

# Report for UCU Progressing the valuation of the USS

**Hilary Salt FIA  
Derek Benstead FIA  
15 September 2017**

**QAS** Institute<sup>®</sup>  
and Faculty  
of Actuaries  
Quality Assurance Scheme

Regulated in the UK by the Institute and Faculty of Actuaries in respect of a range of investment business activities.  
First Actuarial LLP is a limited liability partnership registered in England & Wales. Number OC348086.  
Registered address: First Actuarial LLP, Mayesbrook House, Lawnswood Business Park, Leeds, LS16 6QY.

**first** actuarial

## Contents

Section	Page
Introduction	2
Progressing the valuation	3
Areas for adjustment of the funding basis	5
Beware a vicious circle	7
The role of the Pensions Regulator	7
The advantages of an open pension scheme	8
Target returns	9
Cash flow planning of an open pension scheme	10
Conclusions	15

## Introduction

This report has been prepared for the Universities and Colleges Union, on the instructions of Christine Haswell. We were asked to assist with a response to the USS's consultation document, "2017 Actuarial Valuation: A consultation with Universities UK on the proposed assumptions for the scheme's technical provisions and statement of funding principles."

We have avoided a line by line response to the 58 page consultation document. We fear that the funding and investment strategy risks reaching an unbalanced conclusion, and a line by line response might not be helpful for seeing the wood from the trees.

In our experience, a direct look at the cash flows in and out is often illuminating. The problem with working with actuarial models of capitalised values is that the cash flows are not looked at directly. Running a continuing pension scheme is a matter of cash flow management. If we look directly at the cash flows, we can see what we need to achieve with the investments. By working only with an actuarial model, we are at risk of not distinguishing between a problem in the cash flows and a problem in the model.

We have been supplied with the expected benefit cash flows for past service and for one year's future service, as calculated using the assumptions for the technical provisions. We were also supplied with the assumption for CPI in each future year. We have used these to illustrate the cash flows in and out of the USS and observe implications for prudent funding and investment strategy. We hope

that our observations will be a helpful aid to progressing the actuarial valuation.

Quotations in this report from documents published by other parties are from documents which were publicly available on the internet at the time of writing.

Readers other than the Universities and Colleges Union should note that this report cannot be relied upon as being actuarial advice to third parties and third parties should seek their own independent advice as appropriate.

## Progressing the valuation

We conclude from the cash flow analysis later in this report, that the current contribution rate from the 2014 valuation remains a prudent contribution rate, given the current benefit design of the USS. In a scenario of “best estimate” pay rises, the benefits of the USS can very nearly be paid from contributions, without reliance on the assets. There is no need to change either the contribution rate or the benefits to have a prudent funding plan. The strong likelihood is that the USS can be invested to outperform the return required to safely deliver the benefits. Given time, the outperformance will increase the funding level to any desired target. Any formulation of the sign off of the valuation which maintains the current contribution rate and the current benefits is acceptable.

## Future service rate

In carrying out our projections, we have identified an important feature of the development of the future service rate over time.

The proposed valuation discount rate is specified as follows, on page 21 of the consultation document:

Time period	Discount rate
Years 1 to 10	CPI – 0.53%
Years 11 to 20	CPI + 2.8% declining linearly to CPI + 1.7% by year 21
Year 21 onwards	CPI + 1.7%

It is notable that for the first 10 years, the discount rate is negative in real terms. A material market value fall is implied. This has consequences for the future service rate. As time passes and the first 10 years’ negative real return drops out from the discounting, the cost placed on future benefit accrual reduces. We estimate the following change in the future service rate for defined benefits:

Scheme year ending	Future service rate
2018	27.2%
2019	26.7%
2020	26.1%
2021	25.5%
2022	25.0%
2023	24.5%
2024	23.9%
2025	23.4%
2026	22.9%
2027	22.4%
2028	21.9%

Adding 3.3% for DC contributions and expenses and 2.1% for deficit contributions gives a total contribution rate of 32.6% in the first year of the valuation. The current contributions are 18% from

the employers plus 7.1% from the members (this figure is taken from the 2014 valuation report) making a total of 25.1%. There is a gap of 7.5%.

The future service rate is scheduled to decline by 5.3% of pensionable pay over 10 years. The gap between the existing contribution rate and the sum of deficit contributions and the future service rate falls from 7.5% to 2.2%. If we look forward more than one year, the gap in contributions is much smaller than it first appears.

We cannot detect whether this progressive reduction in the future service rate is recognised in the consultation document. It appears to us that the rate for year ending 2018 is assumed to apply for all time, which it does not.

We wonder whether the complex structure of the discount rate is really appropriate for assessing the cost of future service, and whether the structure of the discount rate could be simplified.

