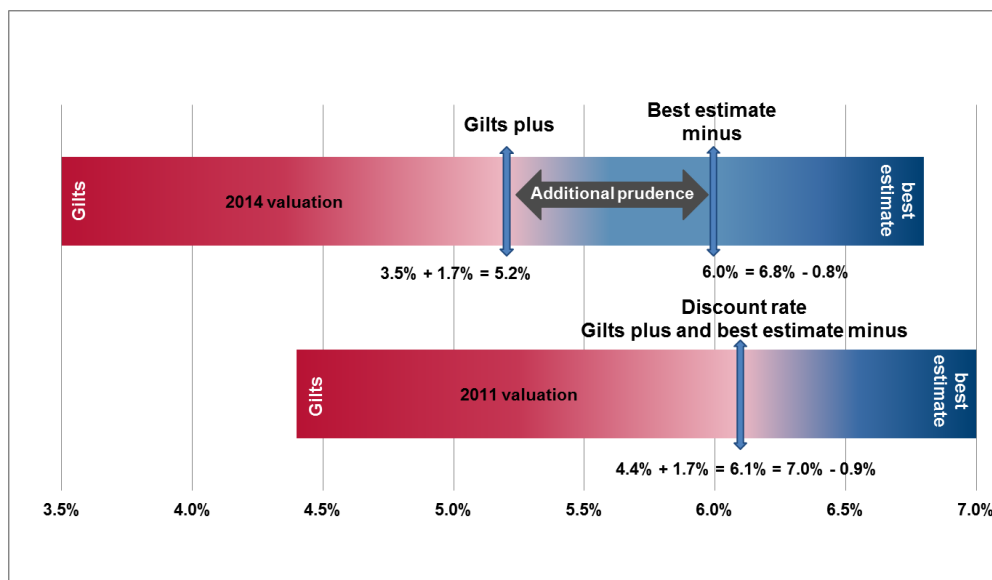
RELIANCE ON COVENANT AND PRUDENT MARGIN

2.19 It has become clear from the October 2014 report and the letter of 17 October that the trustee has defined the term “reliance on covenant” in a very narrow way. The trustee is using the term very specifically to mean the difference between their self-sufficiency value and the technical provisions.

2.20 A more natural use of language would result in the term “reliance on covenant” including at least the following:

- The amount of the assets relative to the best estimate value of liabilities. The greater the difference, the less likely it is that the employer will be required to pay additional contributions, or the smaller the additional contributions might be.
- Contingent assets.
- The ability of the employer to contribute.
- The ability of the employer to remain solvent.

2.21 We have discussed before with the trustee the range of liability values between best estimate and a gilts basis, with technical provisions falling somewhere between.



2.22 The trustee is defining:

Reliance on covenant = Self-sufficiency value – technical provisions

Prudent margin = Technical provisions – best estimate

- 2.23 These are not two independent concepts, they are two parts of the same range of values.
- 2.24 The trustee is determined that the “Reliance on covenant” amount must not increase in real CPI terms. But if the range of values between self-sufficiency and best estimate has widened (and it has) a static “reliance on covenant” amount means a wider “prudent margin” amount. A wider prudent margin means less likelihood of the employer needing to make additional contributions and less actual reliance on the employer’s covenant, when using a sensible intuitive definition of the term.
- 2.25 By focussing exclusively on the self-sufficiency end of the spectrum, the trustee risks losing sight of important information on the size of the prudent margin.
- 2.26 The trustee also risks being unable to evaluate whether its proposed actions based on its self-sufficiency based target are proportionate in light of an ongoing view of the scheme.
- 2.27 In order to choose between a self-sufficiency based view and an ongoing view, the trustee needs to evaluate both positions.
- 2.28 It is important to note that with a multi-employer last person standing scheme like USS, the chances of involuntary termination are very remote and it would seem sensible to include an ongoing type approach in the trustee’s thinking, alongside the self-sufficiency based thinking.

3 THE THREE TESTS

- 3.1 Before examining the tests, it is important to note our understanding that in applying the three tests, USS have adopted the same demographic assumptions used in the valuation.
- 3.2 Many assumptions which would little impact on the valuation results (for example the number of members leaving or transferring their benefits out) could have a very significant effect in the results of modelling of risks 20 years into the future. In applying the tests, the assumptions used in the valuation should be replaced with best estimate assumptions.
- 3.3 Whilst wider consideration should be given to all the assumptions, the ones we would suggest as definitely requiring best estimate approaches for the modelling are:
- Withdrawals
 - Transfers out
 - Commutation for an additional lump sum at retirement
 - Actual retirement ages based on past experience
- 3.4 In addition, there are other issues which should be reflected in the modelling, in particular:
- The rise in Normal Pension Age to be linked to future increases in State Pension Age (“SPA”) on future accruals
 - The impact of the flexibilities introduced in the 2014 budget for DC schemes and likely impact of these for the USS – requests for transfer values and trivial commutations.

TEST 1: BENEFIT SECURITY AND ADDITIONAL CONTRIBUTION COVER

Q. Why is 7% of salaries the “in extremis” scenario?

- 3.5 Having closed the final salary section to new entrants, in the long run the majority of USS members will be in the CRB section, meaning that the “in extremis” scenario would be $(25\% - 19.2\%) = 5.8\%$, 19.2% being the CRB contribution rate as set out in USS’ consultation paper. In fact, the true representation of the “in extremis” scenario is one in which employers can no longer afford defined benefit provision, there is no benefit accrual, and where all 25% of employer contributions go towards improving funding (accepting that for some employers, 21% might be the potential maximum). Self-sufficiency is an exceedingly remote scenario (<1%), so only allowing for 7% salaries in this scenario is inconsistent with its extremeness.

- 3.6 The trustee should also explore the >99% scenario that USS continues as an ongoing scheme and perform some analysis on this more likely basis, rather than focusing on extremes such as positions of self-sufficiency.

TEST 2: STABILITY OF CONTRIBUTIONS

- 3.7 From the Ernst & Young covenant review, we know that the covenant of USS employers is visibly robust for the next 20 years. It is likely to remain robust beyond 20 years, though over a longer time period this is less visible. The 3 year inter-valuation period is an immaterially short time horizon over which to assess the variability in employer contributions. A 20 year time horizon would be much more suitable for the USS.
- 3.8 By setting up the valuation discount rate to reference gilt yields, an analysis of 3-year contribution volatility simply amounts to a complicated way to examine how the equity and gilt markets might move relative to each other over the next 3 years.
- 3.9 Based on our analysis, it is expected that the USS cashflow will remain positive for around the next 20 years. In this case, a fall in market value would actually be beneficial, not harmful, to USS. While the scheme is cashflow positive, there is no requirement to disinvest assets so a fall in market value is of little concern to the scheme and assets can be purchased more cheaply. Test 2 would misrepresent an equity market value fall as harmful, not beneficial.

TEST 3: BENEFIT SECURITY AND THE ASSET BASE OF THE PARTICIPATING EMPLOYERS

- 3.10 Test 3 focuses on the reliance on the employers' covenant, and the trustee's principle that this level of reliance should not increase over time. In test 3, the level of reliance on the employer covenant is calculated by comparing the net asset value of the sector to the USS deficit (calculated on a "self-sufficiency" basis, using discount rates equal to the yields on gilts) and allowing for an amount required to meet a tail risk (calculated in probabilistic terms). The majority of USS' assets are not invested in gilts. The decision on the degree of investment de-risking that is appropriate is based on a deficit calculated solely with reference to the yield on gilts. There is a fundamental mismatch in this – the deficit as measured using a gilts-based discount rate is of low relevance for a scheme expected to last for a long while, where the majority of assets are not invested in gilts. Information about non-gilt markets is not included in the decision making, which is very odd when the task is to choose between investments.

- 3.11 It is known that the employers' covenant is visibly robust for the next 20 years, in terms of their ability to contribute. The likelihood of problems with employers' ability to remain solvent is much more remote than for problems with their ability to contribute. Given the assessment of covenant carried out by Ernst & Young, there is no likelihood of the scheme needing to be self-sufficient on a low risk/low return investment basis at any point over the next 20 years. Against this background, the Value at Risk ("VaR") on a 1-year time scale is of no relevance. A comparison of the scheme's liabilities on an economic basis (i.e. the cost of providing the benefit on a risk free basis) and the employers' net assets is of no relevance to ongoing scheme funding. This may be something that the trustee wishes to include on their risk register as it may be of interest, but it has no place in discussions around scheme funding.
- 3.12 This might be relevant if, for example, the employers were at imminent risk of insolvency, or if there were an intention to move all the assets to gilts in the next year. Neither of these apply.
- 3.13 Test 3 is very different to the other tests and does seem rather "out of place" in discussions on the funding valuation. If the trustee believes it has any real value, we would suggest it be included in the risk register and removed from discussions on funding.

