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Minimum Technical Provisions for defined benefit occupational pensions in the EU

A summary of minimum funding requirements

Prepared on behalf of Groupe Consultatif Pensions Committee

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This report is based on surveys in the period November 2004 to March 2007. The Group Consultative takes no responsibility for the accuracy or otherwise of the information collected. Users of this report should verify the factual information for accuracy and completeness before using it.

1 Executive summary and principal conclusions

Factors governing technical provisions

- 1.1 The principal conclusion from this survey is that a comparison of the discount rates in isolation is not sufficient to give an indication of the strength or consistency of reserving for technical provisions.
- 1.2 Given the diversity of benefits provided and practices between EU states, we found that the main factors governing the level of technical provisions (in addition to the demographic assumptions which were outside the scope of this study) are:
- The type of benefit promise (fixed, linked to final salary or something in between and whether pensions, once in payment, remain fixed or need to be increased).
 - The reserving method and its consistency with the benefits promised, as well as statutory indexation and preservation requirements.
 - The extent to which various options and choices in the design of pension schemes are built into technical provisions.
 - The allowance, if any, for expenses.
 - The allowance, if any, for explicit solvency margins.
 - The level of prescription on the full range of financial assumptions covering the principal elements of plan design.

Methods for assessing technical provisions

- 1.3 Given that the level of pension provision, and hence various elements of the plan design, are a function of social policy, it is to be expected that a unit of pension in each country will be different and have different values. For a consistent comparison between countries we therefore examined the ‘strength’ of the reserving method relative to the ‘accrued’ liabilities established by the application of the scheme rules and any overriding legislation regarding indexation and preservation.
- 1.4 Amongst the countries where the plan design was in the form of pensions linked to salaries at (or close to) retirement, only Spain required minimum technical provisions to be established by reference to pensions based on projected final salaries (the PBO method). Since future salary increases are not guaranteed the reserve in respect of expected salary increases serves to smooth future contribution requirements as well as to provide a safety cushion against adverse experience.
- 1.5 We found that all other countries required minimum technical provisions to be set aside to cover at least the accrued liabilities, with vesting periods disregarded (the ABO method but with adaptations to reflect social choices on indexation and other elements of local preservation law). This method of reserving is more susceptible to volatility from adverse scheme experience and therefore in almost all countries the reserving method was supplemented by specific provisions for prudence covering one or more of the following:
- Disregard the possibility of future withdrawal from service

- Specific reserves for self insured risk benefits such as benefits on death in service
- Specific reserves for significant member controlled options, such as early retirement on generous terms
- Explicit solvency cushions
- Reserves for expenses of winding up where these have to be met from the pension scheme

Financial assumptions

- 1.6 With regard to the financial assumptions, the survey revealed two distinct families in the pre IORP era. In the majority of EU states financial assumptions were prescribed in the form of a fixed discount rate, varying from 2¾ to 6%. Only three countries prescribed a full set of financial assumptions (to include salary increases as well as pension increases where these were linked to inflation).
- 1.7 The assumptions had a direct link to prevailing market conditions in only two of the countries surveyed, and there was possibly an indirect link to one other through regulatory oversight.
- 1.8 Apart from a loose link in two countries, there was no requirement in the pre IORP regime to link the assumptions with the liability profile of the membership or the term structure of the liabilities.

Residual risks in insured schemes

- 1.9 This survey also highlighted certain types of schemes where it is not clear if and how Article 15 of the IORP Directive will apply. For example, in many countries where insurance is a common method for financing pensions, the sponsoring employer usually carries certain residual risks (for example, the risk of salary increases and some biometric risks). We found no evidence of any country that requires the sponsoring employer to pre-fund for some or all of these residual risks and therefore it is arguable whether they are exempt from Article 15.

Post IORP

- 1.10 These results are indicative of a very wide variation between countries in the methods and assumptions for assessing minimum technical provisions.
- 1.11 We expect to see significant changes in the way discount rates and other assumptions are determined as EU states begin to implement the IORP Directive. Whilst comprehensive information is not yet available on the way in which each country proposes to implement Article 15 of the Directive, there are signs that minimum technical provisions will in future be characterised by differing balances in member states between scheme collateral, regulatory powers and disclosure. Our future surveys will monitor these changes.

2 Purpose and limitations of this study

IORP Directive

- 2.1 The overriding objective of the European Directive on the activities and supervision of IORPs (the Directive) is to put in place a framework that removes cross border barriers to the development of occupational pension schemes. A key feature of the Directive is the requirement by institutions who provide biometric and financial risks, or provide defined benefit promises, to establish sufficient ‘technical provisions’ in respect of those promises.
- 2.2 Technical provisions are not defined explicitly but are required to be certified by an actuary or other specialist in the field, and in accordance with national legislation. Some guidelines are set out in the Directive on how the calculation is to be done:-
- *The minimum amount of technical provisions must be calculated by a sufficiently prudent actuarial valuation and must be sufficient both for pensions and benefits already in payment to continue to be paid and reflect commitments arising from members’ accrued rights (Article 15.4(a)).*
 - *Interest rates must be chosen prudently and in accordance with any relevant rules of the home member state. These shall be determined by taking into account the yield on the corresponding assets held by the scheme and the future investment returns and/or the market yields of high quality or government bonds (Article 15.4(b)).*
 - *Biometric tables must reflect the characteristics of the members (Article 15.4(c)).*
 - *The method and basis of calculation must generally remain constant from one year to another, although revisions may be justified by changes in the legal, demographic or economic circumstances underlying the assumptions (Article 15.4(d)).*
 - *Member states may lay down additional and more detailed rules regarding the calculation of technical provisions with a view to ensuring member and beneficiary protection (Article 15.5).*
- 2.3 Another key feature of the Directive is to recognise the diversity of national pension systems, leaving member states free to determine the structure of their own pension systems. There is therefore considerable flexibility in how member states may interpret and implement the common funding principles set out in the Directive. However, the Directive (article 15 (6)) also provides that:-

