

SNA UPDATE

LIABILITIES OF EMPLOYER DEFINED BENEFIT PENSION SCHEMES: COMMENTS ON THE AEG's RECOMMENDATION

By John Walton

Summary

In this note I question use in the national accounts of the “actual benefit obligation” criterion for evaluating the liabilities of employer pension schemes to their members. In discounting to the present the benefits due at the time of retirement, this criterion does not anticipate the effect of future real earnings increases, including promotion, on ultimate benefits. The alternative, “projected benefit obligation”, does this and is the criterion used in the annual accounts of the sponsoring employer, at least in the UK according to the UK accountancy standard which I believe is consistent with the recent international standard.

I distinguish between viability and solvency as funding objectives, and illustrate these distinctions in a tabular annex. Other matters alluded to include the impact of differences between the estimate of liabilities emerging at the time of a full actuarial review and that previously projected for the same date.

1. Introduction

- 1.1 This note is based on the provisional recommendation of the AEG on employer pension schemes (No. 2) but comments on the basis which is preferred for the actuarial estimation of the level of the outstanding liabilities of the scheme.
- 1.2 The comments accept entirely that the total liability should be recorded as a liability of the scheme and as an asset of the household sector (only a change in the case of unfunded private employer schemes, it seems), plus the new recommendation that the deficit (or surplus) in the scheme should be recorded as a liability (or asset), vis a vis the scheme, of the sponsoring employer or multi-employer which assumes the liability. The amount of all these claims is however affected by the basis of the actuarial estimation of the scheme's liabilities.
- 1.3 The text of the recommendation, in dealing with the level of the employer's annual contribution, states (in the second complete paragraph on the second page):-

“ This amount must be determined actuarially, taking into account only the life expectancy of the employee and not any future earnings or the impact of any

future pay increase on the ultimate pension benefit. While the estimates cannot be made accurately for any individual, robust estimates can be, and are, made for cohorts of employees.”

- 1.4 I am indebted to Anne Harrison for the following clarification of two bases of actuarial estimation of liabilities:-

“As the actuaries explained it in Washington last year, PBO is projected benefit obligation and makes a projection of what you will be due on retirement taking account of probable future promotions etc, and then apportions that over the whole of your eligible time to determine what you have earned to date. For ABO, actual benefit obligation, there is no projection of future promotions and so it is an estimate of what you would get when you reach retirement date if you left that employment at that moment. The actuaries added that they have to do both ABO and PBO and generally used ABO in their tables with PBO in footnotes. There was general agreement that what we want for the national accounts is ABO. ”

- 1.5 This raises conceptual and practical issues, especially in regard to future real earnings increases and the discount rate. It seems to me that, in the case of the majority of schemes which are funded and so are autonomous, the decisions about funding levels taken at the time of a full actuarial review are likely to be on a PBO basis, which seems appropriate when taking decisions as a going concern.

- 1.6 There is however interaction with the discount rate, if the portfolio of assets is not wholly invested in bonds, because on a going concern basis the discount rate may be based on a conservative view of the expected average yield on the portfolio of assets held. This is likely to include a substantial element of equities (company ordinary shares), where the expected yield includes net holding gains. A discount rate conservatively based on the expected yield of the portfolio used to be the practice in the UK, and may still be so for the purposes of funding decisions taken at the time of a full actuarial review.

- 1.7 Funding decisions and the choice of the associated discount rate for liabilities are taken on what could be called the “viability” criterion.

2. PBO and ABO: interaction with the discount rate

- 2.1 ABO seems to follow the accountants’ model, where the aim is that assets should always be sufficient to cover wind-up risks; this is important for protection of the interests of the shareholders of the sponsoring company. This could be called the “solvency” criterion – UK actuaries have recently issued a new standard for the measurement of solvency. It follows that the discount rate for solvency purposes

should be based on present day bond prices, so that – on wind-up – deferred annuities could be purchased in the market to cover all future obligations¹.