4 RELIANCE ON THE COVENANT

- 4.1 The reliance on the employers' covenant is a bigger concept than the narrow definition adopted by the trustee. In this section, we take the trustee's definition as it is, and the purposes to which it appears to be put, and provide our analysis.
- 4.2 The consultation paper on the actuarial assumptions contains a written description of the trustee's approach but, by and large, does not provide the numbers. It would have been helpful had the write up been illuminated with numbers and analysis as it went along. In what follows, we hope we have chosen numbers suitably. Given more time a more detailed analysis would have been possible but the consultation document was only received by UCU on 31 October 2014..
- 4.3 The trustee's measure of the reliance on the covenant of the employers is the value of the liabilities on a self sufficiency basis less the value of the liabilities on the technical provisions basis (page 11). The self sufficiency liabilities have been projected for 20 years (page 12). There is a reference to a median outcome, which seems to imply that stochastic modelling (multiple runs of randomly generated scenarios) has been done. The trustee's requirement is that there is no increase in the reliance on the covenant in real CPI terms. Technical provisions are set as self sufficiency liability less the reliance on covenant. The discount rate for technical provisions in 20 years' time is chosen to produce this number.
- 4.4 The outcome of the work done for the trustee is that the reliance on the covenant statistic widens over the 20 years, and to close the gap on the self sufficiency liability, the discount rate for technical provisions needs to be reduced.
- 4.5 This is a counter-intuitive outcome in a scheme which is expected to reduce in size (per points 1 and 2 below). One part of the explanation could be that making a judgement at the 20 year point is premature (point 3). There are some important points to make about the construction of the reliance on the covenant test.

1. In 2011, USS introduced the CRB section for new entrants. The 2011 valuation costed the final salary section at 19.9% of salaries and the CRB section at 11.3% of pensionable salaries. The 2014 valuation puts the costs at 30.3% and 19.2% respectively. These are not directly comparable as the CRB members are average be younger (and hence cheaper to provide for) than members of the final salary section. Adjusting the contribution rates for this point would suggest that the new CRB section provides benefits of around three-quarters of the size of the final salary section. Also note that future changes in State Pension Age (SPA) will change the retirement age at which future USS benefits accrue (to both final salary and CRB members) – further reducing the level of future benefit accrual. With the passage of time, USS will decline in relative size, as final salary benefits at ages 60 to 65 gradually stop accruing and are paid out, leaving only CRB benefits accruing at a higher retirement age. All other things being equal, one can expect USS to become smaller relative to the size of the employers and so place a smaller reliance on the employers' covenant (using this phrase in a general sense, not as specifically defined by the trustee).
2. It is notable that the active membership of the scheme has increased markedly from 136,247 in 2011 to 167,545 in 2014. To the extent that the increase in membership reflects growth in the employers, the long run size of the scheme relative to the employers is not affected. To the extent that the increase in membership reflects increased take up (perhaps associated with auto-enrolment), the scheme's long run size may grow relative to the size of the employers. Unless the growth in membership is repeated in future years, the combination of this point and the first is that the scheme will fall in size relative to the size of the employers.
3. The time scale of the evolution of the scheme is long. It will take 40+ years for final salary benefits (if left unchanged) to stop accruing, and 75+ years for them to stop being paid. Note in particular that a key metric used by USS - the scheme's size relative to the employers in 20 years' time - is not a long enough time horizon to fully capture the beneficial effects of the switch from final salary to CRB, so care needs to be taken not to judge the 2011 benefit changes as being insufficient to manage the size of the scheme on the basis of the position in 20 years' time.

- 4.6 The reconciliation of the technical provisions and self sufficiency liabilities is given on page 35. Combining this with the effect of changing the technical provisions assumptions over 20 years quoted on page 36, the technical provisions before these changes would be;

| | |
|---|----------------|
| Technical provisions (before amendment of assumptions) | £49.5bn |
| Reduction in TPs discount rate over 20 years | +3.6bn |
| Reduction in inflation risk premium over 20 years | +0.8bn |
| Technical provisions (with phasing in of amended discount rate and inflation risk premium from year 20+) | £53.9bn |
| Removal of salary link | -£6.8bn |
| Removal of inflation risk premium | +£1.0bn |
| Change in discount rate | +£8.0bn |
| Self sufficiency basis liability | £56.1bn |

MIGRATION FROM FINAL SALARY TO CRB BENEFITS

- 4.7 The first important point to note is that the change over from final salary to CRB will increase the gap between the technical provisions and self sufficiency liabilities, as the “removal of salary link” item in the reconciliation reduces to zero.
- 4.8 The 2011 benefit reduction reduces the reliance on the employers’ covenant (using the term in a general sense) because the accruing benefits are smaller in value (about 3/4 of the value of the final salary scale).
- 4.9 However, the reliance on covenant metric “self sufficiency value less technical provisions” increases as the proportion of final salary related benefits in the technical provisions decreases. This is a perverse outcome in the reliance on covenant metric, it is constructed to give the opposite result to reality.
- 4.10 The problem can be corrected by changing the reliance on covenant metric to “self sufficiency value less the value of leavers’ benefits on the technical provisions basis”. The employers’ legal commitment is not to final salary related benefits, which depend on the scheme continuing to maintain the linkage to final salary, but to leavers’ benefits (replacing the salary link with CPI increases).
- 4.11 Were the scheme funded on either the Current Unit Method or the Defined Accrued Benefit Method, the benefits valued in the balance sheet would be the leavers’ benefits, not final salary related benefits. By using the Projected Unit Method, the value of the link to final salary is included in the balance sheet, which raises the funding target. It would be perverse for the prudent adoption of a higher funding target (by choosing the Projected Unit Method over the Current Unit method and the Defined Accrued Benefit Method) to result in a more restrictive “reliance on covenant” metric.

CPI INDEXATION OF THE RELIANCE ON COVENANT AMOUNT

- 4.12 The ability of the employers to support the scheme can be expected to grow more or less in line with growth in the economy. Growth in the economy is needed to support increases in salaries and increases in dividends from UK equities.
- 4.13 The assumption for general salary growth in the consultation paper is RPI + 1% pa, it is inherent in the assumptions that the financial success of the employers will support this.
- 4.14 In previous correspondence in which the expected return on UK equities has been discussed with the trustee, the opinion of the USS investment team for the best estimate rate of growth in UK equity dividends was given as RPI + 0.5% pa (letter of 25 July 2014 from USS to UCU).
- 4.15 There is a need for actuarial assumptions to be mutually consistent. The implication of these two opinions is that salaries will take an increasing proportion of wealth in the economy and dividends a decreasing proportion, which seems unlikely.
- 4.16 We will discuss the actuarial assumptions in greater detail elsewhere. For the purpose of this section, we will say that the ability of the employers to sponsor the scheme can be expected to grow in line with RPI + 0.5% pa (being the provided opinion about the rate of economic growth in the UK passing through to dividends) and leave aside the higher assumption for general salary growth of RPI + 1% pa (which gives an alternative view of the economic success of the employers and their ability both to pay salaries and to support the scheme).
- 4.17 Indexation of the reliance on covenant amount by CPI is inadequate. By inflating for prices only, it preserves the state of the economy in 2014, but makes no allowance for economic growth over the following 20 years. In 2034, the employers, with another 20 years of economic growth behind them, may have a higher ability to support the scheme than they had in 2014.
- 4.18 The projections of the scheme's benefits includes allowance for general salary growth at RPI + 1% pa. By projecting the "reliance on covenant" figure at CPI only it will, by the construction used, become a decreasing proportion of the value of the liabilities, which have higher rates of projection within them, all other things being equal. Technical provisions, because they are set as "self sufficiency value less reliance on covenant amount" will become an increasing proportion of the self sufficiency amount, which in turn will require a lower technical provisions discount rate.
- 4.19 This unfortunate effect is built into the construction of the "reliance on covenant" indicator, the apparent problem it flags is not that the benefits of the scheme are too high or the investments too risky, only that the indicator itself is flawed.

