

How to value a pension fund for an ongoing pre-92 higher education sector that is not about to become insolvent

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Introduction and Summary

The University and College Union (UCU) commissioned First Actuarial (FA), a consultancy held in high regard by pensions professionals, to compile a 43-page submission to the USS consultation on their valuation of the pension fund. "UCU/FA"¹, as I shall refer to this submission, is a significant and well-argued statement. It sheds light, not just on the valuation of the fund and the low-risk approach to investment in that fund to which it gives rise, but also more generally on large multi-employer pension schemes for schools, universities, and other institutions that are an enduring part of society.

- In **Section I** of this note, I explain some key points of UCU/FA, in a manner which I hope will be accessible even to those unfamiliar with the technicalities of a pension fund valuation.
- In **Sections II and III**, I develop two analogies which serve to illustrate the merits of UCU/FA's alternative approach to the valuation of and investment in the pension fund.
- In a more technical **Appendix**, I explain how USS's focus on a self-sufficiency valuation is tied to their recent adoption of 'Test 1', and why this test should be rejected in favour of a different 'ongoing valuation technique' that First Actuarial recommends.

I. UCU/FA on ongoing versus solvency valuation

My reflections arise from the following key passage:

We have conducted the debate as if the [USS] trustee's approach to setting a discount rate² is to be used in an "ongoing" valuation. However, it is [now] clear ... that the trustee's focus is on a "self-sufficiency" valuation, which is a proxy for a buy out solvency valuation. (1.8)³

An ongoing valuation "assumes that the scheme continues to exist" (2.1). By contrast, a solvency valuation "assumes that the scheme terminates" (2.3) and "is relevant when a scheme is wound up" (2.7). A solvency valuation is closely related to a 'self-sufficiency' valuation. Both are "based on minimum risk, low return assets **regardless of cost**" (2.5, their

* I thank Nicholas Barr for comments on an earlier version of this note.

¹ The official name of the document is "Report to the USS paper: 2014 Actuarial Valuation A Consultation on the proposed assumptions for the scheme's technical provisions and recovery plan", November 2014. It is publicly available here:

<http://www.ucu.org.uk/media/pdf/9/k/ucu_usstrusteeconsultationresponse_nov14.pdf>

² **Note added by MO:** The 'discount rate' is an assumed rate of return on the investments in the pension fund. This rate is used to determine whether this fund is sufficient to pay future pensions as they fall due. Such an assumed rate of return is not the best estimate (i.e., a neutral estimate that is neither pessimistic nor optimistic) of returns on the actual investments in the pension fund. Rather, it has been 'prudently' adjusted in a more pessimistic direction.

³ All parenthetical references in this note are to the numbered sections of UCU/FA.

emphasis), by which they mean regardless of the *opportunity cost* of foregoing the benefits of return-seeking investments such as equities (stocks and shares).⁴

According to UCU/FA, "It seems clear ... that the trustee's focus is on the self-sufficiency concept, seemingly to the exclusion of the ongoing concept" (2.10). Given, however, the enduring nature and solvency of the higher education sector for next 20 years and beyond, as revealed by the Ernst and Young 'covenant' review, UCU/FA maintains that "the primary focus of the trustee should be on the scheme as an ongoing arrangement for at least 20 years" (2.12).

UCU/FA also maintains:

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. (2.14)

UCU/FA then notes that the approach of the USS trustee might be appropriate to the many private sector DB schemes that are now closed, but that it is wholly inappropriate when applied to USS itself:

...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. ([This is 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 (2.18)⁵

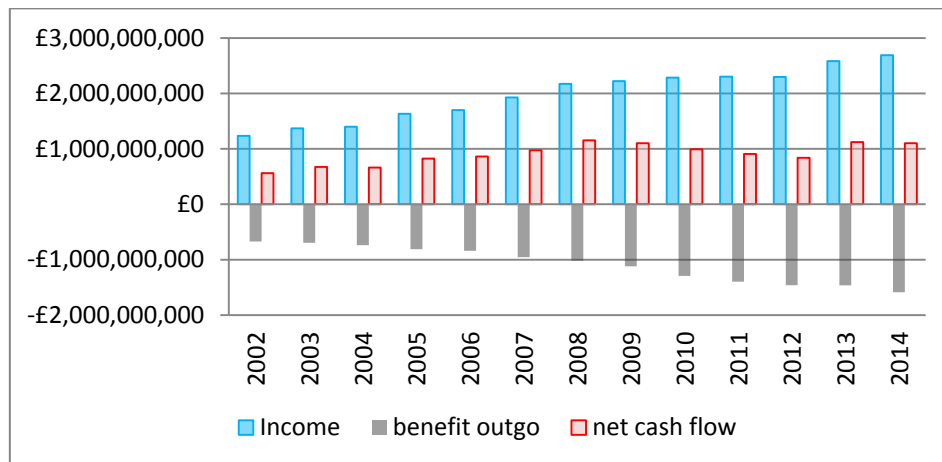
UCU/FA notes in 2.11 that, for such schemes, the following line from sec. 22 of the Pensions Regulator's Code takes on a different light: "The trustees' key objective is to pay promised benefits **as they fall due**" (emphasis added).