‘with a view to further harmonisation of the rules regarding the calculation of technical provisions which may be justified – in particular the interest rates and other assumptions influencing the level of technical provisions – the Commission shall, every two years or at the request of a member state, issue a report on the situation concerning the development in cross border activities. The Commission shall propose any necessary measures to prevent possible distortions caused by different levels of interest rates and to protect the interest of beneficiaries and members of any scheme’

Objectives

- 2.4 The purpose of this study was to provide a prelude to the implementation of the Directive by documenting the diversity of defined benefit practices in EU member states and national requirements for minimum technical reserves. Specific objectives were to:-
- Document the sources of variations in interest rates and related financial assumptions used in different EU member states for valuing defined benefits occupational pension liabilities.
 - Highlight the principal differences in the methodology commonly employed in each member state which gives rise to such differences.
 - In due course, through regular updates, monitor trends as member states begin to take specific action to implement the Directive.

Scope

- 2.5 The scope of the present exercise extends to documenting and tracking changes in the methods and financial assumptions used to determine technical reserves in defined benefit occupational pension arrangements in fifteen European Union member states. The scope to expand the analysis to cover demographic assumptions or to extend the study to cover other countries will be considered at a later stage.

Data

- 2.6 Information has been collected principally via questionnaires and disclosures between members of the Groupe Consultatif Pensions Committee. It supplements or updates information available from other studies carried out by Groupe Consultatif (in particular '*Security Standards for Occupational Pension Schemes in the EU*' edited by Carel Hammer and last revised in February 2004, and '*Actuarial Methods and Assumptions used in the Valuation of Retirement Benefits in the EU, and other European Countries*' edited by David Collinson and last revised in December 2001). The conclusions and interpretations were validated by exposing a draft of this report for discussion and debate with interested parties; however this does not guarantee that the information is fully accurate or up to date.
- 2.7 The period covered by this report is 31 December 2003 to 31 December 2006. The IORP Directive took effect during this period, but the data collected and the analysis for each country is mainly confined to the situation prevailing prior to its implementation with only brief details available so far on how each country is responding to the requirements of Article 15.
- 2.8 A country based summary of the main responses is given in Appendix B. Appendix A summarises the range of reserving methods and financial assumptions that prevailed at 31 December 2003, and an indication of how they changed in the subsequent two years. The rest of this paper provides further insight on the differences and considers some of the implications with regard to the harmonisation of funding methods and assumptions. A glossary of the actuarial terms used is given in Appendix C.

3 Defined benefit promises

- 3.1 The main forms of defined benefits encountered in the EU member states are:-
- Fixed monetary amounts.
 - Benefits based on career average earnings (revalued further to pension age in line with inflation or some other index – CARE schemes).
 - Benefits based on final salary at, or close to, pension age.
- 3.2 The benefits are paid in varying combinations of lump sums and income, in some cases dictated further by statutory requirements on the ‘shape’ of the emerging benefit from pension age. For example, in the UK, there is a statutory requirement for part of the pension, once in payment, to increase each year in line with inflation (subject to a cap). In general the survey responses seem to indicate that it is up to individual schemes to define the level of pension increase to be granted and this can range from no increases, increases at a fixed rate, increases in line with some specified index of inflation or undefined discretionary increases.
- 3.3 In addition, for early leavers, the pension eventually paid is also affected by vesting periods and other preservation requirements. For example, in the UK and Ireland, there is a requirement for the deferred pension to be revalued at a minimum level between the dates of leaving service and retirement.
- 3.4 As a result of this diversity in defined benefit promises, a unit of pension (defined, say, as the pension accruing from a single year’s service) will have different capital values in different countries, all other things being the same. These differences are of course a function of social policy and flexibility available to individual schemes. It is important that these differences are recognised in any comparison of technical provisions. In other words, a comparison of the reserving methods in isolation does not give an indication of strong or weak reserving without an understanding of the nature of the underlying benefits, guarantees and options.