THE UNRELIABILITY OF THE DIFFERENCE BETWEEN TWO LARGE NUMBERS

- 4.20 The reliance on covenant metric is the difference between two similar large numbers, which makes it very sensitive to small changes in either of the large numbers.
- 4.21 For example, the reliance on covenant, as the trustee defines it, is perhaps in the region of £6.6bn at the valuation date (we wish the report had been populated with numbers). There is a change of inflation risk premium assumption between the technical provisions basis and the self sufficiency basis which affects the liability numbers by £1.0bn, which is less than 2% of either of the technical provisions and self sufficiency values. But this change affects the opening position for the reliance on covenant, as the trustee expresses it, by increasing it from £5.6bn to £6.6bn, a large change. A small adjustment to one of the assumptions in either the technical provisions basis or the self sufficiency basis but not both (and some changes are under discussion now between the parties), could change the difference between them greatly.
- 4.22 The two large numbers may have been generated by stochastic modelling (this is an inference from the reference to a median outcome of modelling). We would like to say that stochastic modelling is very unreliable, different organisations' models differ greatly from each other, and the distribution of modelled outcomes may not look much like the distribution of historical outcomes. We do not think that the difference between two large numbers generated by stochastic modelling provides a firm foundation for decision making.
- 4.23 The consultation paper makes strong statements about the "reliance on covenant" number. The strong principle in the paper is that the "reliance on covenant" number must not be allowed to increase. If the reliance on covenant figure does increase, the technical provisions discount rate must be reduced to restore it to the target amount, the investments changed to lower return investments to follow the lower discount rate, and the benefits cut. These are very strong actions to be taking in direct response to an unreliable number. The number is not firm enough for this much weight to rest upon it. At best, the reliance on covenant is an indicator, but no more than that. It is not firm enough to use to drive significant changes in investment strategy and benefits.

ABILITY OF THE EMPLOYERS TO SUPPORT THE SCHEME

- 4.24 It has been identified by the trustee's covenant adviser that the employers' contribution rate could stretch to 25% of pensionable salaries, 7% more than the planned 18% contribution rate. The employers' covenant is determined to be robust and visible for 20 years.
- 4.25 Pensionable salaries are £7,159m. The present value of 7% of salaries, payable for 20 years, valued using technical provisions assumptions for the discount rate and salary growth rate, is £9.9bn.

- 4.26 The “in extremis” scenario is that accrual in the scheme would end and the whole of the employers’ contributions would go towards improving the funding of the scheme. Potentially there is up to £35bn support for the scheme from 20 years’ contributions of 25%. Granted this is an extreme scenario, but planning for self sufficiency is also planning for a very extreme scenario. The territory being planned for is extreme territory, and extreme solutions need to be looked at in this context.

INTERACTION BETWEEN “RELIANCE ON COVENANT” INDICATOR AND BENEFITS

- 4.27 It may be helpful to work with some round numbers to illustrate the dynamics of using the reliance on covenant figure to drive a decision on benefits:

| | |
|--|--------|
| Self sufficiency value in 20 years time projected to be | £150bn |
| Technical provisions value in 20 years time projected to be | £136bn |
| Reliance on covenant on the trustee’s definition | £14bn |
| Limit on reliance on covenant in 20 years time is $£6.6bn \times 1.028^{20}$ | £11bn |

- 4.28 To bring the scheme into line with the reliance on covenant limit, requires the self sufficiency and technical provisions values come down by one fifth (in other words, the benefits are cut by one fifth) in order that:

| | |
|--|--------|
| Self sufficiency value in 20 years time projected to be | £120bn |
| Technical provisions value in 20 years time projected to be | £109bn |
| Reliance on covenant on the trustee’s definition | £11bn |
| Limit on reliance on covenant in 20 years time is $£6.6bn \times 1.028^{20}$ | £11bn |

- 4.29 It seems extraordinary that the trustee is suggesting the small difference between two large numbers should be managed by changing both large numbers, where changing the large numbers means large changes to the members’ benefits and/or the investment strategy. The reliance on covenant metric is not an absolute rule, it is an invented indicator of a size which is open to debate. A debatable number should not drive such large decisions.

INTERACTION BETWEEN “RELIANCE ON COVENANT” INDICATOR AND INVESTMENT STRATEGY

- 4.30 Again it can be helpful to use some round numbers to illustrate the dynamics of using the reliance on covenant figure to drive a decision on the discount rate:

| | |
|--|--------|
| Self sufficiency value in 20 years time projected to be | £150bn |
| Technical provisions value in 20 years time on 5.2% discount rate: | £124bn |
| Reliance on covenant on the trustee’s definition | £26bn |

| | |
|--|--------------|
| Limit on reliance on covenant in 20 years time is £6.6bn x 1.028²⁰ | £11bn |
|--|--------------|

- 4.31 To bring the scheme into line with the reliance on covenant limit, requires the discount rate to be reduced to 4.6%, in order that:

| | |
|--|---------------|
| Self sufficiency value in 20 years time projected to be | £150bn |
| Technical provisions value in 20 years time on 4.6% discount rate: | £139bn |
| Reliance on covenant on the trustee's definition | £11bn |
| Limit on reliance on covenant in 20 years time is £6.6bn x 1.028²⁰ | £11bn |

- 4.32 It seems very odd that a mathematical device should be used to infer that the discount rate should reduce and then, following on from that, the investment strategy should change to follow the discount rate change. The reduction in the discount rate is a paper exercise in arithmetic. It does not bring any insight which should influence the investment strategy, let alone dictate it. This seems to be an inappropriate way of setting about the investment management of the scheme.
- 4.33 The letter of 17 October from USS to UCU said, at the top of page 2, "The trustee agrees with you that the valuation methodology, should not drive the investment policy, and the trustee is not "changing the investment strategy to fit the valuation methodology".
- 4.34 Notwithstanding this assurance, on our reading of the October report it seems very clear that the valuation methodology is driving the investment strategy. It appears to us that the trustee has determined that:
- Technical provisions must not be more than a fixed margin less than the self sufficiency value
 - The discount rate for technical provisions is set to ensure this is the case.
 - The investment strategy is altered to follow the discount rate.
- 4.35 The reference later in the same paragraph to "mutually consistent targets for the discount rate and the investment strategy over the longer term" is achieved by altering the investment strategy to fit the discount rate, not the other way around.
- 4.36 In the same paragraph, the letter of 17 October says, "The trustee is taking an integrated approach to the scheme's funding and investment strategies..."
- 4.37 In the context of a scheme such as USS which is highly likely to have a long term, ongoing future, and is mostly invested in other kinds of assets than gilts, we think that a valuation methodology which does not incorporate income and market value information from non-gilt markets cannot fairly be said to have achieved an integration of its funding plan with the investment strategy.

CONCLUSIONS

4.38 The “reliance on covenant” test proposed by the trustee appears to be the foundation of the its strong demands for lower risk/lower return investment and lower benefits. The measure, as proposed by the trustee, is deeply flawed, for the following reasons:

- The opening amount, of perhaps £6.6bn, is much less than the available support from the employers which, following the covenant advice, can be relied upon to be £10bn over 20 years. In extremis, the available support is up to £35bn (see paragraph 4.26).
- The reliance on covenant calculation is unsound:
 - It is structured to worsen with time as there is turnover from the final salary to the CRB sections
 - It is inadequately inflated to reflect the potential for economic growth built into the projection of the liabilities
 - It is the unreliable difference of two large numbers

4.39 Some of the flaws can be fixed:

- The opening amount should be the self sufficiency liability less the value of leavers’ benefits on the technical provisions basis.
- The opening amount should be indexed by (at least) RPI + 0.5% pa, representing the prospects for economic growth and reflecting the opinion about UK equity dividend growth given by the USS investment team.
- The assumption for general salary growth in technical provisions should not be higher than the assumptions for projecting the reliance on the employers’ covenant.

4.40 Having calculated the “reliance on covenant” figure in a more appropriate manner, its status should be no higher than an indicator of a need for opening a discussion, as befits an unreliable number which is the difference of two large numbers. It should not be directly incorporated into the setting of the technical provisions discount rate. It should not be a force for change in the investment strategy or the benefit design.

Q1. Please would the trustee provide further information as follows?

Figures to illuminate the text of the consultation paper, giving the results of your analysis as originally prepared.

A reworking of the analysis, on the premise that reliance on covenant indicator is amended as described, to include the revised technical provisions basis, valuation results and the implications for benefits and investment strategy.

THE EFFECT OF CHANGES TO FUTURE BENEFITS

4.41 The following paragraphs consider the material on page 15 of the consultation paper under this heading. In the bottom paragraph, there is an indication that the two actions 1) replacing the link to final salary with indexation to CPI, and 2) a reduction in benefit accrual worth 8% of pensionable salaries, would enable the ultimate discount rate to rise by 0.15%.

Q2. Unfortunately, there are no numbers to further and explain and illuminate the dynamics of what is happening here. Please would the trustee provide the numbers to go with the words?