- 2.2 It appears that ABO, by contrast to PBO, excludes the projected average real earnings increase of the whole of a cohort up to retirement, even if (as in UK) there is statutory protection for future inflation when a person leaves employment. Like PBO, it also excludes the property income that would be earned on the fund in the time from now up to retirement. If the excluded increases in pay match the inflation rate, there is no problem in regard to the impact of inflation.
- 2.3 Taking into account future real increases of pay, as in PBO, would increase present liabilities, depending on the discount rate. It may be that the ABO approach covers this implicitly (but only partially) by discounting the “actual” benefit obligation using the redemption yield on bonds (say 1-2% in real terms over a long period). On the other hand, actuarial valuation as a going concern takes account of future real earnings increases (PBO), in the starting point for the calculations, but for the purpose of funding decisions may discount by reference to the projected yield of the fund (say 3-4% in real terms including net holding gains over a long period, if mainly invested in equities). So there is perhaps some offset.
- 2.4 However, the UK accountants’ Standard on “Retirement Benefits”, Financial Reporting Standard No. 17, known as FRS17, requires a PBO approach, including future salary increases, plus discounting by use of the interest rate on a high quality bond – see section 5 of this note. This increases liabilities. The rationale for the change in the discount rate is discussed in Appendix IV, “development of the FRS”, paragraphs 13 to 22.
- 2.5 A new element, at least in the UK, is the establishment of a pension protection fund which charge premiums based on the risk of non-viability and/or insolvency. I do not know whether this fund accepts that there is viability where assets are sufficient to match liabilities discounted, on the going concern basis, by a conservative estimate of the average rate of return on the portfolio.

3. Insurance of wind-up risks

- 3.1 In some countries external insurance is available. It seems to me that there are two elements of the risk – lack of viability (where the scheme is under-funded as a going concern) and potential insolvency (where the scheme may be fully funded

¹ On wind-up you need sufficient money to purchase deferred annuities today, where yields are based on bonds. Historically and in the long-term, you have not needed this amount of money if you stay in business and either pay pensions yourself, carrying or insuring the survivorship risk, or even if you buy annuities in the market at the time of retirement, because you could get more than on bonds by investing partly or mainly in equities.

as a going concern, and has discounted future benefits on the basis of the projected yield of the portfolio of assets held, but is faced on wind-up with the need to fund future obligations immediately.

4. Tabular presentation of four models

- 4.1 I attach at Annex (on page 8) a tabular presentation of four models. The first, which I have called “Traditional, UK” is the model I was familiar with when acting as a trustee of the defined benefit pension fund of a small UK company, from 1968 to 1995. It uses an actuarial valuation of assets. But, according to an annex of the UK accountancy standard FRS 17, this method was not used in other countries, and during the 1990’s actuaries in the UK moved towards using market values. So I will not pursue it further here².
- 4.2 Versions 2 and 3 take projected benefit obligations (PBO) as the funding objective, and so include expected future real earnings increases in the starting point for evaluating present liabilities. In version 2, which is on a going concern basis (as relevant to funding decisions), the discount rate is the expected average annual return in the future on the portfolio of assets held (say 3-4% in real terms); the higher starting point for estimating future benefits is offset to some extent by a higher discount rate. This is the model which I suggest should be used for funding decisions on a going concern basis, especially where external insurance of both solvency and viability risks is available.
- 4.3 Version 3 starts with the same higher starting point for estimating future benefits but discounts using a bond interest rate. This increases liabilities in order to cover solvency risks, and may overlap with an element in the premium payable to a pension protection fund which also covers the risk of having to fund the immediate purchase of deferred annuities, on wind-up. This is the basis required in the UK Accounting Standard, FRS17 and, I believe, in the recent international accounting standard.

² An actuarial valuation, albeit dependent on assumptions (as is the case with liabilities), did have the advantage of smoothing out fluctuations in asset values when used as the basis for projections, and in putting projections of future income alongside the projection of future benefit payments. I have heard, too, that in other countries a smoothed estimate of the value of assets may be used for funding decisions.

When used in practice for determining the deficit (or surplus) in a fund on a going concern basis, a smoothed estimate of assets could be adapted for SNA by carrying the difference, between the actuarial or smoothed level of the fund’s assets and their market value, into the estimate of the liability (or asset) of the sponsoring employer.