Assuming that the post-92 higher education sector will be ongoing for the next two decades, the question that now arises is: will annual cash flows be sufficient to pay promised pensions benefits as they fall due during this period?

⁴ See 2.6. For reasons explained in 2.8, a 'self-sufficiency' rather than a 'solvency' valuation is more relevant to a scheme such as USS, which is "too large for the insurance market's capacity to provide annuities" for a buy out.

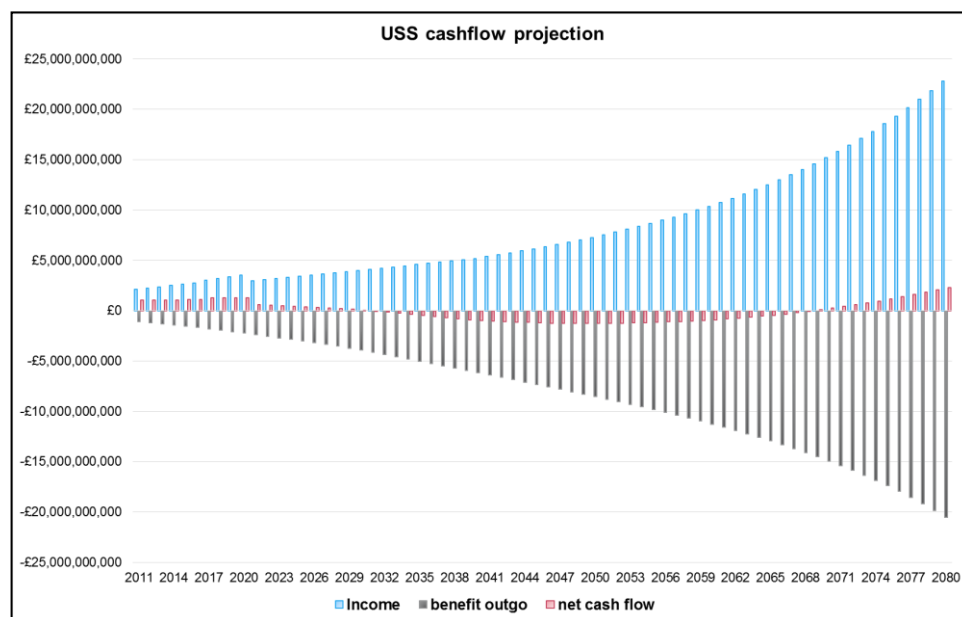
⁵ 2.18 goes on to say: "– the most common examples of such schemes are the public service schemes. Needless to say these schemes do not take the approach being suggested by USS." This raises the following question: Is the pre-92 higher education sector more analogous to a single private for-profit firm which is the typical subject of the Pensions Regulator than it is to the post-92 higher education sector, which is part of the public sector Teachers Pension Scheme? I think the question almost answers itself: the pre-92 sector is more analogous to the post-92 sector than it is to the typical firm that is the subject of the Pensions Regulator.

We already know that annual cash flow have been far more than sufficient to cover pensions payments during the past twelve years:



(Data from USS Annual Reports)

UCU/FA projects that cash flows for the current pension scheme would, *even if unreformed*, remain positive for the period 2011-2031:



(From p. 26 of UCU/FA)

When, as in the case of USS, the pension scheme will remain in positive cash flow for such a long period, what is the most sensible approach to the investment of its assets? According to UCU/FA:

While the net cash flow is positive, there is no need to sell any assets and therefore no disinvestment risk to the USS. [Therefore,] a measure of risk which suggests a market fall is a problem would be giving a wrong message. 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. (6.7-6.8)⁶

Rather, USS should remain invested in high-return-seeking equities, with exposure to risk optimised not minimised:

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 ... a horizontal line beginning and ending with a value of 100.