4.42 We have attempted our own analysis. The technical provisions are £53.9bn. Pensionable salaries are £7.16bn. The present size of the scheme is 7.5 times pensionable salaries. This ratio helps to give a feel for the size of the scheme relative to the pensionable payroll, it works regardless of the size of the scheme.

4.43 The suggestion is to reduce benefits to the value of 8% of salaries which, over the 20 year period of projection, amounts to a saving of 1.6 x salaries. (The salary growth rate and discount rate are nearly equal, so inflating for salary growth and discounting very nearly self cancel.) Terminating the final salary link saves £6.8bn, equivalent to 0.9 x pensionable salaries.

4.44 A mature scheme would accrue new benefits as fast as it paid them out. Over the 20 years of projection, the scheme may grow a little as final salary benefits continue to accru. For an approximate analysis, it suffices to suggest that the size of the scheme in 20 years' time might still be in the region of 8 times the then pensionable salaries.

4.45 The suggestion of the paper is that a saving on benefits of 2.5 x salaries, which is nearly one third of the approximate size of the scheme unamended, would lead to a change in the discount rate of 0.15% pa. Changing the discount rate by 0.15% pa would change the value placed on benefits by 3%.

4.46 It seems odd that the value of the benefits should be allowed to determine the discount rate at all. Having set one up it seems odd that the connection should be so tiny. If the scheme is reduced in size by nearly 1/3, surely the trustee can relax the technical provisions by more than 3%? The scheme is substantially smaller relative to the employers' ability to sponsor it.

5 SPECIFIC VALUATION ASSUMPTIONS PROPOSED BY USS

MUTUAL CONSISTENCY OF ASSUMPTIONS

- 5.1 The assumptions for expected investment returns, discount rate and salary growth may all say something about the prospects for economic growth. Therefore they need to be mutually consistent in their messages, subject to the taking of prudent margin(s).
- 5.2 On page 29, the best estimate return on assets is given as gilt yield + 2.75%, but a break down of the overall return between the main asset classes is not given.
- 5.3 The prudent discount rate of gilt yield plus 1.7% pa is explained by Mercer as comprising:

| Broad asset class | Allocation | Prudent return |
|-------------------|------------|--------------------------|
| Equities | 72.8% | Gilt yield + 2.25% |
| Debt | 5.5% | Gilt yield + 1% |
| Gilts | 21.5% | Gilt yield |
| Total | | Gilt yield + 1.7% |

Therefore the trustee's assumed best estimate return on equities cannot be more than gilt yield + 3.7%, on the premise that the difference in prudent and best estimate expectations relates wholly to the equity markets, as set out in the table below:

| Broad asset class | Allocation | Prudent return |
|-------------------|------------|---------------------------|
| Equities | 72.8% | Gilt yield + 3.7% |
| Debt | 5.5% | Gilt yield + 1% |
| Gilts | 21.5% | Gilt yield |
| Total | | Gilt yield + 2.75% |

- 5.4 The yield on gilts is 3.5% pa, so the best estimate return on equities cannot be more than 7.2% pa.
- 5.5 The expected return on an asset is the "internal rate of return", being the rate of return which values the income from the asset at its market value. The yield on gilts is the internal rate of return on gilts, by another name.
- 5.6 For UK equities, the internal rate of return can be constructed by compounding together the current dividend yield (3.41% on the valuation date), the assumption for RPI and an assumption for real dividend growth.

- 5.7 The prudent assumption of gilt yield + 2.25% = 5.75% equates to a real dividend growth assumption of minus 1.26% (3.41% dividend yield + 3.6% RPI assumption – 1.26% = 5.75%). It is an exceedingly prudent assumption to imply that real dividends fall by 1.26% pa ad infinitum. This prudent margin seems excessive in a scheme with employers of impeccable covenant.
- 5.8 The best estimate assumption of gilt yield + 3.7% = 7.2% equates to a real dividend growth assumption of 0.19% pa (3.41% dividend yield + 3.6% RPI assumption + 0.19% pa = 7.2%). It seems on the low side of best estimate to suggest that dividends barely increase in real terms. Historical real dividend growth has been 1.4% pa over RPI. In previous correspondence with USS, in a letter to us of 25 July 2014, the opinion of the investment team about real dividend growth was given as 0.5% pa over RPI.
- 5.9 The assumption for general salary growth is RPI + 1.0% pa.
- 5.10 Economic growth feeds the ability to pay higher salaries and pay higher dividends. Within the assumptions is an implication that salaries will in future take a higher proportion of wealth than capital, which seems unlikely. It seems there is scope to adjust these assumptions to bring them into better alignment with each other.
- 5.11 For example, the assumption for general salary growth could be reduced to RPI + 0.5% pa, and the prudent and best estimate returns on equities both raised by 0.3% pa, to bring all three assumptions into line with the investment team's best estimate of UK equity dividend growth, while maintaining the difference between the prudent and best estimate return on equity assumptions.
- 5.12 As they are, the assumptions do not appear to be quite consistent with each other.

ISSUES ON BASIS RAISED BY AON HEWITT

- 5.13 We are aware that AON Hewitt have challenged the proposed assumptions put forward by USS for:
- the RPI/CPI gap where they have suggested a best estimate gap of 1% might be used, and
 - The inflation risk premium where they have challenged the need to reduce the assumption from 0.2% to 0.1% beyond year 20
- 5.14 We believe these are reasonable points to raise and ones which USS should consider. UCU would strongly support:
- The use of a best estimate gap of 1%, and
 - The maintenance of a 0.2% level of inflation risk premium.

5.15 It was also noted that it would be helpful if USS could share the outcome of the analysis they have completed of the demographic experience in the scheme.

Q3. Please would USS provide full details of all the demographic experience analyses they have completed?

RECOVERY PLAN

5.16 In light of:

- the robust covenant, visible for 20 years, and
- The likely net positive cash flow for a similar period, so the scheme has no particular market related risks arising over the same period, when viewed as an ongoing entity

we see no good reason for the deficit recovery period being less than 20 years. This is especially the case given the exceedingly prudent approach which the trustee is seeking to take in the discount rate and the investment strategy.

5.17 Regarding the possibility of making an assumption for an additional return from the assets in excess of the discount rate during the deficit recovery period, we note that making such an assumption would be normal in the context of a particularly high technical provisions target.

6 AN ONGOING VIEW OF THE SCHEME

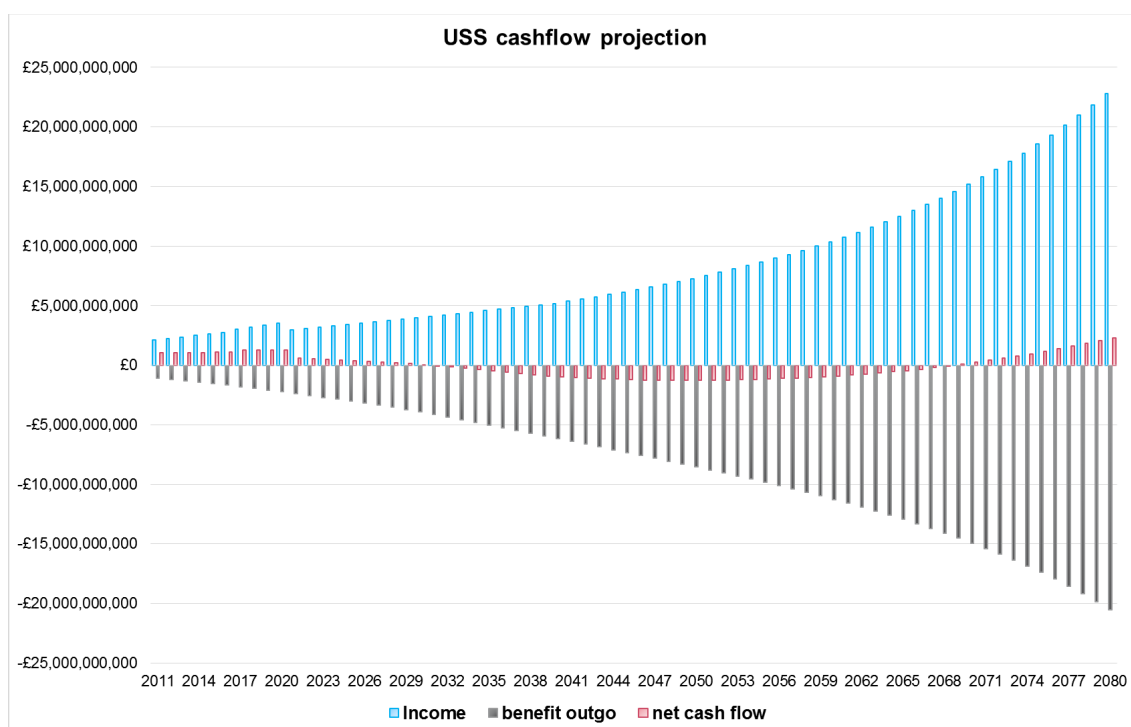
6.1 In this section, we introduce some ideas on the planning of the scheme as an ongoing entity.