4 Reserving methods

- 4.1 For a consistent comparison that recognises the different levels of benefit provision between countries, we examined the ‘strength’ of the reserving method relative to the ‘accrued’ liabilities established by the application of the scheme rules and any overriding legislation regarding indexation and preservation.
- 4.2 Two families of reserving methods were identified for the purpose of minimum funding (see Appendix C for definitions):
- Projected benefit methods (PBO), which define technical provisions as the value of the pensions ‘accrued’ to date but based on projected salaries at retirement. The reserve for future salary increases is not of course guaranteed and can be viewed as a ‘safety’ cushion. Amongst the countries with final salary pensions or CARE only Spain followed this method.
 - Accrued benefit methods (ABO), which define technical provisions as the value of the pensions ‘accrued’ to date, allowing for any statutory revaluation between the date of accrual and retirement (to reflect preservation laws).
- 4.3 For the purposes of minimum technical provisions, vesting periods were ignored in all countries. In other words, members who had not completed the requisite service to qualify for full vesting were nevertheless deemed to have accrued benefits in proportion to the service actually completed. In practice this element of the technical provision becomes surplus if the member leaves before acquiring vesting rights.
- 4.4 Within the ABO group we distinguished between two types:
- ABO1, where the minimum technical reserve is based on current salaries (all countries except Ireland, UK and Spain), and
 - ABO2, where the minimum technical reserve allows for statutory revaluation of the accrued pension between the dates of accrual and retirement (Ireland and UK).
- It should be noted that ABO1 and ABO2 are not distinct methods and ABO2 should not be viewed as the stronger of the two. Both establish a reserve based on the accrued benefit. In countries where the accrued benefit is defined to be higher by national law (eg UK and Ireland because of the higher preservation requirements for early leavers) then it follows that the accrued benefit and hence its capital value should also be higher, all other things being equal. The difference between ABO1 and ABO2 is essentially a function of social policy rather than strength of reserving. We have however analysed the two separately in order to investigate whether one gave more scope for regulatory flexibility and prudence than the other (for example, in countries with strong preservation and pension indexation laws there ought to be less pressure for implicit funding margins from which to finance discretionary benefits – see Section 7.3).
- 4.5 We noted that with ABO type reserving there was much tighter prescription, generally in the direction of greater prudence regarding the allowance for future withdrawals from active service, as well as on significant member controlled options such as early

retirement on terms more generous than actuarial equivalence. However, we did not detect any uniformity of practice in these areas (see section 5).

4.6 As discussed in Section 3, the reserving method and benefit promises need to be considered together since the strength of the reserving method is relative to the benefits promised. Thus, as the table below shows, the reserving method in Spain is the strongest amongst those countries where the benefit is linked to final salary at (or close to) retirement, and arguably the method in Germany is just as strong since future salary increases are irrelevant.

Reserving Method	Country	Type of Benefit	Reserving for
ABO1	Germany	Fixed	Accrued liability
ABO1	Netherlands	Final Salary	Accrued liability
ABO1	Finland	Career Average or FS	Accrued liability
ABO1	Belgium, Finland, Luxembourg, Portugal	Final Salary	Accrued liability
ABO2	Ireland, UK	Final salary and statutory minimum revaluation	Accrued liability
PBO	Spain	Final Salary	Accrued liability plus future salary increases

4.7 Typically, the difference between the reserves established under the above methods might be of the following order:

- Between ABO1 and PBO, approximately 50% - 60%
- Between ABO2 and PBO, approximately 20% - 25%

In the former case the difference might be equivalent to a discount rate differential of up to 3% per annum, and in the latter case of the order of 1% per annum. The method of reserving is therefore just as important as the assumptions used in calculating the technical provisions.

5 Additional reserving factors

5.1 In some countries particular features of benefit design are also incorporated in the minimum technical provisions. These include requirements to:-

- exclude the possibility of future withdrawal from service (Germany, Ireland, Netherlands, Portugal, UK);
- establish specific reserves for self insured risk benefits such as benefits on death in service (Belgium) ;
- assume that significant member controlled options, such as early retirement on generous terms, will be exercised against the scheme (Belgium, Ireland, Spain, UK).
- establish explicit solvency cushions (Germany, Netherlands and Spain).
- establish reserves for expenses of winding up where these have to be met from the pension scheme (Germany, Ireland, Netherlands, UK). These can be an explicit addition to the technical reserves (Germany, Netherlands and UK) or a deduction against the scheme's assets (Ireland).

We did not detect any uniformity of practice in these areas, except to observe that some of these factors may be considered less important if the funding method is strong.

5.2 Where additional benefits are granted at the discretion of the sponsor, for example, discretionary early retirement benefits or pension increases, they are not explicitly required to be taken into account in any country for establishing minimum technical reserves (although the maximum discount rate may include some implicit allowance – see Section 7.3).

5.3 The conclusion we draw from these responses is that consistency between countries will be affected by the extent to which the technical provisions allow for explicit solvency margins, options exercisable by members, risk benefits, expenses of winding up and direct or indirect margins for prudence. In addition, the manner in which such allowances are made will also affect consistency between countries (eg Ireland where part of the technical provision is by way of an offset against the assets distorts a direct comparison of technical provisions).