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.

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.

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. (7.5-7.8)

Interestingly, as recently as October 2013, USS's own description of its investment strategy was very much of a piece with the approach that First Actuarial recommends:

We would reiterate that USS is a long term investor, and unlike many defined benefit schemes it remains open to new members and is cash positive. Assets are performing well, in the year to March 2013 the investment team outperformed independently set, industry wide benchmarks. Global economic uncertainties have meant that the value currently placed on the liabilities has increased substantially since the last valuation. However, USS is able to take a long term view, and the substantial and enduring strength of the sponsoring employers, means we are able to adopt an investment strategy which can take advantage of the longer term growth opportunities in specific asset classes.⁷

The world has not changed since the autumn of 2013 in a manner that would justify USS's abandonment, for its current valuation, of this sensible approach. It would be good to know why and through what process USS has nevertheless come to adopt such a different approach over such a short period of time.

⁶ See Section III of this note on 'The analogy to negative equity' for further support of these claims.

⁷ "Response to comments in Newsnight programme regarding USS funding":

<<http://www.uss.co.uk/news/Pages/ResponsetocommentsinNewsnightprogrammeregardingUSSfunding.aspx>>

II. An analogy to a one-person pension scheme

To illustrate what is wrong with USS's self-sufficiency approach to the valuation of the pension fund, which is appropriate when a pension scheme is to be wound up rather than ongoing and in positive cash flow, I invite you to consider the following analogy to a 'pension scheme' involving a single individual:⁸

If one has one's own private 'defined contribution' pension pot, one is commonly advised to 'de-risk' one's investments into assets such as gilts, which are low-risk, low-return government bonds, when one nears retirement age. It is deemed important to do so as one nears retirement, since that's the point when one's one-person pension scheme 'closes down' to further contributions and its assets are 'bought out' by an insurance company that provides an annuity in exchange, where the latter is a guaranteed pension for the rest of one's life.⁹

Similarly, if a closed employer's pension scheme is nearing the point where it will be wound up, and its assets bought out by an insurance company that provides a bundle of annuities for the retired employees in exchange, the trustee of this pension will tend to be conservative and invest in assets such as gilts.

In both cases, the rationale offered for such investment is that one doesn't want to risk a great fall in the value of one's assets just before the point where one will sell them in exchange for pension income.

When, however, one is several years short of retirement, one is commonly advised to invest one's pension pot into higher risk, higher return assets. Since one doesn't need to sell these assets any time soon, the rationale that is offered for such investment is that one can ride out the rises and falls in the value of one's higher risk, higher return stocks and shares.

Similarly, when an employer's pension scheme is, as in the case of USS, ongoing rather than close to being wound up, and projected to have a positive cash flows for the next twenty years, it is, for the reasons UCU/FA explains above, deemed sensible to remain invested in equities rather than de-risking one's assets into gilts.

III. The analogy to negative equity

Since USS's disputed valuation forecasts total future pensions liabilities as of 31 March 2014 that are greater than the estimated market value of their total assets on that same date, we are required to enter into a recovery plan to close this deficit by cutting pensions payments and increasing contributions.

Dennis Leech has written that such a recovery plan "is rather as if your mortgage lender was telling you to find the cash now to pay off your negative equity in an emergency recovery

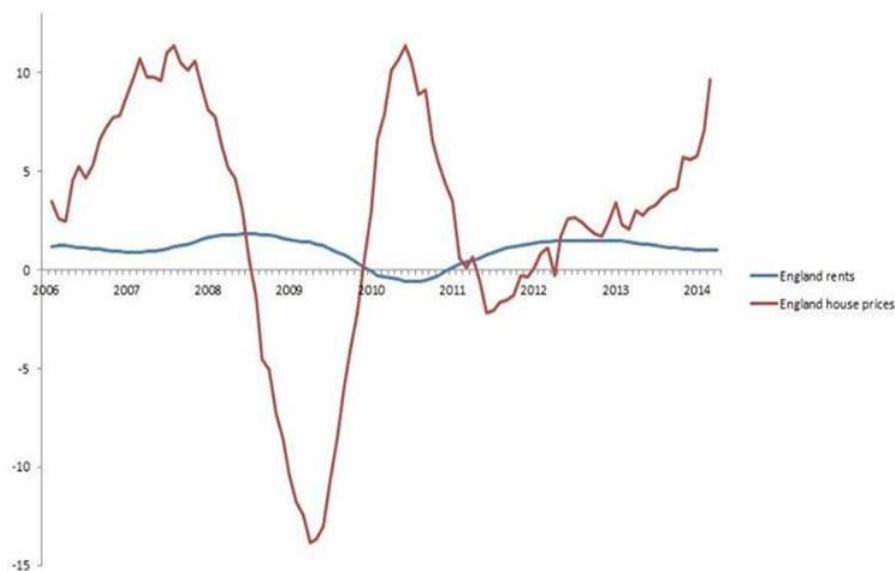
⁸ I discuss this analogy to a one-person pension scheme in a paper entitled "How to Guard Against the Risk of Living Too Long: A Hobbesian voluntarist case for collective pensions".