CASH FLOW PLANNING

6.2 It is very illuminating to project the cash flows of an ongoing scheme: not just the liability outgo cash flows, but also the asset income. The net cash flow position illustrates the magnitude and direction of market value based risks. When there is net income, low market values are good because assets are being purchased more cheaply, and conversely when there is net outgo.

6.3 A defined benefit scheme which is open to new entrants and has matured to a steady state position may have broadly neutral net cash flow. The contributions to benefit accrual plus the income from the assets can meet the benefit outgo. Benefits can be paid from the income without any need to sell assets. A prudently funded scheme in steady state could expect to have permanent positive cash flow, if contributions are not reduced on account of surplus.

6.4 The chart below shows the (very approximately) modelled cashflow position of USS for the next 70 years, starting from the 2011 valuation (2011, not 2014, because we prepared this work before the October report was published). The undiscounted numbers on the chart increase with inflation. Of course, the cash flows are invented, they have been designed to fit the USS benefits, have been constructed using the 2011 valuation assumptions, they discount to the 2011 valuation result and show the right sensitivity to the discount rate.



- 6.5 The red bars show the difference between the projected income (contributions, income on assets) less benefit outgo – that is the net cashflow position, which is positive for a period of just over 20 years.
- 6.6 Given the change to benefits introduced in 2011, the chart shows an intermediate negative cashflow position where benefits are being paid are mostly from the final salary section but contributions in are lower given the reduction in the cost of accrual under the CRB section. The scheme is then projected to return to a positive cashflow position in the very long-term, as would be expected, once it settles into a prudently funded steady state with benefits accruing in the CRB section.
- 6.7 While the net cash flow is positive, there is no need to sell any assets and therefore no disinvestment risk to the USS. Low market prices are beneficial during this 20+ year period of positive net cash flow, so a measure of risk which suggests a market fall is a problem would be giving a wrong message.
- 6.8 While there is no requirement to sell assets, volatility from market value fluctuations is not a concern for the USS: the main concern is the volatility in asset income. Measures of risk and funding level which are market value sensitive, as opposed to asset income sensitive, are likely to be inappropriate in this context and should be given little attention.
- 6.9 In the period of net outgo, the annual amount of outgo as a proportion of the assets of the scheme is small, less than 1% of the liabilities pa. Short term market value volatility, although not of zero importance, is not of great importance. The net outgo could be planned for by holding a portfolio of bonds designed to generate the additional income needed to pay the outgo without a forced sale of any assets.
- 6.10 In the >99% likely scenario of USS continuing as an open scheme sponsored by employers with a robust covenant, the issue of very high relevance is the rate of growth of asset income. Income uncertainty, not market value volatility, is the key issue for the scheme.

- Q4. What studies have been done to investigate asset income uncertainty?
- Q5. What cash flow planning has the trustee done to investigate their exposure to disinvestment risk and asset income volatility?
- Q6. What has the trustee done to plan their investments to meet the expected liability cashflows?
- Q7. We would ask the trustee to engage with their in house investment team to discuss the nature of the scheme's asset income: its dependability (or otherwise) and prospects for income growth. Page 11 of the consultation document mentions a projection of the scheme's cashflows. We would ask that the trustee share their cashflow projections to enable an analysis of the USS from a cashflow position on an ongoing basis.

ONGOING VALUATION TECHNIQUE

- 6.11 In the >99% likely scenario of USS continuing as an open scheme sponsored by employers with a robust covenant, a good way to plan the contribution needs of the scheme is as follows.
- 6.12 The long run issue is the growth of asset income. A scheme which is open to new entrants has little need to buy assets (unless its membership is increasing) or to sell them (unless the membership is declining or the benefits have been cut). A valuation which plans for the >99% likely long term ongoing scenario would:
- Estimate the income expected from the assets (prudently, for a SFO valuation).
 - Because the assets must be shown at market value, derive the rate of return which values the expected income at the assets' market value (the internal rate of return).
 - Use the internal rate of return to value the liability cash flows.
- 6.13 In this way, the ongoing planning valuation builds in a projection of asset income for comparison with the liability outgo. The prudent expected return on the actual assets of the scheme is incorporated. The cash flows of the scheme, on both sides of the balance sheet, are modelled and planned for.
- 6.14 The trustee has resisted this technique, but then the trustee has been focussed on self-sufficiency, and not on ongoing planning. The trustee's "reliance on covenant" indicator would be wildly unstable if technical provisions and self-sufficiency were not based on the same foundation of choosing the discount rate. So, we have been arguing for a better way of carrying out an ongoing valuation while, as we have learned from the October paper, the trustee has not been advocating an ongoing valuation at all.
- 6.15 We think it essential that the trustee investigate the contribution needs of the scheme on a long term, cash flow planning basis. Without it, it is not possible for all parties to consider the relative merits of the different approaches to funding and investment.

DOESN'T THIS METHOD IGNORE THE MARKETS?

- 6.16 It is sometimes suggested that, because a move in the markets (say, a 10% fall) triggers an increase in the estimated internal rate of return and a corresponding decrease in the liabilities, isn't the method ignoring or hiding the importance of a move in the markets?
- 6.17 There are several responses to this. First, the method incorporates more data about asset market values and the implications for future expected returns than does the method which simply adds a fixed margin to a gilt yield. It is the latter method which ignores up to date market data from the non-gilt markets.

- 6.18 Second, if the market movement is a move in the bond markets, then a corresponding change in the internal rate of return would not be disputed.
- 6.19 It is in connection with a move in the equity markets that the question is raised. Does a 10% fall in market value signify an imminent and permanent 10% fall in dividends? If it does, the expected return on equities has not changed.
- 6.20 We cannot tell whether a short term market fluctuation signifies a move in dividends or not. We have to wait and see the dividends which emerge to distinguish noise, false expectations and irrational behaviour in the markets from a rational and precisely correct response to news affecting dividends.
- 6.21 The USS net cash flow position is not such that it need worry about short term market value volatility. It can afford to wait and see how dividends change. For a scheme like USS, which has a long term future with robust sponsoring employers, it is emerging fluctuations in asset income which matter most.
- 6.22 Turning the point around, a 10% rise in equity market value would not improve a cash flow based balance sheet by much either. On the other hand, a liability calculation using a gilt yield based discount rate would show an improvement in the balance sheet equal to the equity market rise. This is potentially imprudent, if the market rise is noise, false expectations or irrational behaviour in the markets rather than a rational and precisely correct response to news increasing dividends.

7 INVESTMENT STRATEGY AND BENEFIT SECURITY

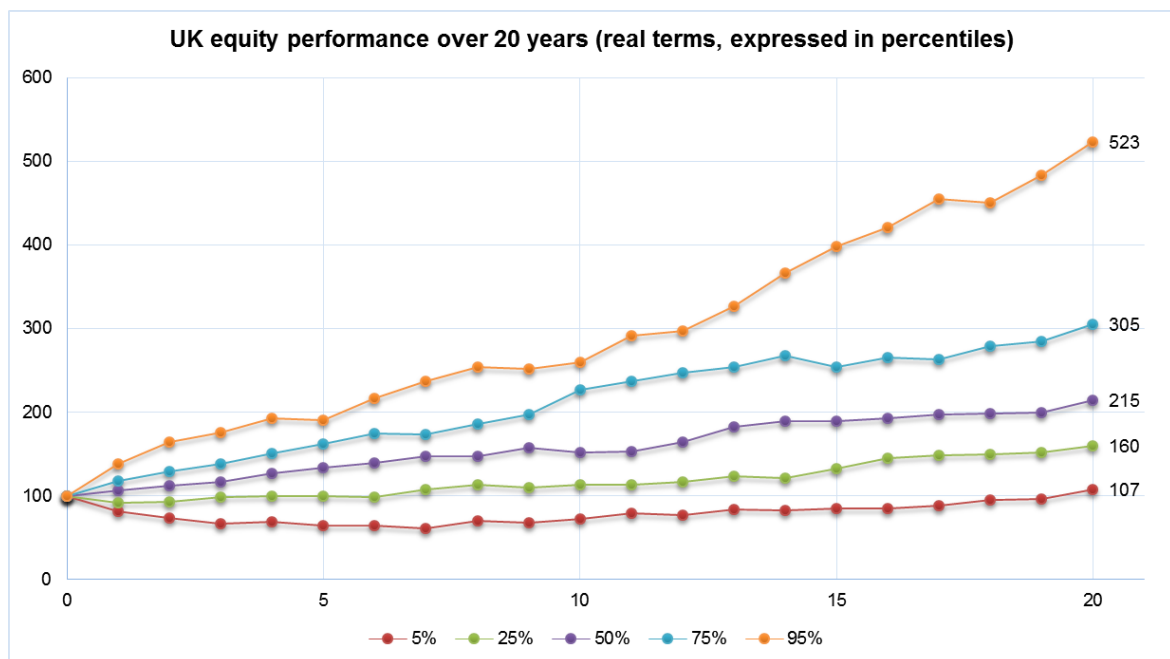
THE SECURITY OF MEMBERS' BENEFITS IS IMPROVED BY HAVING MORE MONEY IN THE SCHEME.

