

Pension Fund Valuations and Market Values

Survey of Practice

1. Introduction

Our working party, set up by the Research and Technical Support Committee of the Pensions Board, presented its paper “Pension Fund Valuations and Market Values” at a sessional meeting of the Institute of Actuaries in October 1999. It is presenting the same paper to the Faculty of Actuaries on 20 November 2000. Prior to the Faculty meeting we have carried out a survey of Scheme Actuaries to assess what methods are actually being used in funding pension schemes. This paper sets out the results of the survey.

2. Scope of Questionnaire and Number of Responses

A questionnaire (reproduced in Appendix 1) was sent to the 872 fellows of the Faculty and Institute of Actuaries who hold a valid Scheme Actuary certificate in August 2000. The response rate was good, with 295 (34%) being returned.

The questionnaire asked specifically about the method used in the last funding valuation signed by the actuary (ie that used to set employer’s contribution rate). We also asked for the actuary's preferred approach going forward (again specifying a funding valuation).

Of the 295 responses, 5 were completed in a way which did not allow them to be included in the results (for instance specifying more than one method), leaving 290. 2 completed for last valuation only, and 9 for preferred approach going forward only.

Of the 290 responses, 248 listed their employer as a consultancy and 34 as a life office (8 not specified). Although there were differences in the responses between these categories, given the relatively small number from life offices we have not broken the results down between these groups.

A detailed breakdown of the results is set out in Appendix 2, but we comment on the major features below.

3. Valuation Methods Described

We have used the categories of valuation methods set out in the paper “Pension Fund Valuation and Market Values”, which are summarised below. We asked respondents to choose the one which most accurately describes their approach, although for those which could not be put in any category we have given an ‘other’ option.

The methods we described (with descriptions as per our paper) were as follows:

Method 0 (Traditional Method): This values both assets and liabilities using a discounted cash flow approach. The assessed value of assets represents the discounted present value of the expected income and capital proceeds from the scheme’s assets, usually expressed in the form of a market value adjustment (MVA) to those assets.

Method 1 (Market Value Adjustment (MVA) Approach): The method takes the market value adjustment (traditionally applied to the assets) and applies the inverse to the discounted value of the liabilities to give a market-adjusted value.

Method 2 (Asset Based Discount Rate): Under this method the market reference is made directly via the discount rate. We first derive an implied market discount rate for each asset class. For example, for gilt investments this is simply the gross redemption yield. For equity investments this involves determining the discount rate implied by the current market price and expected dividend and/or sale proceeds. The overall valuation discount rate is then determined as a weighted average of these individual discount rates, based on the proportions invested in each asset class.

Method 3 (Economic Valuation Using Bond Yields): The discount rate and related assumptions are derived directly from market information. At its simplest, the discount rate is taken as the gross redemption yield on an appropriate portfolio of bonds. The discount rate so derived is then used to value the liabilities.

Method 4 (Bond Yields Plus Risk Premium): This method starts with the Method 3 discount rate (based on bond yields) but then adjusts it to take account of returns expected from other asset classes (e.g. equities). This is done by adjusting (usually increasing) the discount rate by the addition of either a constant or a variable risk premium.