⁹ In the UK, one needn't any longer purchase an annuity with one's pension pot. But that's beside the point I'm making.

plan." He adds: "If house prices fall many people will find their mortgage debt greater than the value of their house: a situation known as negative equity. That happens fairly often and is not usually regarded as a problem that has to be dealt with. We see it as merely a temporary situation until house prices recover in the normal course of the economic cycle. It does not mean that the householder has to suddenly find the money to pay off the difference."¹⁰

The negative equity analogy is helpful because it drives home that the market value of one's assets is not a very good indicator of the sort of income one can anticipate in order to continue to pay one's future obligations.

To extend Leech's analogy, if you own a buy-to-let flat and are trying to calculate what your stream of income will be from renting it out, it would not make much sense to adjust this upward or downward on the basis of fluctuations in the current market value of your flat.



See the graph above of annual percentage change in housing prices versus rental returns in England. If you took out a buy-to-let mortgage on a flat in mid-2008, you would probably be in negative equity twelve months later. But your rental income to cover monthly mortgage payments would be stable and generally increasing by about 1% per year.

So long as you didn't need to sell your flat in 2009, such negative equity would not have rendered you insolvent. If your plan was to hold onto your flat for the long term, you would be able to continue to meet your monthly mortgage payments out of your rental income.

The same holds for universities: so long as the government has no plans to close down the higher education sector any time soon, the deficit doesn't matter, since USS will be able to cover its annual pension obligations with its annual income from pensions contributions and investment income for some time to come.

¹⁰ <http://blogs.warwick.ac.uk/dennisleech/entry/uss_fags_1/>

Appendix: USS's Test 1 chain to the ball of sinking gilt yields is the biggest problem with the valuation methodology

In this Appendix, I provide a somewhat more technical explanation of how a self-sufficiency valuation figures in USS's approach: it is tied to their recent adoption of 'Test 1'. I also explain why this test should be rejected in favour of a different 'ongoing valuation technique' that First Actuarial recommends.

According to the first of three new tests USS has adopted, there is overreliance on the covenant – i.e., too much demand placed on the employers who sponsor the scheme – when the gap between the discount rate of the 'technical provisions' (which determines the actual level of employer contributions) and the discount rate of a self-sufficiency valuation exceeds the difference between an 18% and a 25% employer contribution rate. The discount rate for a self-sufficiency valuation is set at gilts + 0.5%. In the words of UUK's response to the AV consultation, Test 1 therefore "effectively 'forces' a Gilts+ methodology to be adopted, as the technical provisions is defined by reference to a self-sufficiency target that is calculated on a Gilts+ basis".¹¹

The rationale for such a test of whether reliance upon the covenant is too great is apparently that USS must guard against the possibility of having to wind up the scheme, which would involve moving to a de-risked investment fund consisting of assets equivalent to gilts + 0.5%. It must ensure that, if it is forced to wind up the scheme, it can do so without placing too much burden on the employer in the form of a raised contribution rate. As noted above, First Actuarial maintains that this is to focus on a very remote possibility rather than on the much more likely possibility "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."¹²

Now that USS has adopted Test 1, the following problem arises for the scheme: When long term gilt yields fall to historic lows on account of the high demand for gilts caused by the extraordinary measures of quantitative easing, the gap between gilts yields and the return on equities increases, as it has done between 2011 and 2014. As a consequence, Test 1 is driving USS to de-risk its investments to keep the gap between the technical provisions and gilts + 0.5 within the prescribed limits.