It may need only minor adjustments to the detail of the funding basis to find a prudent funding plan which lets the current contribution rate and the current benefits continue. We intend to do further work on this.

## Contributions to an open scheme

The primary concern of the employers, and therefore a primary question for the valuation, is that their contribution rate should not go over the current 18%. This concern is captured by Test 2. We examine this question in our cash flow projections, and we conclude that the current contribution rate is prudent for the purposes of both maintaining a prudent funding level and paying for

future accrual. The division of the contributions between deficit reduction and future accrual does not need to be determined to reach this conclusion.

The division of benefits into past service and future service, and the division of contributions into deficit contributions and benefit contributions, is an artificial actuarial construct. 2018's benefit accrual is future service in 2017 and past service in 2019. There is no need to consider 2018's accrual any differently from the perspective of 2017 or 2019.

Page 25 of the consultation document says about the discussion of the recovery plan, "This approach also delivers stability of deficit funding for employers."

We do not think that stability of the deficit contributions is an important objective. It is the stability of the aggregate contributions which is important to the employers.

An important implication is that the problem of completing the valuation is not confined to the future service rate. The task is to formulate technical provisions, deficit contributions and future service contributions within the current total contribution rate. Technical provisions and deficit contributions are also available for adjustment.

An actuarial valuation need not result in the changing of the contribution rate at each valuation. Rather, one can, and arguably should, aim to hold the contribution rate constant as far as possible, and tolerate varying margins of prudence from one valuation to the next (or, as the trustees define it, varying reliance on covenant). There is insufficient merit in a fixed reliance on covenant to override other important objectives such as a stable total contribution rate.

## Areas for adjustment of the funding basis

### Investment strategy

We have said before that raising the funding target by reduction of the discount rate does not mean the investment strategy should be altered to reduce the expected return. Setting a funding target high enough to permit low return investment does not mean that low return investment needs to be implemented in advance of any events triggering a need to do so.

For as long as the USS is an open scheme, it should be invested as appropriate for an open scheme. Switching to low risk / low return investments, as closed schemes do to manage their cash flow at high cost to their sponsors, need not be done until such time as the scheme is closed, if it ever is.

Our cash flow analysis later in this report illustrates the USS's need for asset income with which to pay benefits. We have also stated key objectives for the investment strategy. We conclude that increasing investment in bonds is not needed for reasons of cash flow management, and increasing investment in bonds works against key objectives of the trustee.

There is scope therefore to:

- Delay or remove planned switches into bonds.
- Increase the return on investments assumed during the deficit recovery period.

### Prudent margin relative to best estimate

We have advocated closer attention to the margin between the prudent funding target and the best estimate value of liabilities. Given a fixed investment strategy and an open scheme, we think that an effective management plan would feature a broadly constant margin between the prudent and best estimate values.

It is notable that the margin between prudent and best estimate values has increased between the 2014 and 2017 valuations (see the comparison of best estimate and technical provisions values on page 8 of the consultation document). There may be scope for consideration of a slower pace of increase of the funding target.

We have previously noted that the estimated best estimate returns of Mercer and USS are rather less than other estimates, including our own.

In "Methodology and Inputs for the 2017 valuation" of 17 February 2017, the description of USS's approach to forecasting expected returns in paragraph 5.1.1 is excellent, especially paragraph 4. Expected returns are then quoted in 5.1.2, without any data or quantified description of how the expected returns are arrived at. The absence of an explanation is unsatisfactory.

We note the observation in 5.1.1 that constructing a forecast based on expected cash flows accruing to shareholders can generally be expected to give a similar result to the other methods described in the paragraph. We would say that the expected returns quoted in 5.1.2 on equity and property are rather lower would be expected from a cash flow analysis. There is a disparity which remains to be explained.

If the “best estimate” value of liabilities is an over-estimate, it adds to the scope for technical provisions to increase less quickly.

## Adjusting parameters

If it is agreed, as we think we have demonstrated, that the current contribution rate for current benefits is prudent, there are a number of ways in which the parameters of the valuation and the USS’s three funding tests can be adjusted:

- The deficit recovery period could be lengthened.
- The assumed return on investments during the deficit recovery period could be increased.
- The reliance horizon of Test 1 could be increased.
- The reliance on covenant parameter of Test 1 could be increased.
- Some of the assets identified in Test 3 could be regarded as being notionally available to meet the difference between the self-sufficiency-in-gilts target and technical provisions in the operation of Test 1, in addition to the 7% contingent contributions.
- Contingent contributions could be deemed to be available for a longer period than 20 years.
- The rate of growth in reliance on covenant could be more than CPI.