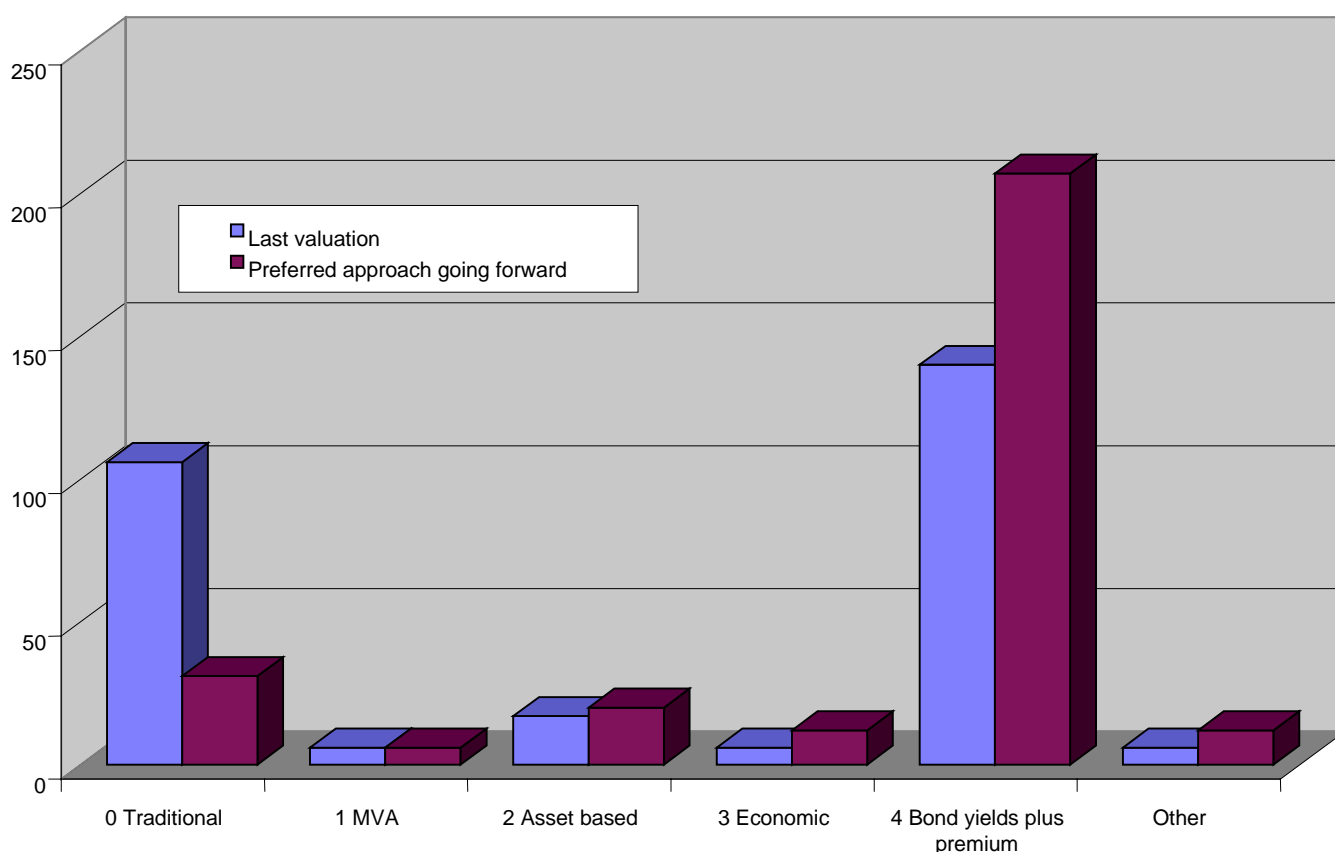
In addition we asked whether, for respondents using methods 2, 3 or 4, they employed any explicit smoothing of the results or the parameters used in valuing liabilities.

4. Main Findings

4.1 Diminishing use of Traditional Method

Figure 1 below shows the results split between the different methods. Even at the last valuation signed, the majority of respondents used a method other than the traditional method, and in particular Method 4 (Bond yields plus risk premium). When questioned about their preferred approach going forward there is very strong support for Method 4. Valuation methods are clearly changing.

Figure 1: Valuation Methods in use



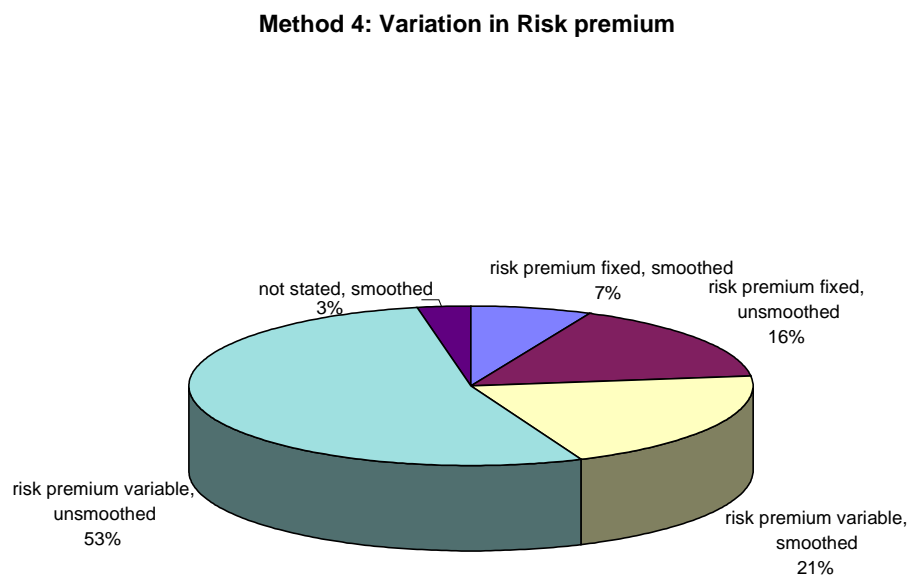
4.2 Variations within Methods 1 to 3

Whilst a minority of actuaries are using these methods there are certain interesting features. For those using an MVA approach (Method 1) the trend is towards applying this to both past service liability values and future contribution rates. Methods 2 and 3 are gaining in popularity marginally, with a majority of actuaries using corporate bonds as opposed to gilts to set their discount rate for a Method 3 (Economic) valuation. Term dependent discount rates are not, however, commonly in use.