Thus, in the dotcom boom period in the late 1990s, an actuarial or smoothed valuation of assets would almost certainly have been below market value. In SNA the difference could have been carried into the liabilities side of both the fund and the sponsoring employer, increasing a deficit shown on the market value basis (or reducing the more likely surplus at this time – hence not endorsing decisions to take contribution holidays).

4.4 Version 4, on the actual benefit obligations objective (ABO), is what AEG recommends for the updated SNA, if I understand the matter correctly. As the liabilities are based only on present salary level, it then seems clearly appropriate to use a bond interest rate for discounting.

5. Which funding objective in SNA?

5.1. The case for ABO, I take it, is that this is what households can count on now, if promises to pay are protected, whether or not the employer remains in business or the employee stays in that employment. PBO also scores only pension rights earned to date, but anticipates the effect of future pay increases. It leads to a higher level of present liabilities, unless offset for funding decisions by use of a higher discount rate based on the projected yield in the portfolio³. The case for PBO, it seems to me, is that the impact of expectations of future pay increases on present values of liabilities will be included in the balance sheet of the sponsoring employer; and that “current service cost”, consistently defined, is what will affect his published operating profit⁴.

5.2 On the question of including future pay increases in the level of liabilities, the UK accounting standard FRS17 is unequivocal. Under the heading “Scheme liabilities” (for defined benefit schemes), there are the following two paragraphs:-

“ 27 The actuarial assumptions should reflect expected future events that will affect the cost of the benefits to which the employer is committed (either legally or through a constructive obligation) at the balance sheet date.

28 Expected future events that will affect the cost of the benefits include:-

- (a) any expected cost of living increases either provided for in the scheme rules, publicly announced or awarded under an established practice that create among the employees a valid expectation of receiving them;
- (b) in the case of pensions based on final salary, any expected salary increase; and
- (c) expected early retirement where the employee has that right under the scheme rules.

³ Not permitted, however, in the UK accountancy standard “Financial Reporting Standard No. 17”, on “Retirement Benefits”, which requires use of a interest rate on high quality bonds. I believe it is the same with the new international accounting standard.

⁴ The UK FRS 17, shows, in its “disclosure example” (Appendix 1) that both current service cost and past service cost are charged to operating profit. Both are defined; past service cost arises when the employer makes a commitment to provide a higher level of benefit than previously promised.

These events affect the measurement of benefits to which the employer is committed at the balance sheet date. ”

The rationale is discussed at paragraphs 11 and 12 of Appendix IV (“The Development of the FRS”). It seems therefore that, at least in the UK, use of the ABO criterion in the national accounts would require re-estimation of the employer’s liability and operating profit as shown in his published accounts. I believe that international accounting standards are similar to the UK’s FRS17. If that is so, even when figures on the ABO basis are compiled at the time of a full actuarial review, annual projections are likely to follow the PBO criterion, if this used in the published accounts.

5.3 On this view, an expectation of future events is inherent in a defined benefits scheme and, on prudent accounting principles, affects the valuation of liabilities in the employer’s balance sheet. As PBO is also probably used at the time of full actuarial reviews of the fund, it seems to me preferable to adopt the PBO criterion throughout. As regards evaluating the assets of the household sector, the expectation of average real pay increases also seems realistic, at the level of a whole cohort of employees.

6. Other matters

a. Annual projections of liabilities

6.1 In the UK, according to FRS 17, the actuarial profession is developing methods for annual projections on an actuarial basis. An actuarial method is preferred in the Canadian paper presented to IARIW last month⁵. The alternative is simply to assume that the discount rate applied to opening liabilities, plus the contributions made in the year, provides a proxy. It is not entirely clear what the AEG proposes for the sequence of annual projections in the years between full actuarial reviews of the level of liabilities (which usually take place at three or five year intervals).

b. Impact of the periodic full actuarial reviews

6.2. The level of liabilities as estimated in the full review may differ from that projected from the last review. This point was raised in the Canadian paper for IARIW⁵. Suppose that the new estimate is higher, on the basis of unchanged benefits, than that projected from the last review, which was probably available earlier and embodied in the published accounts. On this supposition regarding the new estimate, a deficit becomes higher, or a surplus lower, which implies an immediate revision to the sponsoring employer’s balance sheet for the same balance sheet date. Suppose that the balance sheet for the same date has not yet