6 Financial assumptions

6.1 The survey indicated that, prior to the implementation of the IORP Directive, there were varying practices across EU countries on how the financial assumptions were determined:-

- Fixed maximum discount rates were prescribed in most countries (Belgium, Finland, Germany, Luxembourg, Netherlands and Portugal).
- A full set of assumptions (ie inflation, salary increases and discount rate) was applied in a minority of countries (Ireland, Spain, UK).
- There was some flexibility in how certain assumptions were determined (Spain).
- Financial assumptions were selected by reference to prevailing market conditions only in Ireland and the UK. Elsewhere they did not change directly with movements in stock markets and other financial conditions, although there was evidence of an indirect link in at least one country (Germany) through the process of regulatory oversight.
- In at least one country (Netherlands) the fixed discount rate made some implicit allowance for discretionary benefit increases, ie the rate may otherwise have been set at a higher level.
- It was not common practice to take account of the actual profile of the scheme's investments (eg split between equities, bonds, etc) when setting the discount rate (except for a special case in the UK under legislation which will soon cease to apply).
- It was not common practice to take account of the scheme's liability profile (eg split between pensioners, non-pensioners or allowance for duration) when setting the discount rate (except in Ireland and UK).

6.2 These responses show two distinct groupings:

- two countries (UK and Ireland) where financial assumptions for minimum technical reserves were set by reference to market yields (and thus capable of complying with Article 15.4(b) in the post IORP era); and
- other countries where financial assumptions were prescribed as fixed rates without any direct link to stock market indices or yields (which may need to be modified to comply with Article 15.4(b) of the IORP Directive).

As individual countries begin to implement the Directive we may see more convergence towards the first group in order to comply with Article 15.4(b), or a better explanation of how assumption setting is linked to market conditions.

7 Range of discount rates

7.1 The table below summarises the range of discount rates (an extract from Appendix A) in three groupings:

- I. Those with fixed prescribed discount rates (Germany, Finland, Netherlands, Belgium, Luxembourg, Portugal and Spain).
- II. One country (Spain) with a full set of fixed assumptions where comparison of the nominal discount rate by itself is not enough. A maximum discount rate of 4% nominal is prescribed together with other mutually consistent financial assumptions.
- III. Those with a full set of assumptions and where discount rates are linked to prevailing market conditions (Ireland and UK). We have shown the position prevailing at 31 December 2003, and the rates in subsequent years for this group would have changed to reflect changes in market conditions (see Appendix B).

Country		Fixed discount rates %
I	Germany	2¾ - 4 **
	Finland	4 gradually reducing to 3½
	Netherlands	4**
	Portugal	4½
	Luxembourg	5
	Belgium	6
		Real discount rates %
II	Spain	1 - 1½ pre retirement *
		4 post retirement †
		Market based real discount rates @ 31/12/2003 %
III	Ireland	2.1 post retirement higher pre retirement
	UK	1.9 post retirement higher pre retirement

* Net of salary escalation

† Pensions are mainly constant in Spain where pension increases are linked to inflation, the net post retirement rate may be 2½% to 3%.

** Including an implicit allowance for discretionary benefit increases (in Netherlands and possibly Germany).

7.2 In groups II and III the effective discount rates are of course lower than the nominal rates once allowance is made for salary and pension increases, effectively giving different ‘real’ discount rates in the pre and post retirement periods defined as follows:

- The post retirement rate for the period after pension age, defined as the difference between the nominal discount rate at which the pension, once in payment, would be valued less any required statutory rate at which pensions need to be increased; and
- The pre retirement rate, defined as the difference between the nominal discount rate at which the pension would be valued prior to pension age less the rate at which the accrued benefit is assumed to increase for the purposes of reserving. For PBO type reserving the latter would be the salary increase assumption and for ABO type reserving it would be the required statutory rate (if any) at which pensions need to be increased (for preservation purposes) in the period between accrual and pension age.

7.3 For cross country comparisons it is important to make two further adjustments:

- In many countries individual schemes have the option to grant pension increases in excess of any statutory requirement. Where these are guaranteed within the scheme rules, the reserving convention would be to establish the minimum technical provisions by reference to this higher guarantee. In such cases the real discount rates would therefore be correspondingly lower.
- In countries where pension increases are awarded on a discretionary basis, there was no requirement to set up explicit technical provisions for these. However, in some countries (for example, in the Netherlands and possibly Germany) what might appear to be low discount rates are a reflection of a requirement or an expectation to apply investment profits towards discretionary benefit increases. It is difficult for adjust for such bias in cross country comparisons.

7.4 Whilst comparisons between the three groups as shown above may not therefore be entirely valid, the broad conclusion we would draw is that there is a wide range of discount rates which, other things being equal, would lead to a wide variation in technical provisions. To put some of the numerical differences in context, for a typical pension scheme with a mean term of liability of say 20 years, a 1% difference in the discount rate may lead to a 20% difference in the technical provisions; in more mature schemes the difference may be smaller.