Note that this de-risking that Test 1 forces upon USS when gilt yields fall is above and beyond the much-noted problem of volatility of the deficit to which a 'gilts+' methodology gives rise.¹³ Even in the absence of the Test 1 chain to the ball of a sinking rate of a gilts +

¹¹ "Response to the Universities Superannuation Scheme Consultation on Technical Provisions and Recovery Plan", Universities UK, 2 December 2014, p. 2. <<http://www.employerspensionsforum.co.uk/en/EPF-News/news.cfm/2dec14>>

¹² Actually if USS persists in causing so much trouble for the scheme by valuing it in so unreasonably pessimistic a manner, they will make what ought to be a remote possibility much more likely. But USS cannot justify their valuation assumptions on grounds that they constitute a self-fulfilling prophecy.

¹³ **Volatility of the deficit:** This is USS's explanation, in their October AV consultation document, of how they calculate and express the discount rate:

0.5 self-sufficiency valuation, an expression of USS's discount rate in terms of gilts plus a margin would give rise to the problems of loss in translation that I mention in fn. 13. In the absence of Test 1, there would, however, be no need to adopt a volatile-deficit-inducing gilts-based expression of USS's discount rate. Such volatility is forced on us by the adoption of that test, because it forces the adoption of gilts+ (as UUK explains, in what I quote above).

So the fundamental problem is the adoption of Test 1. When USS first proposed it, this test may have sounded like a good idea to employers, who embraced it as a means of containing rises in their contribution rates. But UUK now appears to regret this embrace, as is evident by their recent attempt to extend the length of the chain that shackles us to the falling ball of gilts yields, via as flexible a reading of Test 1 as possible.¹⁴ UUK has refrained, however, from calling for the abandonment of Test 1. They have refrained on the following grounds that they list first among others: the view of the majority of the employers they have consulted "is supportive of trying to work within the trustee's three tests, rather than looking to replace them with a new coherent framework for covenant, investment, and funding".¹⁵

Such support is unwarranted. For the reasons mentioned on pp. 3-5 of this note, the de-risking of the pension fund that Test 1 forces is an irrational waste of resources, in the

The initial discount rate is calculated with reference to the specific assets held by the scheme. Different asset classes provide different expected rates of return. A combined overall anticipated rate of return is first determined and then adjusted to provide a prudent discount rate with which to value the scheme's liabilities. This approach allows for the actual range of investments made by USS to be reflected in the technical provisions. In deriving its long-term return expectations, the trustee takes into account the views of USS's internal investment team and its independent investment advisers on the prospects for all major asset classes, including equities and inflation-linked gilts. These assessments are made on both an equilibrium basis (assuming asset markets are fairly valued at present) and on a valuation-adjusted basis (accounting for an assessment of market over – or under – valuation).

The expected returns on each asset class, and the discount rate, used by the trustee are expressed by reference to the gilt yield which allows the scheme's stakeholders to make comparisons, for example, over time, with other asset classes, and with comparator schemes.

The gilt yield is calculated as the average equivalent rate of the gilt yield curve as at 31 March 2014 weighted by the profile of the scheme's projected cash flows. The trustee's view of the long-term best estimate return on its current investments – that is the expected rate of return which might be achieved 50% of the time – as at 31 March 2014 is equivalent to gilts +2.75% per annum.

In their Appendix B on the Valuation Methodology, First Actuarial argues that something is lost in translation when one converts the best estimate of returns on actual assets minus a margin of prudence described in the first quoted paragraph above into an equivalent expression in terms of gilts+ described in the second quoted paragraph above. The problem identified in Appendix B is not that this gives rise to a discount rate that is overly prudent because too low. Rather, it is that the translation into gilts+ gives rise to a misleading volatility over time in the forecast of returns on USS's actual investments, on account of the lack of correlation between returns on equities and gilt yields. This in turn gives rise to an artificial volatility in the deficit. Such volatility is undesirable because, under current regulation, it gives rise to volatility in the contribution rates that employers (and employees) are forced to pay in order to meet minimum funding requirements. First Actuarial argues, moreover, that it is perverse to advocate a de-risking of assets into gilts in order to tame this volatility, given that the volatility is caused by a gratuitous expression of the discount rate in terms of gilts+.

¹⁴ See especially Section 2 of "Response to the Universities Superannuation Scheme".

¹⁵ "Response to the Universities Superannuation Scheme", p. 4.

interest of neither employers nor employees. Our employers should transfer their support to the following approach that First Actuarial sketches, and which conforms to pensions legislation and regulation:

ONGOING VALUATION TECHNIQUE

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.

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.

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.

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.

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. (6.11-6.15)