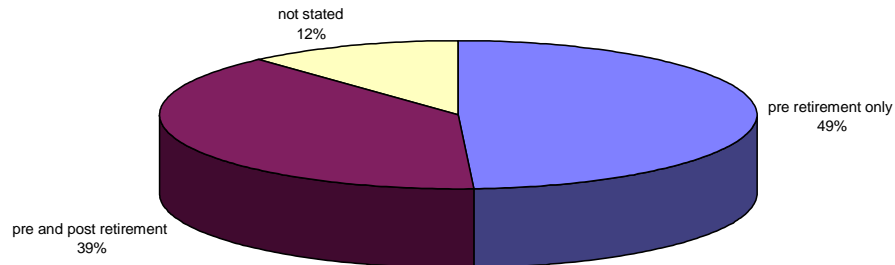
4.3 Variations within Method 4

Whilst the majority of respondents are moving towards use of Method 4 (Bond yields plus risk premium), there is no clear consensus within this group between the various approaches. Figure 2 shows the variation amongst the responses for the 207 respondents who chose Method 4 as their preferred approach going forwards. Most intend to vary the risk premium with changes in market conditions, presumably for some implicit smoothing of results or the use of actuarial judgement. In total about 30% also apply some explicit smoothing of results. There is a more mixed response in terms of whether the premium is applied pre and post retirement or just pre retirement. The majority, however, tend to use the same basis for past and future accrual of benefit.

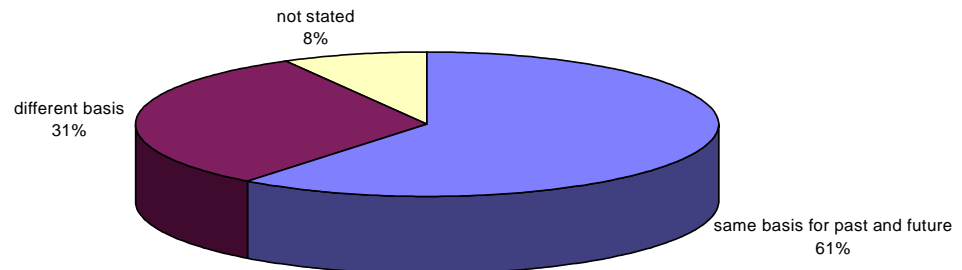
Figure 2: Variations within method 4



Method 4: Risk premium applied pre or post retirement



Method 4: Use of same basis for past & future accrual



5. Conclusions

There is no doubt, from the results of the survey, that actuaries are changing the way funding valuations are presented, with the majority now moving towards our Method 4 (Bond yields plus risk premium). At the same time there appears to be strong support for a variable risk premium. One could conclude that actuaries are looking to retain the ability to smooth results and use actuarial judgement in advising their clients, whilst presenting results in market value terms.