A

Minimum technical provisions Range of reserving methods and financial assumptions

	Belgium	Finland	Germany	Ireland	Luxembourg	Netherlands	Portugal	Spain	UK
Reserving method	ABO1 plus reserve for generous member options and solvency margin for self insured risk benefits	ABO1	ABO1 (no withdrawals) plus approx 4.5% solvency cushion and allowance for expenses	ABO2 (no withdrawals) plus reserve for generous member options (and allowance for expenses but against assets)	ABO1	ABO1 (no withdrawals) plus investment risk cushion aa well as 5% general risk cushion and allowance for expenses	ABO1 (no withdrawals)	PBO plus reserve for generous member options and 4% solvency margin	ABO2 (no withdrawals) plus reserve for generous member options and allowance for expenses
Maximum Discount rate % pa (or typical discount rate where there is no prescribed maximum)	6.0	4.0%, gradually decreasing to 3.5% by 2013.	2.75-4.0	Long dated government bond yield for pensioners (valued on annuity basis) ; higher yield for non pensioners.	5.0	4.0	4.5	4.0	Typically 4.8 pensioners, higher for non-pensioners
Inflation rate % pa	n/a	n/a	n/a	2.5	n/a	n/a	n/a	1.5 – 2.0	2.9 pensioners, higher non-pensioners
Earnings escalation	n/a	n/a	n/a	n/a	n/a	n/a	n.a	2½ - 3 nominal	n/a
Government bond yields (long duration) %				4.6					4.8
AA Corporate bond yields (long durations) %				5.1					5.4
Dividend yield on high quality equities %				2.8					3.1
<p>The above table reflects the position as at 31 December 2003. At 31 December 2004, 2005 and 2006 the assumptions for Ireland and the UK changed to reflect changes in the relevant markets (see Appendix B-4 and B-9) and in Finland the fixed discount rate reduced at the predetermined rate but there were no changes in any other country.</p>									

B

Minimum technical provisions

Country profiles of typical requirements for defined benefit schemes

The following countries have been excluded:

- (1) Denmark and Italy, where pension provision is mainly defined contributions.
- (2) Sweden, where defined benefit schemes are insured and all risks transferred to the insurance company.
- (3) France, where there are no pre-funding requirements for employer sponsored defined benefit schemes (and therefore exempt from funding requirements of the IORP Directive)
- (4) Greece, where new legislation now permits occupational pension schemes, with a requirement for minimum technical provision in the case of defined benefit schemes, (PBO reserve with a maximum discount rate of 5%) but where no such schemes existed at the time of the survey.
- (5) Austria, where we were unable to obtain any response.

B-1

Belgium

		31 December * = no change			
		31 December 2003	2004	2005	2006
1	Liability definition for minimum technical reserves	ABO1	*	*	*
2	Maximum discount rate	6% pa nominal	*	*	*
3	Does discount rate reflect actual investment policy of pension scheme?	No	*	*	*
4	Does discount rate reflect characteristics of liability profile?	No	*	*	*
5	Does discount rate include allowance for expected outperformance (relative to, say, Government bonds), and how much?	No	*	*	*
6	Provisions for member controlled options.	<ul style="list-style-type: none"> • Reserve for generous early retirement provisions 	*	*	*
7	Solvency margins and prudence	<ul style="list-style-type: none"> • solvency margin for self insured risk benefits 	*	*	*
8	Do minimum technical reserves include allowance for future salary increases (and at what rate)?	No	*	*	*
9	Do minimum technical reserves include allowance for discretionary benefits?	No	*	*	*
10	Do minimum technical reserves include a provision for expenses?	???	*	*	*

<p>a. The main occupational pension vehicles covered by this response are:</p> <ul style="list-style-type: none"> • Insured plans • Self-administered plans 	<p>b. Principal features of pension design:-</p> <ul style="list-style-type: none"> • Pension at retirement : Final salary • Minimum indexation in payment : nil • Minimum indexation in deferment : nil • Vesting period : 1 yr max
<p>c. Specific steps being taken by the national government to implement the minimum funding requirements of the IORP Directive, and state of progress in March 2007.</p> <ul style="list-style-type: none"> • Legislation expected (draft regulations ready) • No hard prescription but a more flexible prudential framework 	

			31 December		
			* = no change		
		31 December 2003	2004	2005	2006
1	Liability definition for minimum technical reserves	ABO1	*	*	*
2	Maximum discount rate	4% pa nominal	3.95%	3.90%	3.85%
3	Does discount rate reflect actual investment policy of pension scheme?	No	*	*	*
4	Does discount rate reflect characteristics of liability profile?	No	*	*	*
5	Does discount rate include allowance for expected outperformance (relative to, say, Government bonds), and how much?	No	*	*	*
6	Provisions for member controlled options.	<ul style="list-style-type: none"> None 	*	*	*
7	Solvency margins and prudence	<ul style="list-style-type: none"> No explicit solvency margin 	*	*	*
8	Do minimum technical reserves include allowance for future salary increases (and at what rate)?	No	*	*	*
9	Do minimum technical reserves include allowance for discretionary benefits?	No	*	*	*
10	Do minimum technical reserves include a provision for expenses?	???	*	*	*

<p>a. The main occupational pension vehicles covered by this response are:</p> <ul style="list-style-type: none"> Employer sponsored pension funds Industry wide pension funds 	<p>b. Principal features of pension design:-</p> <ul style="list-style-type: none"> Pension at retirement : CARE or Final salary Minimum indexation in payment : nil Minimum indexation in deferment : nil Vesting period : nil
<p>c. Specific steps being taken by the national government to implement the minimum funding requirements of the IORP Directive, and state of progress in March 2007.</p> <ul style="list-style-type: none"> No information 	