7.1 The trustee has two sources of increasing scheme assets:

1. Collecting more contributions from the employer
2. Earning more money from the investments.

7.2 The first method must be used with care so as not to raise the probability of employer insolvency, or, more realistically in the context of the USS, to disaffect the employers.

7.3 Over the 20 year period of a) visible, robust employer covenant, and b) positive net cash flow, a key question for the trustee is which investments are likely to improve benefit security the most? Equities or gilts?



7.4 The chart above illustrates a possible range of future UK equity performance over the next 20 years in real RPI terms, starting from 31 March 2014 market conditions. The range of outcomes is derived from historical data, but the historical data is adjusted for:

- Payment of tax on dividends which historically were paid gross or only partially taxed
- 0.5% pa average real dividend growth over RPI.

Thus the chart is not assuming that history simply repeats itself, but is using historical outcomes to project a scenario of lower future real dividend growth, and taxed dividends. The chart shows the percentiles of the range of outcomes in each year.

- 7.5 The real yield on index linked gilts was approximately nil at the valuation date. A 20 year index linked gilt bought and held to maturity would therefore return nil in real RPI terms. The expected performance would be drawn on the chart as a horizontal line beginning and ending with a value of 100.
- 7.6 There is a small possibility of equity performance of around nil real or lower over a 20 year period, but the very high probability is for a greater performance from equities.
- 7.7 The median outcome is a doubling of the assets in real terms, and thus a doubling of benefit security, insofar as it derives from the accumulated assets.
- 7.8 Given that the trustee has a 20 year period of visible, robust employers' covenant and positive cash flow, it would appear that UK equities are very highly likely to earn more than index linked gilts over this period, and therefore are the better option for improving members' benefit security.
- 7.9 Making a judgement on the scheme's investment strategy based on a 1-year or 3-year time horizon would be misleading: relative market volatilities mask the difference in expected returns. USS has a demonstrably long time horizon to work with and the trustee should use this in their discussions and assessments of the suitable investment strategy and valuation assumptions for the USS.

Q8. What investigations has the trustee done to compare and contrast the different main asset classes, to see which is most likely to improve benefit security over a 20 year time horizon? If they have done work which conflicts with our conclusions, please would they share it?

8 ADDITIONAL ISSUES FOR CONSIDERATION

8.1 This section considers four items which we believe deserve further consideration:

1. DC flexibilities to be introduced from 2015
2. Establishing a buffer fund
3. Moving to shared risk
4. The end of contracting out

DC FLEXIBILITIES TO BE INTRODUCED FROM 2015

- 8.2 The 2014 Budget included a proposal to allow members of DC schemes almost complete flexibility as to how they draw their DC pension entitlement with effect from April 2015. These flexibilities have a number of implications for DB schemes such as USS, and it is important that the trustee decides if they will make allowances for these additional flexibilities and if so, to what extent.
- 8.3 For example, one of the changes was to increase the trivial commutation limits. The trustee will need to decide how to allow for these changes in the USS. They will need to decide whether to offer (or impose) commutation up to the new limits and if so, whether to carry out a trivial commutation exercise which will involve approaching all eligible members with a trivial commutation offer.
- 8.4 There is also potential for greater interest in and demand for transfer values due to the additional flexibilities that will become available to members of DC schemes. The trustee will need to decide to what extent they intend to encourage members to take a transfer value at or in the run up to retirement.
- 8.5 The trustee should also consider their transfer value basis, cash commutation and trivial commutation factors. Given the potential increase in demand for trivial commutation and transfer values, the trustee may wish to consider the level of consistency between factors.
- 8.6 For example, a member could choose to transfer their benefits out of the USS and into a DC arrangement before retirement, and then withdraw cash from their DC fund. Alternatively, the member could choose to leave their benefits in the scheme and receive their cash entitlement (and commute additional cash over and above their automatic entitlement if desired) at their chosen retirement date. If there is discrepancy between the cash commutation factors and the transfer value basis, members can select against the scheme by choosing the option that is of greatest value to them. Additionally, members eligible for trivial commutation have the option to either trivially commute their benefits or to take a transfer value to a DC fund. If a member's transfer value is different to the value of their benefits as a trivial commutation lump sum, members could again select against the scheme by choosing the option that gives the larger sum.

- 8.7 It is also important for the trustee to assess these additional flexibilities and their potential impacts on the USS in their modelling carried out for the consultation document. For example, how would members taking full or partial transfer values affect the outcomes modelled?

ESTABLISHING A BUFFER FUND

- 8.8 The current employer proposals for changes to the USS from 2016 show that the employers are willing to spend money in order to control risk.
- 8.9 One option for the trustee to consider for controlling risk within USS is to establish a 'buffer fund'. Instead of paying additional contributions into a DC scheme, employers could pay contributions into this buffer fund. Details of exactly how the buffer fund would operate would need to be determined later (e.g. whether the fund is held centrally or individually with employers), but the fund could be offset against the difference between the technical provisions and the liabilities as calculated on a self-sufficiency basis. Used in this way, the buffer fund would increase the chances of meeting Test 1 criteria, whilst also providing additional security for USS employers, and reducing requirements to de-risk.

9 FURTHER COMMENTS

POTENTIAL FOR A VICIOUS CIRCLE

9.1 The value placed on the scheme by the actuary has risen markedly over the three years. Partly, this is a result of the discount rate following the fall in yields in the gilt market, even though most of the assets are not in gilts. Partly, this is a result of a tightening of the basis in addition to the tightening caused by following the fall in gilt yields. There is a need to be careful not to follow a vicious circle of reasoning:

- The actuarial assumptions are tightened, placing a higher value on the benefit cash flows.
- The scheme appears to be bigger relative to the employers, even though the benefit cash flows are becoming smaller due to the previous benefit change.
- The scheme appears to pose a higher risk, so the investments are moved to lower risk/lower return investments and/or benefits are cut.
- The scheme is in lower return investments, so the discount rate is reduced, tightening the actuarial assumptions.
- And so on round the loop.

9.2 This vicious circle may be triggered simply by the gilt market going up. It seems wrong to set up a management strategy in which more is bought of a rising asset: one would think the opposite would be more natural. It seems wrong to set in train a chain of events resulting in benefit cuts just because the gilt market went up. In a scheme where most of the assets are not in gilts, and there is no compulsion to invest in gilts, this seems inappropriate.

UNCERTAINTY IS NOT THE DECIDING FACTOR

9.3 We note that the trustee appears to have a strong preference for certainty over uncertainty. They also appear to have a strong preference for investments of a more certain (and therefore lower) return, over investments of uncertain (and, if priced rationally, higher) return.

9.4 Suppose:

- The probability of providing accrued benefits in full from equity investment without a contribution increase is 90%
- The probability of needing additional contributions to provide accrued benefits in full from equity investment is 10%; and
- There is marked volatility of the eventual outcome.

- 9.5 The trustee's reaction to this uncertainty is to move into lower risk investments in order to make the outcome more certain, and to reduce the potential volatility in future contribution requirements.
- 9.6 But were the scheme to be invested wholly in gilts:
- The probability of providing accrued benefits in full from gilt investment without a contribution increase is 0%
 - The probability of needing additional contributions to provide accrued benefits in full from gilt investment is 100%; and
 - There is little volatility of eventual outcome.
- 9.7 By focussing on volatility, the trustee's preference is for de-risking of the investment strategy in favour of gilt investment (and other investments of lower return), because the outcome is more certain. However, the outcome which is certain if gilt investment is favoured is the one which is not desired – some combination of contribution increases and member benefit cuts.
- 9.8 The trustee's proposal to “de-risk” the investments of USS is illogical as it guarantees a worse outcome - higher contributions for the employers and benefit cuts for both past and future service for the members.
- 9.9 It also seems illogical to argue that switching to low risk / low return investments represents a decrease in the reliance placed on the employers' covenant. Rather, earning less on the scheme's investments means less income with which to pay benefits and therefore the requirement for employers to contribute more, placing increased reliance on the employers' covenant (using the term in a general sense, not in the narrow way the trustee defines it).