The suggested change to the rate of growth in reliance on covenant is an easy change to make, because a rate of growth reflecting expected salary growth would be a technically more appropriate assumption to make. Such a change should not be regarded as a weakening of approach, just a more appropriate approach. For their part, Aon has suggested (e.g. in their 2 December 2014 submission to the last valuation) indexing the rate of growth of reliance on covenant to RPI.

We do not propose an increase in the 7% contingent contributions by hypothesising the use of some of the 18% contribution budget and a reduction in benefit accrual. The cash flow analysis does not indicate a need for a reduction in benefit accrual.

## Best estimate discount rate and the recovery plan

The consultation document does not state what the construction of the best estimate discount rate is. It would be helpful if this is provided.

The recovery plan may make an allowance for some or all of the difference between the best estimate return on the assets and the prudent discount rate. Presumably, the best estimate discount rate and the best estimate return on the assets are the same thing.

If we could be provided with the best estimate returns / discount rate, we would be able to construct trial recovery plans and evaluate the reasonableness of suggestions for the finalisation of the valuation.

## Beware a vicious circle

There is a risk of a vicious circle in the trustee's approach. On page 13, the consultation document says, "The trustee's method also manages risk by explicitly linking the degree of investment risk taken to the employers' collective ability to bear risk and lowers, if necessary, the discount rate to keep within these limits."

The trustee defines a low risk portfolio as "one which has less than a 5% chance of requiring **further** contributions" [our emphasis added]. The trouble with this definition is it appears to ignore the very large additional cost of buying the low risk portfolio in the first place. We should be counting the additional contributions required to buy the low risk portfolio as well as looking at the contributions which may or may not be required after the low risk portfolio has been bought.

The risk is that the more the employers say they do not wish to take risk (where the risk they are mainly concerned about is the risk of their immediate contribution rate going up) the more the trustee interprets this as meaning they must set a higher funding target and lower "investment risk", two actions which are guaranteed to put the employers' contribution rate up. To control the employers' cost, the members' future benefits are then likely to be cut.

If we keep going around this circle without regard to other objectives, such as the cost efficient provision of benefits, the end point will be such benefit accruals as can be afforded using a gilt yield discount rate and investment strategy. The advantages of having an open scheme with sponsoring employers of excellent aggregate covenant will have been discarded.

A balanced approach to the funding strategy of the USS should not end up at this extreme position.

To avoid a vicious circle, there needs to be a balancing of competing objectives. Two objectives which need a higher profile are:

- the avoidance of a short term contribution increase for the employers (Test 2), and
- maintaining the cost efficiency of the scheme.

Our cash flow analysis and projection of the USS's funding position does not indicate a need for another trip around the vicious circle at this valuation.

## The role of The Pensions Regulator

In law, the decision making power on the funding strategy and contribution rate is given to the trustees and the sponsoring employers. The Pensions Regulator has a right to review and raise questions about a completed valuation, to ensure that the law's requirement for prudence has been met. But the law does not give TPR a role in the decision making process of an incomplete valuation. We note with concern the comment that "the trustee has shared its emerging proposals throughout the process with the regulator as well as stakeholders."

TPR's objectives are not aligned with the objectives of the trustee and the employers. TPR pursues higher technical provisions, cautious investment and lower or no future benefit accrual, to fulfil

its objective of “protecting the Pension Protection Fund”. The risk of engaging closely with TPR when the law does not require it, is that TPR will take the opportunity to push for higher technical provisions, cautious investment and lower future benefit accruals, against the interests of the employers (who do not wish to see their contribution rate driven up) or the members (who do not wish to see their future benefit accruals cut). The trustee’s role is to act in the interests of the members and the employers. We hope that the trustee is alert to the risk that TPR’s input could inappropriately influence the trustee’s decision making.

## The advantages of an open pension scheme

We start by reviewing the advantages of an open, trust based pension scheme. The Universities Superannuation Scheme is a defined benefit scheme open to new members. It is sponsored by several hundred employers, and covenant advice summarised on pages 35 to 37 shows a “uniquely robust”, “strong” aggregate covenant.

Being an open scheme brings significant investment advantages, which can be exploited to the benefit of the employers and members. The investment time horizon is infinitely long. An open scheme pays its benefits from contribution and asset income without any need to sell investments. If the asset income is sufficient, fluctuations of their market value is relatively unimportant. An actuarial model of a continuing scheme which displays vulnerability to market value fluctuation can be questioned as to whether it is representative.

Few other investors have such a long investment time horizon. Consequently, the expected return on investments of more certain

income and market value is low, because of the weight of investors in such assets. The cost of providing benefits from investments of low return is high, leading to undesirable increases in the employers’ contribution rate, or benefit cuts, or both in some combination. An open pension scheme with time on its hands can afford to invest in assets of uncertain return, because these assets have a higher expected return, short term market value fluctuation is relatively unimportant to the scheme and the scheme can wait for however long it takes for the return to emerge. The principal determinants of long run return are the rate of income and the rate of growth of income.