			31 December		
			* = no change		
		31 December 2003	2004	2005	2006
1	Liability definition for minimum technical reserves	ABO1	*	*	*
2	Maximum discount rate	2.75% - 4% pa nominal	*	*	*
3	Does discount rate reflect actual investment policy of pension scheme?	No, but if discount rate higher than actual return then supervisor may request reduction	*	*	*
4	Does discount rate reflect characteristics of liability profile?	No	*	*	*
5	Does discount rate include allowance for expected outperformance (relative to, say, Government bonds), and how much?	No	*	*	*
6	Provisions for member controlled options.	None	*	*	*
7	Solvency margins and prudence	<ul style="list-style-type: none"> • solvency margin 4.5% apprx • No provision for future withdrawal from service 	*	*	*
8	Do minimum technical reserves include allowance for future salary increases (and at what rate)?	N/a	*	*	*
9	Do minimum technical reserves include allowance for discretionary benefits?	N/a	*	*	*
10	Do minimum technical reserves include a provision for expenses?	Yes	*	*	*

<p>a. The main occupational pension vehicles covered by this response are those termed 'supervised arrangements' :</p> <ul style="list-style-type: none"> • Pensionskassen • Pensionsfonds • Direct insurance <p>Distinction between Types A and B insured plans under discussion by legal experts</p>	<p>b. Principal features of pension design:-</p> <ul style="list-style-type: none"> • Pension or lump sum at retirement : Usually fixed amount (including bonus additions) • Minimum indexation in payment : COLA unless surplus (defined as investment profits in excess of guaranteed return less expenses and actuarial losses) regularly applied as bonuses • Minimum indexation in deferment : bonuses as above (for supervised arrangements) • Vesting period : None (for supervised arrangements)
<p>c. Specific steps being taken by the national government to implement the minimum funding requirements of the IORP Directive, and state of progress in March 2007.</p> <ul style="list-style-type: none"> • Maximum discount rate 2.25% from 1 January 2007 • No other information available 	

B-4

Ireland

		31 December * = no change			
		31 December 2003	2004	2005	2006
1	Liability definition for minimum technical reserves	ABO2; essentially a discontinuance basis	*	*	*
2	Maximum discount rate (nominal rates)_ <ul style="list-style-type: none"> • Current pensioners • Others after pension age • Others > 10 yrs before pension age • Others < 10yrs before pension age 	<ul style="list-style-type: none"> • n/a as valued on annuity rates • n/a as valued on annuity rates • 7% pa adjusted for market conditions pre retirement by use of MVA • 7% pa adjustment for market conditions pre & post retirement by use of MVAs 	*	*	*
			*	7.25% pa pre retirement, 5% pa after retirement, plus MVA pre retirement	As for 2005 but 4.5% pa rather than 5% pa
			*	7.25% pa pre retirement, 5% pa after retirement, plus MVAs pre & post retirement blending to long bond yield post retirement	As for 2005 but 4.5% pa rather than 5% pa
3	Does discount rate reflect actual investment policy of pension scheme?	No	*	*	*
4	Does discount rate reflect characteristics of liability profile?	Broad matching in annuities for pensioners. For non pensioners, broad matching in equities at young ages, gradual shift to bonds in 10 yrs prior to pension age and bonds thereafter (see 2)	*	*	*
5	Does discount rate include allowance for expected outperformance (relative to, say, Government bonds), and how much?	Some allowance in non-pensioner liability – prescribed in legislation and reviewed infrequently.	*	*	*
6	Provisions for member controlled options.	Reserve for generous early retirement provisions	*	*	*
7	Solvency margins and prudence	<ul style="list-style-type: none"> • No explicit solvency margin • No provision for future withdrawal from service 	*	*	

8	Do minimum technical reserves include allowance for future salary increases (and at what rate)?	Statutory revaluation in line with CPI (forward looking assumption of 2.5% pa via actuarial guidance)	2.0%	2.0%	*
9	Do minimum technical reserves include allowance for discretionary benefits?	No	*	*	*
10	Do minimum technical reserves include a provision for expenses?	Yes, but as a deduction from value of assets	*	*	*

<p>a. The main occupational pension vehicles covered by this response are:</p> <ul style="list-style-type: none"> • Exempt approved plans, including Type A insured plans 	<p>b. Principal features of pension design:-</p> <ul style="list-style-type: none"> • Pension at retirement : Final salary • Minimum indexation in payment : Nil • Minimum indexation in deferment : CPI (cap 4% pa) • Vesting period : 2 yrs
<p>c. Specific steps being taken by the national government to implement the minimum funding requirements of the IORP Directive , and state of progress in March 2007.</p> <p>Existing funding standard deemed to satisfy Article 15. No significant changes made or expected, except for a reduction in the period between actuarial valuations (to 3 yrs), statutory link to actuarial guidance notes and a formal requirement for a written statement of investment policy.</p>	