Market Based Valuations Working Party

October 2000

Appendix 1: Questionnaire

	Last valuation signed	Preferred approach going forward
Method 0: Traditional Method	<input type="checkbox"/>	<input type="checkbox"/>
same basis for past and future	<input type="checkbox"/>	<input type="checkbox"/>
different basis for past and future	<input type="checkbox"/>	<input type="checkbox"/>
Method 1: MVA Approach	<input type="checkbox"/>	<input type="checkbox"/>
apply MVA to past service only or	<input type="checkbox"/>	<input type="checkbox"/>
apply MVA to past and future service	<input type="checkbox"/>	<input type="checkbox"/>
Method 2: Asset-based discount rate	<input type="checkbox"/>	<input type="checkbox"/>
same basis for past and future or	<input type="checkbox"/>	<input type="checkbox"/>
different basis for past and future	<input type="checkbox"/>	<input type="checkbox"/>
Method 3: Economic valuation using bond yields	<input type="checkbox"/>	<input type="checkbox"/>
discount using gilt yields or	<input type="checkbox"/>	<input type="checkbox"/>
discount using corporate bond yields	<input type="checkbox"/>	<input type="checkbox"/>
single discount rate or	<input type="checkbox"/>	<input type="checkbox"/>
term dependent discount rates	<input type="checkbox"/>	<input type="checkbox"/>
Method 4: Bond yields plus risk premium reflecting expected equity performance	<input type="checkbox"/>	<input type="checkbox"/>
is your risk premium fixed or	<input type="checkbox"/>	<input type="checkbox"/>
is your risk premium expected to vary with market conditions?	<input type="checkbox"/>	<input type="checkbox"/>
does risk premium apply pre retirement only or	<input type="checkbox"/>	<input type="checkbox"/>
does risk premium apply pre and post retirement?	<input type="checkbox"/>	<input type="checkbox"/>
do you use the same basis for past and future service or	<input type="checkbox"/>	<input type="checkbox"/>
a different basis for past and future?	<input type="checkbox"/>	<input type="checkbox"/>
Other – (eg MFR plus a margin - please specify overleaf)	<input type="checkbox"/>	<input type="checkbox"/>
If method 2, 3 or 4 is used, do you explicitly smooth the input parameters or the results?	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>
	No <input type="checkbox"/>	No <input type="checkbox"/>

Name (optional) Employer (optional)

Type of employer

Appendix 2: Summary of Results

Methods	Last valuation								Preferred Approach							
	Basis for past and future								Basis for past and future							
0 (Traditional Method)	same	different		not stated		total		same	different		not stated		total			
	95	7		4		106		24	4		3		31			
1 (Market Value Adjustment (MVA) Approach	Apply MVA to...								Apply MVA to...							
	past service only		past & future		not stated		total		past service only		past & future		not stated		total	
	5		0		1		6		2		3		1		6	
2 (Asset based Discount rate)	Basis for past and future								Basis for past and future							
	same	different		not stated		total		same	different		not stated		total			
	4	11		2		17		7	11		2		20			
	Results smoothed?								Results smoothed?							
	yes	no	yes	no	yes	no	yes	no	yes	no	yes	no	yes	no	yes	no
	1	3	0	11	0	2	1	16	2	5	2	9	0	2	4	16
3 (Economic Valuation using Bond yields)	Discount using gilt yields or corporate bond yields?								Discount using gilt yields or corporate bond yields?							
	gilt yields		corporate		not stated		total		gilt yields		corporate		not stated		total	
	1		4		1		6		3		8		1		12	
	Results smoothed?								Results smoothed?							
	yes	no	yes	no	yes	no	yes	no	yes	no	yes	no	yes	No	yes	no
	0	1	0	4	0	1	0	6	1	2	0	8	0	1	1	11
	Single or term dependent discount rates?								Single or term dependent discount rates?							
	Single		term dependent		not stated		total		single		term dependent		not stated		total	
	5		1		0		6		9		2		1		12	
	Results smoothed?								Results smoothed?							
	yes	no	yes	no	yes	no	yes	no	yes	no	yes	no	yes	No	yes	no
	0	5	0	1	0	0	0	6	1	8	0	2	0	1	1	11
4 (Bond yields plus Risk premium)	Is premium fixed or does it vary with market conditions?								Is premium fixed or does it vary with market conditions?							
	fixed		varied		not stated		total		fixed		varied		not stated		total	
	47		87		6		140		46		147		14		207	
	Results smoothed?								Results smoothed?							
	yes	no	yes	no	yes	no	yes	no	yes	no	yes	no	yes	no	yes	no
	10	37	21	66	3	0	34	106	14	32	41	106	6	8	61	146
	Does premium apply pre or pre & post retirement?								Does premium apply pre or pre & post retirement?							
	pre retirement		pre & post		not stated		total		pre retirement		pre & post		not stated		Total	
	75		60		5		140		102		81		24		207	
	Results smoothed?								Results smoothed?							
	yes	no	yes	no	yes	no	yes	no	yes	no	yes	no	yes	no	yes	No
	19	56	13	47	2	0	34	106	33	69	19	62	9	15	61	146
	Basis for past and future								Basis for past and future							
	same	different		not stated		total		same	different		not stated		Total			
	94	40		6		140		126	65		16		207			
	Results smoothed?								Results smoothed?							
	yes	no	yes	no	yes	no	yes	no	yes	no	yes	no	yes	no	yes	no
	24	70	6	34	4	2	34	106	43	83	11	54	7	9	61	146
Other	6								12							
Not completed	9								2							