Over the last 20 years, the experience of pension schemes which close to new entrants and reduce benefit accrual or close altogether, is of ever increasing costs. The consequence of closing to new entrants and to accrual is to shorten the investment time horizon from infinity to, eventually, zero. The scheme moves into net negative cash flow, which requires investment in cash and short term bonds to meet net outgo without reliance on the forced disinvestment of other assets. The act of closure pushes the scheme into an increased need to invest in cash and bonds, which have low expected returns, which pushes up the employer’s contributions.

Closure of a pension scheme is often justified on grounds of the need to control cost. The experience of schemes is that closure has had the opposite effect: it increases the need to invest in bonds and cash (and LDI and annuities) regardless of cost. The bond market has been rising continuously for over 20 years, and the cost of closure has been very great.



The lesson to be learned from closed schemes is to not to mimic their funding and investment approach, but to avoid it. It is better to retain the investment advantages of an open scheme and exploit them to the benefit of the employer's contribution rate and the members' benefits. The USS, with its good aggregate employer covenant, is in an ideal position to do this.

## Target returns

The USS has kindly provided us with the expected benefit cash flows for past service, for one year's accrual of benefits and the assumption for CPI for each future year. With these, we have examined the cash flows in and out of the USS and investigated the return which needs to be earned, and the asset income which needs to be received, in order for the benefits to be safely provided. If the required investment return and asset income are low, we can be confident that the contribution rate is prudent.

## Break even discount rates

There is a discount rate which values the liability cash flows for past service at the same value as the market value of the assets. We call this discount rate the "break even" discount rate. It is the return which the assets need to earn if the past service benefits are to be delivered without any additional deficit contributions.

Similarly, there is a different discount rate which values the liability cash flows arising from next year's service at the same value as next year's contribution to benefits.

We calculate that the break even discount rate for past service is 1.36% pa real over CPI.

We calculate that the break even discount rate for future service is 1.85% pa real over CPI.

If the long run return on the assets exceeds 1.85% real over CPI, there will be no need for additional contributions.

The critical question is, how likely is it that the investments can earn a return greater than this? If the probability is high, the scheme is prudently funded. If the probability is around 50%, the scheme is best estimate funded and needs additional contributions to establish a prudent margin.

Investments such as corporate bonds, fixed interest and index linked gilts all have an expected return which is less than CPI + 1.85% pa, in current market conditions.

Increasing investment in these kinds of assets will:

- increase the risk of being unable to pay the benefits in full, all other things being equal, because they do not earn enough to pay the benefits, and
- put pressure on an increase in the contribution rate.

If the assets earn less than the "break even" discount rate, the contributions need to increase to be able to pay the benefits in full.

We think that the two leading criteria for forming judgements are:

- to raise the probability of paying the benefits in full, while
- working within the employer's ability and willingness to contribute.

For investment in corporate bonds, fixed interest and index linked gilts to be justified, there needs to be sufficient mitigation of the damage done to the meeting of these two criteria. Either the expected return on the other investments needs to be high enough, or there needs to be scope for additional *willing* contributions from the employers.

It is our understanding that, while the employers' collective *ability* to contribute additional contributions is very great, their *willingness* to do so is low.

The best estimate expected return on UK and overseas equities and property is well above CPI + 1.85%. The USS in house team, the scheme actuary, the actuaries advising UUK and ourselves all agree on this. Naturally we all have different opinions on what those expected returns are, but we all place our estimate above CPI + 1.85% pa.

Increasing investment in these kinds of assets will raise the probability of paying the benefits in full, all other things being equal.

The critical question is, is there a high probability of a long run return greater than CPI + 1.85% pa? If so, the assets and contributions together make prudent provision for the benefits.

If the probability is only marginally above 50%, there may be a need to build an additional prudent margin.

## Cash flow planning of an open pension scheme

### Step 1

We valued the cash flows using the periodic valuation discount rates specified on page 21 of the consultation document. After a little correspondence with USS to clarify the total pensionable salaries, we reproduced closely the value of past service benefits and the contribution rate for future accrual. Therefore we can be confident that we have understood the cash flows and discount rate correctly.

The cash flows include a complex pattern of inflation. To make our work easier, we divided out the allowance for CPI in the cash flows to obtain a set of cash flows in real terms. We expect that the very large majority of USS liabilities are inflation related and that the loss of accuracy from working in real terms is small.