Q9. What investigations have been carried out by the trustee to compare and contrast the range of contributions and funding level outcomes from investment in gilts and investment in equities, over the 20 year time period over which there is visibility of robust employer covenant and positive cashflow for USS?

APPENDIX A: QUESTIONS FOR USS

RELIANCE ON THE COVENANT

Q1. Please would the trustee provide further information as follows?

Figures to illuminate the text of the consultation paper, giving the results of your analysis as originally prepared.

A reworking of the analysis, on the premise that reliance on covenant indicator is amended as described, to include the revised technical provisions basis, valuation results and the implications for benefits and investment strategy.

Q2. Unfortunately, there are no numbers to further and explain and illuminate the dynamics of what is happening here. Please would the trustee provide the numbers to go with the words?

SPECIFIC VALUATION ASSUMPTIONS PROPOSED BY USS

Q3. Could USS provide full details of all the demographic experience analyses they have completed?

AN ONGOING VIEW OF THE SCHEME

Q4. What studies have been done to investigate asset income uncertainty?

Q5. What cash flow planning has the trustee done to investigate their exposure to disinvestment risk and asset income volatility?

Q6. What has the trustee done to plan their investments to meet the expected liability cashflows?

Q7. We would ask the trustee to engage with their in house investment team to discuss the nature of the scheme's asset income: its dependability (or otherwise) and prospects for income growth. Page 11 of the consultation document mentions a projection of the scheme's cashflows. We would ask that the trustee share their cashflow projections to enable an analysis of the USS from a cashflow position on an ongoing basis.

INVESTMENT STRATEGY AND BENEFIT SECURITY

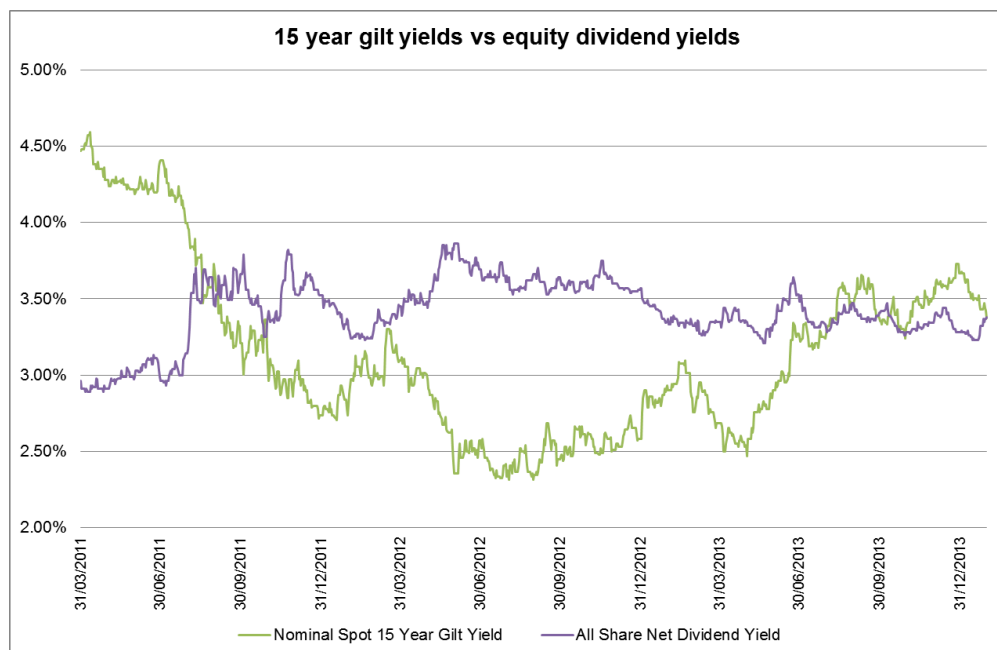
Q8. What investigations has the trustee done to compare and contrast the different main asset classes, to see which is most likely to improve benefit security over a 20 year time horizon? If they have done work which conflicts with our conclusions, please would they share it?

FURTHER COMMENTS

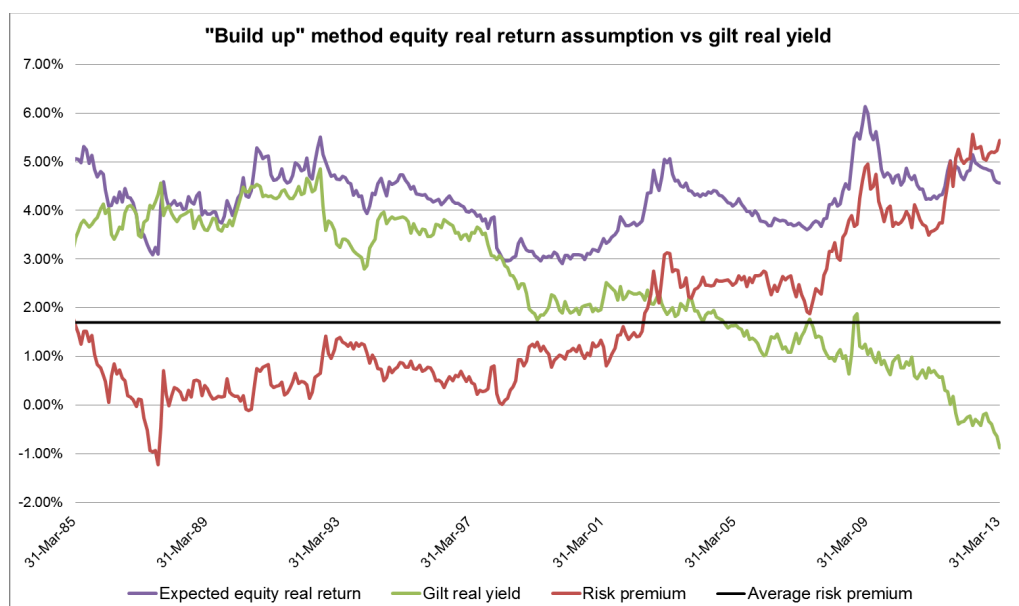
- Q9. What investigations have been carried out by the trustee to compare and contrast the range of contributions and funding level outcomes from investment in gilts and investment in equities, over the 20 year time period over which there is visibility of robust employer covenant and positive cashflow for USS?

APPENDIX B: VALUATION METHODOLOGY

- B.1 The criticism of the USS approach to funding and hence to de-risking is that it starts from an unhelpful valuation methodology and then derives an investment strategy from this.
- B.2 Gilt yields are at a historic low due to the UK Government's successive programmes of quantitative easing and a "flight to quality" with investors preferring UK Government bonds to bonds issued by corporations and overseas governments.
- B.3 The USS Statement of Funding Principles sets the discount rate with reference to the return on gilts, with an allowance for additional outperformance for other assets held by the Scheme which are expected to outperform gilts in the long term. The USS valuation methodology is termed a "gilts plus" method.
- B.4 For example, the draft Statement of Funding Principles (SFP) derives the investment return used to value the liabilities as the "yield available on a notional portfolio of UK Government conventional gilt stocks.....plus an additional outperformance.... The outperformance is gilts +1.7% in year one.....".
- B.5 Only a minority of the assets of the scheme are held in gilts (21.5% as at 31 March 2014). The majority of its assets are held in growth type assets, including equities. For these non-gilts, the difference between the return on that asset and the return on gilts is not a fixed percentage, and in fact the various non-gilt investment markets and gilt markets can move in very different ways.



- B.6 This chart shows a comparison of 15-year Bank of England nominal gilt yields and dividend yields between 2011 and 2013. There is clearly little or no correlation in yields between gilts and equities during the period, casting doubt on the usefulness of the “gilts plus” method of deriving future investment returns.
- B.7 If as is the case for the USS, most of the assets are not in gilts but the liabilities are calculated with reference to gilt yields, there is a fundamental mismatch between the asset and liability values in the balance sheet.
- B.8 Adopting a fixed risk premium at each valuation date can result in a highly volatile pension scheme balance sheet, and does not necessarily represent the “real-life” relationship between the assets and liabilities.
- B.9 The Occupational Pension Schemes Regulations 2005 state that the rates of interest used to discount future payments of benefits must be chosen prudently, taking into account either or both of:
- the yield on assets held by the scheme to fund future benefits and the anticipated future investment returns, and
 - the market redemption yields on government or other high-quality bonds.
- B.10 The “gilts plus” method is neither of these. By definition, the expected return on an asset is the rate of return which values the expected income on the asset at its market value. This is known as the “Internal Rate of Return”. Adopting the internal return approach aims to reduce the volatility of a pension scheme’s balance sheet by allowing for this variation.
- B.11 To find the expected return on UK equities, for example, we need to think about the dividend income and the likely rate of dividend growth.