⁵ Lauren Dong, Patrick O’Hagan, Joe Wilkinson and Karen Wilson: “The Pension System in Canada: What are its components? How is it treated in the Canadian System of National Accounts? How does this relate to the implementation of the SNA93 Update? A proposal for a Pension Satellite Account”

been published or, if it has been, can be revised; it would follow that revised estimates of higher liabilities in the intervening years should be made. From this would follow revised estimates in the intervening years of compensation of employees (higher) and of operating surplus (lower).

6.3 The alternative is to take the whole change into the figures for the period ending with the date of the actuarial review, introducing discontinuities to the series of compensation of employees and operating surplus. The previous cash basis was less troublesome in this regard; often a newly emerging deficit would be spread forward by enhanced cash contributions over a period of up to ten years. But clearly on the liabilities basis, changes in cash contributions are irrelevant to non-financial transactions and are financial flows (running down the new liability of the sponsoring employer over a period). This whole area seems to need further thought.

c. Non-autonomous schemes : unfunded schemes for government employees

6.4 In the Canadian paper, it appears that the estimation of liabilities, introduced from 2000, uses the PBO criterion discounted by a bond interest rate. (New bonds were in fact issued when previously unfunded schemes were funded). In the UK, however, where schemes for central government employees but not local government employees are unfunded, the Government Actuary has produced estimates, presumably also on the PBO basis, using 3% as the discount rate. This appears to be related to possible growth in the economy as whole, on the basis that the risk is carried by central government so that the bond rate used when protection is through funding is not relevant.

d. Non-autonomous schemes : non segregated assets

6.5 In Germany, many private employers offer defined benefits so that the liabilities are estimated but the assets which support them are not segregated. There is apparently a system of insuring the risk of default. It would be useful to know whether estimation of the liabilities tends to follow the PBO criterion or the ABO criterion and whether the discount rate used by the employers in their own accounts are generally related to projected company earnings or to the interest rate on bonds. Also relevant is the attitude of the insuring body to the choice of discount rate.

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15 September 2006

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ANNEX

SURPLUS OR DEFICIT OF DEFINED BENEFIT PENSION FUNDS : FOUR MODELS

	(1.) “Traditional” (UK)	(2.)	(3.)	(4.)
		BASIS OF VALUING LIABILITIES : -		
Funding Objective	Projected benefit obligations (PBO) or Actual benefit obligations (ABO)	Projected benefit obligations (PBO)	Projected benefit obligations (PBO)	Proposed SNA Model:- Actual benefit obligations (ABO)
Basis of funding decisions	Going concern	Going concern	To cover wind up risks	To cover wind up risks
Measurement of Asset Value	Actuarial :- present value of estimated future income stream	Present market value (possibly smoothed)	Present market value	Present market value
Measurement of Liabilities:- <u>Starting point for calculation</u>	(If PBO) Estimated future benefits assuming employment until retirement, in nominal or real terms, apportioned up to now	(If PBO) Estimated future benefits assuming employment until retirement, in nominal or real terms, apportioned up to now	(If PBO) Estimated future benefits assuming employment until retirement, in nominal or real terms, apportioned up to now	(ABO) Estimated future benefits at age of retirement, if employment left now, in nominal or real terms
Measurement of Liabilities:- <u>Discount Rate</u>	Estimated average annual return in the future on the portfolio of assets held, in nominal or real terms	Estimated average annual return in the future on the portfolio of assets held, in nominal or real terms	Redemption interest rate on high quality bonds, in nominal or real terms	Redemption interest rate on high quality bonds, in nominal or real terms
Insurance of solvency risks	No	On payment of premium, if external insurance available	Covered by discount rate ⁶	Covered by discount rate
Insurance of viability risks	Self insurance	On payment of premium, if external insurance available	On payment of premium, if external insurance available	On payment of premium, if external insurance available

⁶ If fully funded, assets are sufficient to cover immediate purchase of deferred annuities on PBO basis; hence there is double counting, if the premium also covers solvency risks.