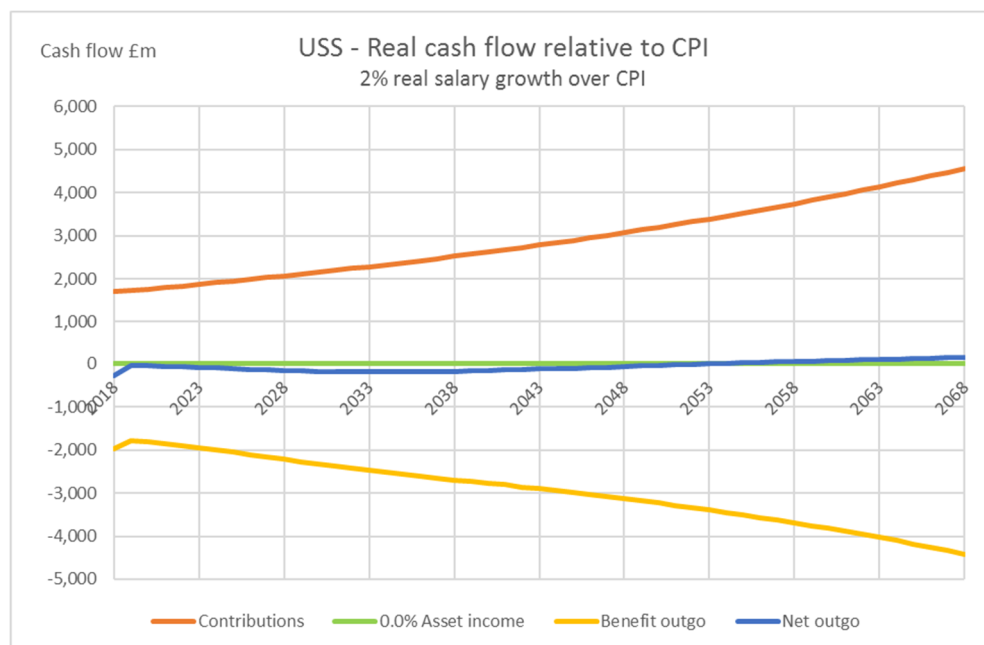
### Step 2

Using the valuation assumption of salary growth being 2% more than CPI, we projected the cash flows of the USS. For each year of future service, we allowed for the current contribution to defined benefits of 22.2% of pensionable salaries of £7,640m and we added another year's benefit cash flow arising from the year's benefit accrual.

The employers' contribution rate following the 2014 valuation is 18%, including the deficit reduction contributions, of which 2.9% is for expenses and the Defined Contribution section, leaving 15.1%

going towards defined benefits. The members' average contribution rate is 7.1%, making a total contribution rate of 22.2%.

The cash flows plotted for both benefits and contributions are for both past and future service together. There is no need to make an artificial divide between the benefits and contributions due for service before or after 31 March 2017. The chart below shows contributions, benefit outgo and net cash flow.



We did not project further improvements in longevity for each year of future service, but held it constant for this chart. This does not necessarily mean we are making an unrealistic assumption that longevity does not improve, rather, there is an implicit assumption that, in the face of improving longevity, some compensating

adjustment to contributions or a benefit reduction will be made. Of course, a compensating adjustment for future service is already present in the link between Normal Pension Age (NPA) and State Pension Age (SPA).

The chart is notable for not showing any asset income. The USS does not need to collect any asset income in order to be able to pay the benefits (given current longevity). Can this be right?

Bearing in mind two further points, that:

- working life is longer than retired life, let's say the ratio of working life to retired life is 3:2, and
- salaries are assumed to increase at 2% more than CPI, but benefits once earned are indexed to CPI, so during working life salaries are assumed to grow faster than benefits

let's do some simple arithmetic to see if we can reconcile this result.

The current contribution rate of 22.2% of pensionable salaries of £7,640m is equivalent to 23.7% of the capped pensionable salaries of £7,160m. The benefit promise is 1/75 (or 1.33%) of salary pension plus 3/75 (or 4%) of salary cash.

- 23.7% of actives' capped pensionable salaries per active member equates to:
- 36% of actives' pensionable salaries per pensioner, if the ratio of working life to retired life is 3:2 ( $23.7\% \times 3/2 = 36\%$ ), which equates to:

- 46% of pensioners' pensionable salaries at retirement 13 years earlier, if pensionable pay grows 2% faster than CPI ( $36\% \times 1.02^{13} = 46\%$ ), which equates to:
- 68% of pensioners' pensionable salaries 20 years prior to retirement, bearing in mind they are in a career average scheme indexed to CPI, it is the salary in the middle of an assumed career which is relevant ( $46\% \times 1.02^{20} = 68\%$ ), which equates to:
- An accrual rate over a 40 year career of  $68\% / 40 = 1.7\%$  or  $1/59$ , which is worth about the same as  $1/75$  pension plus  $3/75$  cash on top, depending on the assumed commutation rate.