B.12 The graph above shows two things:

- Expected real returns on equities have diverged significantly from gilt yields since around May 2008, the start of the financial crisis.
- The expected outperformance of equities over gilts implied by the market at any one date varies significantly over time as financial market conditions change, and is certainly not constant. This is largely because gilt prices and equity prices do not necessarily move in line with each other at all times.

B.13 In other words using a constant value for “x” if equity returns are expressed as gilts plus x% is not appropriate. Also note that judging the strength of an actuarial basis by considering it on a gilts plus basis is potentially very misleading.

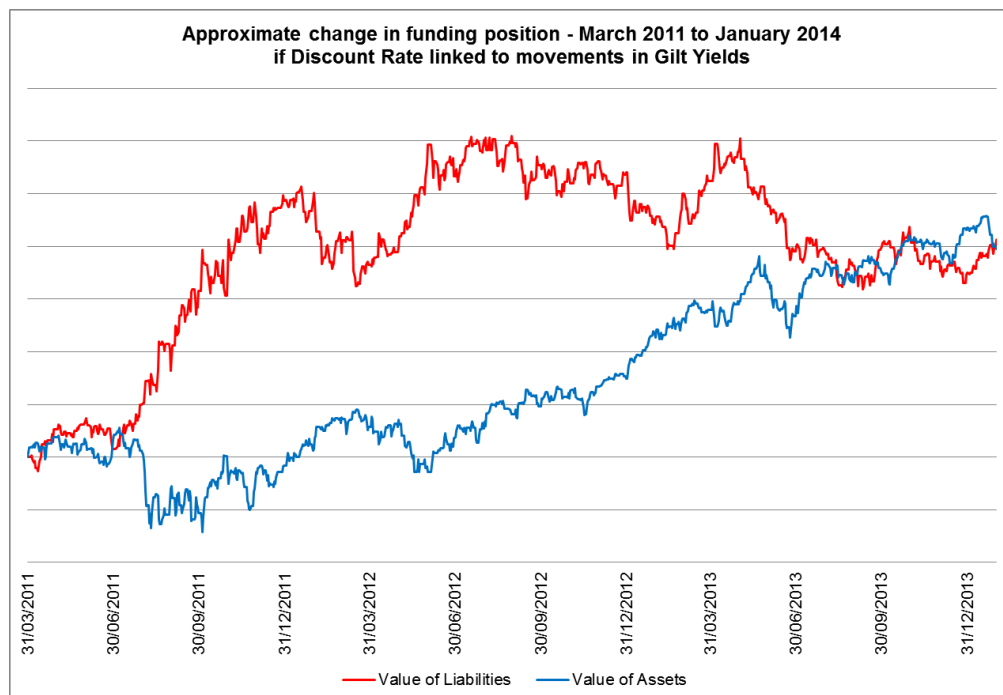
B.14 The expected return on equities in the graph above is constructed from the dividend yield, the long term expectation for RPI (calculated as the difference between nominal and real long dated gilt yields) and a real dividend growth assumption, and is referred to as the “Build up” method. The chart dates back to 1985, not long after index linked gilts were first issued.

B.15 We would argue strongly that the assumptions to be set for current and future valuations of the USS should not be assumptions based on a gilt return plus a fixed margin. The assumptions should be suitable for market conditions at the date of the valuation and should reflect the expected return on the assets held by the scheme. For example, the equity return assumption should be based on evidence drawn from the equity market and should reflect the state of the world at the effective date of the valuation.

B.16 If the assets are to be shown at their market value, we need to find the internal rate of return. For equities, we need to project dividends and possible future dividend growth. We have assumed that alternatives produce equity-like returns. For property, there is rental income and possible future rental growth. For bonds, there are coupon and redemption payments. Finding the rate of return that discounts the income on the assets and gets their market value as the answer is simply the correct way of deriving the prospective return.

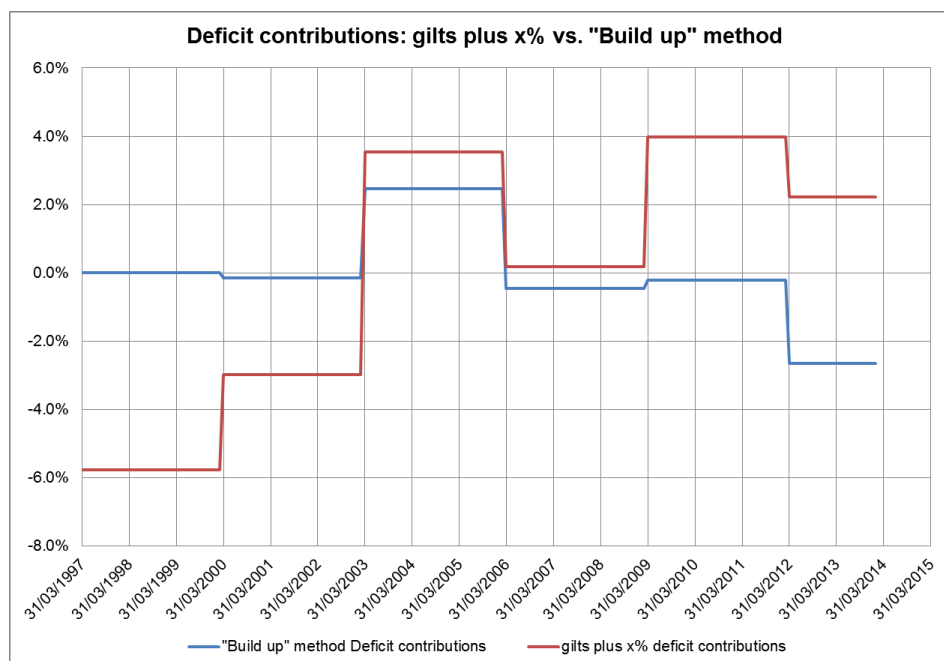
B.17 One big advantage of this method is its balance sheet stability. If there is a deficit on this method, it needs funding. The size of the deficit is not the product of mismatched assets and liability calculations.

B.18 The stability of the “Build up” method is of particular relevance to the USS, as the key risk identified in the funding strategy report was the level of volatility in the contributions required to cover the costs of the scheme.



B.19 The chart above shows a comparison of the assets and liabilities of a sample scheme assumed to be invested 50% in equities and 50% in gilts. The chart covers data from 2011 to 2014, and clearly shows the volatility in the funding level from using the “gilts plus” method. Using a method that leads to more stability in funding level means that the risk that increased contributions will be required at future valuations is also reduced.

B.20 This is shown in the chart below. Deficit contributions under the “Build up” method are far more stable over time than under the “gilts plus” method.



APPLICATION OF ALTERNATIVE APPROACHES TO USS

- B.21 Rather than basing the USS funding assumptions on a “gilts plus” valuation approach, we suggest that a more appropriate method would be to derive the discount rate used to value scheme liabilities by taking into account the actual investments held by the scheme and the expected returns on these investments. The actuarial model adopted should match the investments held by the scheme.
- B.22 Given that the USS is invested predominantly in equities (72.8% as at 31 March 2014), it would be reasonable for the discount rate adopted in the valuation to allow for the expected return on equities, as well as the returns on the other asset classes held. It would be reasonable to base the expected return on equities on equity market data.
- B.23 The proposal to “de-risk” the current investment target from one with an expected return of gilts plus 2.75% to one with an expected return of gilts plus 1.75% not only bases the future investment strategy on an unhelpful methodology, but would increase the contributions required from sponsoring employers in the short-term, something that all stakeholders would wish to avoid.
- B.24 We question whether “de-risking” in the sense of moving investments towards classes of lower return and lower investment risk, is more important than de-risking in the senses of making members’ benefits more secure and the employers’ contributions less likely to increase. These latter two objectives seem more important, and may be aided by long term investment in assets of higher expected return.

BACK TESTING OF “GILTS + X%” APPROACH AND THE INTERNAL RATE OF RETURN APPROACH

- B.25 We have not had sufficient time to carry out back testing of the “gilts + x%” approach and the internal rate of return approach, and the effect of adopting these methods on the funding level of USS over time.
- B.26 However, from our own generic work back testing these approaches, we are confident that the internal rate of return method would demonstrate far lower volatility than the “gilts + x%” method, and that our criticisms of the gilt yield based method would be validated by back testing the two approaches.