		31 December * = no change			
		31 December 2003	2004	2005	2006
1	Liability definition for minimum technical reserves	ABO1	*	*	*
2	Maximum discount rate	5% pa nominal (lower rate set by supervisor for insured plans)	*	*	*
3	Does discount rate reflect actual investment policy of pension scheme?	No	*	*	*
4	Does discount rate reflect characteristics of liability profile?	No	*	*	*
5	Does discount rate include allowance for expected outperformance (relative to, say, Government bonds), and how much?	N/A	*	*	*
6	Provisions for member controlled options.	No specific requirement	*	*	*
7	Solvency margins and prudence	No specific solvency margin (except where fund supports biometric risks by itself)	*	*	*
8	Do minimum technical reserves include allowance for future salary increases (and at what rate)?	No	*	*	*
9	Do minimum technical reserves include allowance for discretionary benefits?	No	*	*	*
10	Do minimum technical reserves include a provision for expenses?	No	*	*	*

<p>a. The main occupational pension vehicles covered by this response are:</p> <ul style="list-style-type: none"> • Type B Insured plans • Book reserves • Pension funds 	<p>b. Principal features of pension design:-</p> <ul style="list-style-type: none"> • Pension at retirement : Final salary • Minimum indexation in payment : nil • Minimum indexation in deferment : nil • Vesting period :
<p>c. Specific steps being taken by the national government to implement the minimum funding requirements of the IORP Directive, and state of progress in March 2007.</p> <ul style="list-style-type: none"> • These were implemented by national legislation in 2005. National legislation does not lay down any more detailed rules than the text of the Directive, but retains the maximum discount rate of 5% pa. There is regular monitoring by supervisory authority (CSSF) who can ask for an adjustment to the financial plan and its parameters when appropriate. 	

B - 6 Netherlands

			31 December * = no change		
		31 December 2003	2004	2005	2006
1	Liability definition for minimum technical reserves	ABO1	*	*	*
2	Maximum discount rate	4% pa real (pension funds)	*	*	*
3	Does discount rate reflect actual investment policy of pension scheme?	No	*	*	*
4	Does discount rate reflect characteristics of liability profile?	No	*	*	*
5	Does discount rate include allowance for expected outperformance (relative to, say, Government bonds), and how much?	N/A	*	*	*
6	Provisions for member controlled options.	No specific requirement	*	*	*
7	Solvency margins and prudence	<ul style="list-style-type: none"> • No provision for future withdrawal from service • Unless specifically quantified, 5% of accrued liabilities to cover general risks, PLUS investment risk cushions <ul style="list-style-type: none"> - equities: sufficient to withstand 40% fall from highest value in the last 48 months and 10% fall from lowest value in the last 12 months; - bonds: 10% of value of fixed interest investments when interest rates are 4% (5% when interest rates are 5% and none at higher interest rates). 	*	*	*
8	Do minimum technical reserves include allowance for future salary increases (and at what rate)?	No	*	*	*
9	Do minimum technical reserves include allowance for discretionary benefits?	Implicitly, since the max discount rate is meant to be a real rate	*	*	*
10	Do minimum technical reserves include a provision for expenses?	Yes	*	*	*

<p>a. The main occupational pension vehicles covered by this response are:</p> <ul style="list-style-type: none"> • Industry-wide plans • Company plans • Direct insurance (Type A: future salary and pension increases not insured). 	<p>b. Principal features of pension design:-</p> <ul style="list-style-type: none"> • Pension at retirement : Final salary but career average gaining popularity • Minimum indexation in payment : nil • Minimum indexation in deferment : nil • Vesting period : 1 yr
<p>c. Specific steps being taken by the national government to implement the minimum funding requirements of the IORP Directive, and state of progress in March 2007.</p> <p>New NFK financial framework optional from 2004 but compulsory from 1 January 2007 (complying with IORP Directive but not necessarily driven by it). Changes include</p> <ul style="list-style-type: none"> • Reserving method unchanged • Market based interest rates without a maximum (term structure based on zero coupon swap rate) • Investment risk cushion to withstand 15% drop in real estate, 25% drop in equities in developed markets, 30% drop in emerging market equities/private equity/commodities and exchange rates against Euro • Mortality based on more recent tables • Annual valuations • One (three?) year recovery period for under-funded plans • 15 year recovery plan for under-funded risk reserves • Pension increases – each fund to disclose its intentions and communicate plan for fulfilling them (either through a specific allowance in the funding or from expected surpluses) 	

			31 December * = no change		
		31 December 2003	2004	2005	2006
1	Liability definition for minimum technical reserves	ABO1	*	*	*
2	Maximum discount rate	4.5% pa nominal	*	*	*
3	Does discount rate reflect actual investment policy of pension scheme?	No	*	*	*
4	Does discount rate reflect characteristics of liability profile?	No	*	*	*
5	Does discount rate include allowance for expected outperformance (relative to, say, Government bonds), and how much?	N/A	*	*	*
6	Provisions for member controlled options.	<ul style="list-style-type: none"> No specific requirement 	*	*	*
7	Solvency margins and prudence	<ul style="list-style-type: none"> No specific solvency margin In practice no provision for future withdrawal from service 	*	*	*
8	Do minimum technical reserves include allowance for future salary increases (and at what rate)?	No	*	*	*
9	Do minimum technical reserves include allowance for discretionary benefits?	No	*	*	*
10	Do minimum technical reserves include a provision for expenses?	No	*	*	*