We conclude that the current contribution rate of 22.2% is indeed enough to pay the benefits of the USS on a pay as you go basis, with little support from the assets, if pay rises exceed CPI by 2% pa.

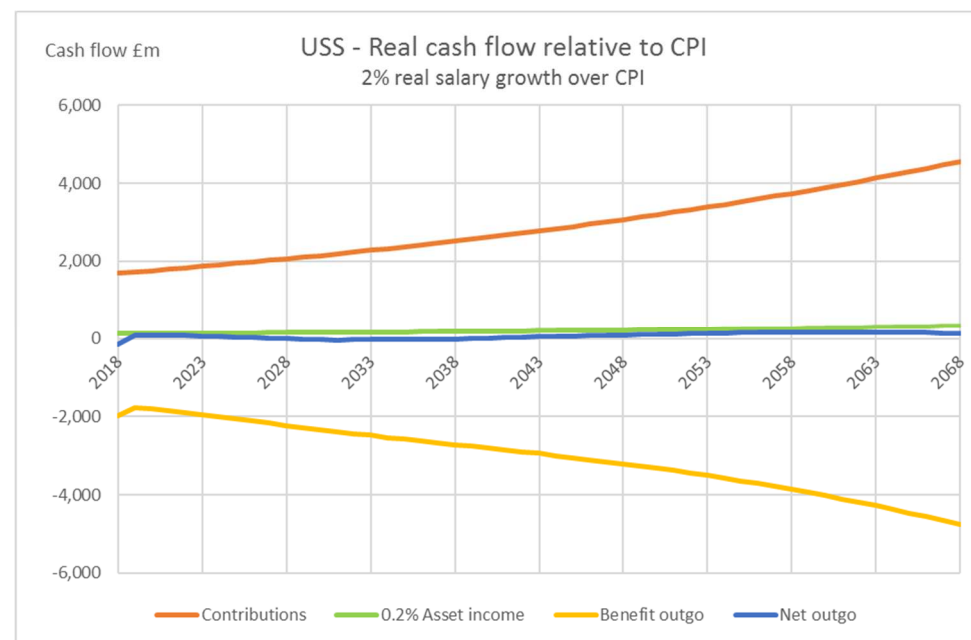
If the assets are mostly untouched by benefit payments, then there is low need to worry about such things as investment return volatility or balance sheet volatility. Investment returns averaging over CPI + 1.8%, however erratically delivered, will increase the assets and improve the funding level to any desired target, given the passage of time.

### Step 3

Step 3 adds in a projection of longevity into the future service cash flows. We did this simply by increasing the cash flows for each year's accrual by an additional 0.35% relative to the previous year's accrual. Given that the USS's NPA follows State Pension Age, to

the extent that SPA is increased to reflect increasing longevity, we have over-provided for longevity improvements.

To draw this chart, we assumed a real return on the assets of 2.2% pa over CPI and a draw down of asset income of 0.2% pa. Slightly more than the break even return is required to pay for increased longevity without either a contribution increase or a benefit reduction. There is still very little dependence on asset income to meet benefit outgo. Volatility of asset income and market value, or of the balance sheet, remains easily tolerated.

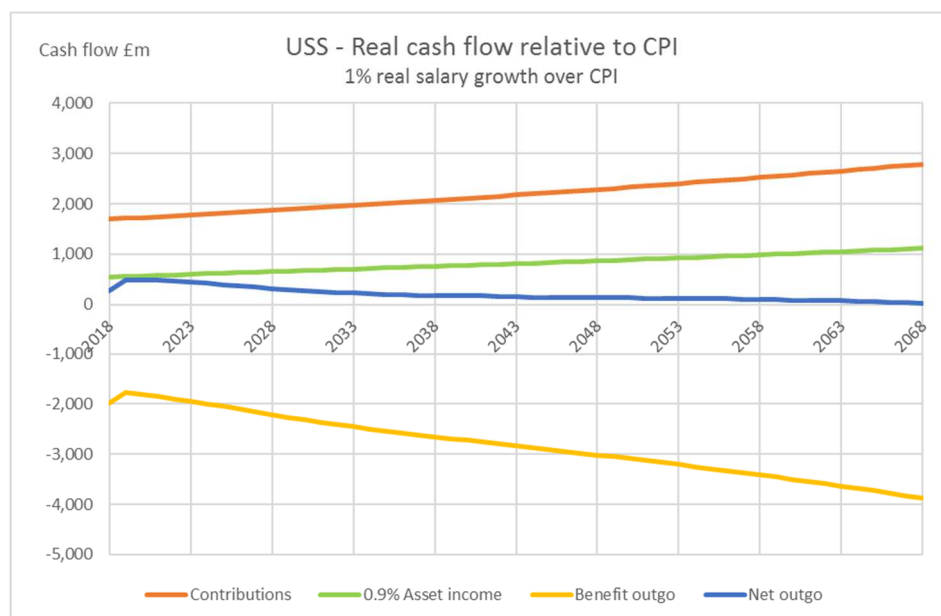


In later decades still, not drawn on the chart, further longevity improvements without a contribution increase would require a greater investment return or an alteration to benefits (to the extent

