

The missing trillion – public sector pension liabilities

The government's calculation of the national debt is about £900 billion, projected to grow by more than 50% over the next 5 years or so to about £1.4 trillion. It is those figures that are worrying the international financial markets. This debt is owed mainly in the form of government bonds but the government also has some other very significant commitments. The largest of these is its commitment to pay pensions. This includes: state pensions payable to most citizens; pensions for civil servants; and pensions for workers in state bodies of which the NHS is the largest.

These government pension liabilities are not matched by accumulated pension funds. This contrasts with the private sector where both employers and employees pay pension contributions. These payments build up a fund out of which future pensions are paid. Companies in the private sector are required to have independent consultant actuaries to assess the adequacy of these funds to meet future liabilities.

Pension obligations are government commitments but are not included in the government's calculation of its indebtedness. The size of these commitments can be worked out by estimating the future payments and then calculating the present value of these future payments. This process of taking a future liability or asset and working out its value today is known as "discounting", on the basis that money held now is worth more than money to be received in the future, and similarly future commitments are assumed to have a lower value than present ones. The central question in calculating the present value of future assets and liabilities is what discount rate to use. This is sometimes called the "social discount rate".

To put the scale of this into perspective, we know that the Government Actuary's Department estimates the present value of these unfunded pension liabilities at about £2.2 trillion, so even in the context of the official government debt the numbers are very large. Of this figure, £1.4 trillion relates to the state pension and £800 billion to pension commitments for government and other public sector employees. To get to these figures the Actuary's Department uses estimates of life expectancies and then takes the sums which are expected to be paid and discounts these back to their present values using a discount rate. It uses a discount rate of **inflation plus 3.5% per annum**.

This discount rate is used fairly consistently throughout the UK government and is set out in the Treasury's "Green Book"¹. It is therefore worth looking a little at how this **inflation plus 3.5%** figure is arrived at. The basic idea is that 3.5% is made up principally of two elements – the social time preference for having benefits sooner rather than later, which is put at 1.5%, added to the rate of per capita growth in the economy. This growth rate is put at 2%, based on a past real growth of 2.1% per annum in the period 1950 to 1998. It is very much open to question whether this extra 2% should be used in discounting pension liabilities but presumably the argument is that as the country's wealth increases the liability becomes progressively easier to afford. This is additional to adjustments for inflation. The pensions liabilities are generally index-linked so higher inflation will not reduce the liability.

Many economists believe that the appropriate discount rate should be the risk-free real interest rate, which should be equivalent to the government's cost of borrowing. Using UK index-linked interest rates² to show the government's real cost borrowing suggests they should be using a rate of under 1% (plus inflation). This demonstrates that a rate of 3.5% (plus inflation) is significantly too high. One argument that has been advanced for keeping the discount rate so high is that borrowing rates are artificially low at the moment, but it is hard to sustain this argument unless the government knows something that the markets don't.

At a quick glance these rates – 3.5% over inflation or 1% over inflation – may look fairly similar but in fact the impact of choosing one rate rather than the other on the present value of pension liabilities is extremely large. Let's assume, for the sake of simplicity, that the average pension liability is payable in 25 years, and that current inflation is 2%. In that case we should in fact be discounting the liability by 1% over current inflation (being 3% in total) rather than the government's rate of 3.5% plus inflation (being 5.5% in total). Using these lower discount rates, derived from the government's cost of borrowing, the unfunded pension liability is very much larger at about £4 trillion rather than £2.2 trillion. Even if one gives the government some benefit of the doubt and takes a discount rate as high as 2% over inflation the pension liability still amounts to £3.1 trillion which is almost a trillion pounds more than current estimates. This equates to an extra liability, expressed in today's money, of £40,000 per family in the UK.

The government in the Treasury "Green Book" accepts that lower discount rates should be used for very long term liabilities such as climate change because, it is argued, unless a lower rate is used future generations' interests will be unduly discounted and their interests virtually ignored. The Green Book sets out a (rather arbitrary) table of lower discounts for longer term liabilities so that, for example, after 30 years the rate excluding inflation reduces to 3% and make progressive reductions for longer periods, so that for liabilities (and assets) which are 300 years away a discount rate of only 1% is advocated. The government certainly wants climate change measures to make sense so in order to justify them in economic terms it uses lower discount rates for assessing much longer term costs (and benefits) suggesting that even some in government have doubts about the discount rates they use.

How did the government get into the position of using such a high discount rate for pension liabilities? Maybe there is a problem here of vested interest – it suits the current government to have its liabilities understated by the use of a high discount rate. Also, the conceptual difficulties in this area make it one where most non-economists fear to tread. Until fairly recently it was perhaps arguable that the real risk free return on assets was as high as 3.5% and that economic growth might justify such a high discount rate, but it is much harder to argue for this when growth has dropped and drivers for future growth are hard to find.

What do other people think the discount rate should be? A survey³ for the Asian Development Bank of different countries in 2007 shows that there is considerable variety in what discount rates are employed around the world. However, the US uses, for its calculations, the interest rate on treasury debt which has a maturity comparable to the maturity of the liabilities. Where they choose a fixed figure it is between 0.5 and 3% but in any case they do a sensitivity analysis (ie they work out

what their liabilities would be based on different discount rates). In an important 1993 OECD paper⁴ economists warned of the increasing risks posed by “pay as you go” (ie unfunded) pension schemes. Their calculations were based on discount rates in the range of 3% to 4%. This compares to a discount rate now being used in the UK of 5.5%.

In summary, the government is using a discount rate that is significantly too high. It is using that rate for a very large liability where much of the liability will become due many years ahead with the result that its pension commitments are being **underestimated by about a trillion pounds.**

The implications of this may affect:

- (1) the UK’s credit rating;
- (2) the balance of equity between generations;
- (3) policies on retirement ages; and

whether state and public sector pension commitments need to be reviewed – even if this requires retrospective changes to entitlements.

¹ Treasury “Green Book”: http://www.hm-treasury.gov.uk/data_greenbook_index.htm

² UK Debt Management Office Index-linked bonds information, showing current yields:

<http://www.dmo.gov.uk/index.aspx?page=Gilts/Indexlinked>

³ Asian Development Bank survey – “Theory and Practice in the Choice of the Social Discount Rate for cost benefit analysis: A survey.”

http://www.adb.org/documents/erd/working_papers/wp094.pdf

⁴ OECD study of Pension Liabilities in the Seven Major Economies 1993:

<http://www.oecd.org/dataoecd/40/56/2025882.pdf>