required after NPA follows SPA). It would not be reasonable to assume no action would be taken to restore the contribution / benefit balance with the passage of time, were longevity to continue to increase.

#### Step 4

The favourable appearance of the balance of cash flows is due in part to the assumption of pensionable salary increases in excess of CPI. An assumption of CPI + 2% is a reasonable assumption. Historic general salary inflation has been in the region of RPI + 1% to 1.5%. It is clear that an assumption of lower salary growth would be prudent in the cash flow planning. It would reduce the (salary related) contribution income relative to the (inflation related) benefit outgo and increase the reliance on asset income.



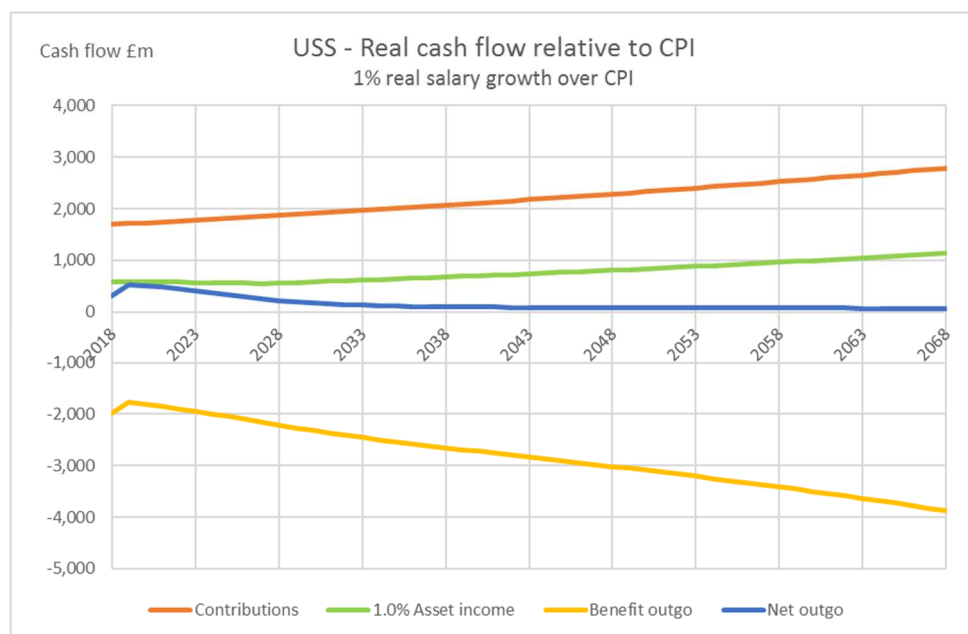
In this chart, we have reduced the salary growth assumption to 1.0% over CPI. A real investment return of 2.1% over CPI suffices to maintain the funding level over 50 years despite increasing longevity, and asset income draw down of 0.9% pa suffices to maintain net positive cash flow.

#### Step 5

The valuation discount rate assumption allows for a low return of -0.53% relative to CPI for the first 10 years. The importance of a low return depends on the cause of the low return. For any sensible asset allocation, the USS is net cash flow positive. If the low return is due to a market value fall, the USS is not harmed, because it does not need to sell assets to pay its benefits. On the contrary, its net positive cash flow is invested more cheaply after a market fall, which is a benefit to the USS. If the poor return is due to a low rate of income, then this has a harmful effect on the net cash flow position. Uncertainty of income is more important than uncertainty of market value.

In this fifth step, we have:

- Assumed a prudent rate of salary growth of 1% pa more than CPI
- Represented increasing longevity by increasing the cash flows from future accrual by 0.35% pa
- Assumed -0.53% pa real investment return for the first 10 years.



In drawing this chart, we assumed 2.7% pa real return on the investments over CPI in years 11 onwards, and asset income draw down of 1.0% pa.

For the return to be -0.53% pa relative to CPI for 10 years requires a considerable market fall. If the asset income were unharmed, the running yield would rise and the 2.7% real return from year 11 is no harder to achieve than the level 2.1% real return used in Step 4.

The asset income required to be safe from being a forced disinvestor, and to be immune to market value volatility or balance sheet volatility, is only 1% pa. The USS's portfolio generates a running yield in the order of 2.5% pa. The USS's needs for income with which to meet benefit outgo are met with a considerable margin of safety.

## Growth of the USS

The exposure to an unlimited growth of the USS is a concern that has been voiced by the employers.

An open pension scheme does not grow without limit. It grows until benefit outgo offsets benefit accrual and asset income and grows no further. Just because a scheme is open to accrual does not mean it is growing.

Having projected the liabilities of the USS into the future, we can see that the USS's liabilities in real terms relative to salary growth are in fact expected to decline, for plausible salary growth assumptions. Only if long run salary growth is less than 0.6% more than CPI are the liabilities projected to grow in real terms relative to salaries.

The employers should be reassured about the size of the USS.

## Conclusions

The current employers' contribution rate of 18% of pensionable pay, of which 15.1% goes towards defined benefits, is prudent. The asset income which is required, in addition to contributions, to pay the benefits in full is low. Indeed, in a scenario of "best estimate" pay rises, the benefits of the USS can very nearly be paid from contributions, without reliance on the assets. We can be very confident that the scheme is not vulnerable to forced disinvestment. We can be very confident that the cash flow in will meet benefit outgo for the very long term, so in the mean time fluctuations of market value or the pension scheme's balance sheet are of low importance.

The break even returns of 1.36% pa real CPI on past service and 1.85% pa real over CPI on future service are well below the expected returns on equities and property. The likelihood that the USS can achieve the break even returns is high. If the actual performance achieved exceeds the break even returns, the funding level will improve. Any funding level could be achieved eventually, given time.

The cost of longevity improvements should be partially covered by the link of the USS's NPA to SPA. At some point, there may need to be an adjustment to the balance of the contribution rate and the benefits to respond to improving longevity, but this point is not imminent.

Subject to this point about increasing longevity, the cash flow analysis does not show any need to increase the contribution rate. The employers should be able to regard their current contribution rate as reliable. Making the same point the other way around, there is no need to reduce members' benefits.

## The USS's investment strategy

The USS does not have negative net cash flow and is not likely to have in future (subject to dealing with increasing longevity, as already noted). Cash and short dated investments are not needed to meet net outgo and to protect against forced disinvestment.

Investments chosen to deliver an income of at least 1.0% pa and an overall return of at least 1.9% pa real relative to CPI will keep the scheme on track (2.1% pa real if investment performance is to pay for longevity improvements). These are not difficult targets. A better long run return will improve the funding level and help attain any desired funding target without the need for additional contributions.

Investing to achieve a lower return than indicated increases the probability of requiring further employer contributions, indeed, it makes it certain that more contributions are needed, in direct conflict with Test 2 and the wishes of the employers.

Care must be taken when using the term "de-risking" in connection with the investment portfolio. It is usually synonymous with investing more in bonds and LDI. However, investing more in these kinds of assets increases, not decreases, the need for higher employer contributions. A low probability of requiring further employer contributions is a key objective, which finds expression in USS's Test 2.

Page 6 mentions a 67<sup>th</sup> centile confidence level. It would be interesting to evaluate whether equities and property can deliver income and income growth in excess of an overall return of CPI + 1.9% pa with a confidence level in excess of 67%. It is clear that the confidence of gilts and bonds delivering CPI + 1.9% pa is nil. We think that a portfolio which can deliver CPI + 1.9% pa with high

confidence is available, and therefore the current contribution rate is prudent.


### Balancing competing objectives

Test 2 and Test 1 are in conflict with each other. Actions taken in response to Test 1 could drive the employers' contribution rate over 18% with certainty, in direct conflict with Test 2. It is of course fine that the two tests are in conflict. It is natural that there are competing objectives and for the resolution of a course of action to require the balancing of competing objectives.

The cash flow analysis indicates that 18% is a prudent contribution rate, that the present benefits can be provided from this contribution rate and the investment returns with high confidence. The demands made of the investment performance are low and likely to be achieved with a higher probability than the trustee's 67% confidence level.

We recommend that the current contribution rate continues, in satisfaction of Test 2.

If the USS were invested to achieve a higher return than the minima indicated by the break even returns, then these higher returns will improve the funding level and in due course satisfy Test 1. The minima are easily achievable and higher returns are likely. All Test 1 needs is time. Given time, both Test 2 and Test 1 can be met.



Hilary Salt FIA



Derek Benstead FIA

First Actuarial LLP, Trafford House, Chester Road, Manchester, M32 0RS  
T: 0161 348 7400 W: [www.firstactuarial.co.uk](http://www.firstactuarial.co.uk)