<p>a. The main occupational pension vehicles covered by this response are:</p> <ul style="list-style-type: none"> Industry wide plans Company plans 	<p>b. Principal features of pension design:-</p> <ul style="list-style-type: none"> Pension at retirement : Final salary Minimum indexation in payment : nil Minimum indexation in deferment : nil Vesting period :
<p>c. Specific steps being taken by the national government to implement the minimum funding requirements of the IORP Directive, and state of progress in March 2007.</p> <ul style="list-style-type: none"> No information 	

		31 December * = no change			
		31 December 2003	2004	2005	2006
1	Liability definition for minimum technical reserves	PBO	*	*	*
2	Maximum discount rate	4% pa nominal	*	*	*
3	Does discount rate reflect actual investment policy of pension scheme?	No	*	*	*
4	Does discount rate reflect characteristics of liability profile?	No	*	*	*
5	Does discount rate include allowance for expected outperformance (relative to, say, Government bonds), and how much?	N/A	*	*	*
6	Provisions for member controlled options.	<ul style="list-style-type: none"> Reserve for generous early retirement provisions 	*	*	*
7	Solvency margins and prudence	<ul style="list-style-type: none"> solvency margin equal to 4% of retirement provision in non insured plans, plus 0.3% of death and disability lump sums at risk. 	*	*	*
8	Do minimum technical reserves include allowance for future salary increases (and at what rate)?	At 'appropriate rates' – normally 2½% to 3% nominal (½% to 1½% in excess of inflation)	*	*	*
9	Do minimum technical reserves include allowance for discretionary benefits?	No explicit allowance	*	*	*
10	Do minimum technical reserves include a provision for expenses?	No	*	*	*

<p>a. The main occupational pension vehicles covered by this response are:</p> <ul style="list-style-type: none"> Qualified pension plans (non insured) 	<p>b. Principal features of pension design:-</p> <ul style="list-style-type: none"> Pension at retirement : Final salary Minimum indexation in payment : nil Minimum indexation in deferment : nil Vesting period : none
<p>c. Specific steps being taken by the national government to implement the minimum funding requirements of the IORP Directive, and state of progress in March 2007.</p> <ul style="list-style-type: none"> Draft legislation under discussion (implementation date not known). Wide range of changes expected. 	

B-9

United Kingdom

		31 December 2003	31 Dec 2004 * = no change
1	Liability definition for minimum technical reserves	ABO2	*
2	Maximum discount rate <ul style="list-style-type: none"> • Current pensioners • Non pensioners 	<ul style="list-style-type: none"> • 4.8% nominal with 2.9% indexation • nominal rate up to 4% higher depending on age and market conditions. 	4.5% *
3	Does discount rate reflect actual investment policy of pension scheme?	For schemes with a gilts-matching policy, if set out in the Statement of Investment Principles, non-pensioner liabilities are also valued by reference to government bond yields.	*
4	Does discount rate reflect characteristics of liability profile?	Broad matching in government bonds after retirement. Prior to retirement, broad matching in equities at young age with gradual shift to bonds in 10 yrs prior to pension age. (see 2) Greater allowance for equity returns in very large schemes	*
5	Does discount rate include allowance for expected outperformance (relative to, say, Government bonds), and how much?	Yes 1%-2%, prescribed in legislation and reviewed infrequently.	*
6	Provisions for member controlled options.	<ul style="list-style-type: none"> • Reserve for generous early retirement provisions 	*
7	Solvency margins and prudence	<ul style="list-style-type: none"> • No provision for future withdrawal from service 	*
8	Do minimum technical reserves include allowance for future salary increases (and at what rate)?	Minimum technical reserve based on accrued benefits (RPI indexation with 5% pa cap)	*
9	Do minimum technical reserves include allowance for discretionary benefits?	No	*
10	Do minimum technical reserves include a provision for expenses?	Between 2% and 4% of accrued liabilities	*
<p><i>The technical provisions described here refer to the MFR regime which was replaced by the Scheme Specific Funding requirement for all new actuarial valuations from Sept 2005. If this standard had continued to apply then the maximum discount rate for current pensions (see 2 above) would have been 4.0% at 31 December 2005 (with 2.9% indexation) and 4.2% at 31 December 2006 (with 30% indexation). All other requirements would have been the same as above.</i></p>			

<p>a. The main occupational pension vehicles covered by this response are:</p> <ul style="list-style-type: none"> • Exempt approved pension plans <p>Insured plans are usually Type A financing arrangements, with the sponsoring carrying all residual risks.</p>	<p>b. Principal features of pension design-</p> <ul style="list-style-type: none"> • Pension at retirement : Final salary but moving to other forms of risk sharing • Minimum indexation in payment : RPI (5% cap) on 1997-2005 accruals; RPI (2.5% cap) on post 2005 accruals; RPI (3% cap) on post 88 GMPs. • Minimum indexation in deferment : RPI (cap 5% pa average over whole deferred period to pension age); different rates for GMPs • Maximum vesting period : 2 yrs
<p>c. Specific steps being taken by the national government to implement the minimum funding requirements of the IORP Directive, and state of progress in March 2007.</p> <ul style="list-style-type: none"> • Legislation now in place, supplemented by Codes of Practice and guidance from new Pensions Regulator • ‘Scheme specific’ funding requirement for all new actuarial valuations from September 2005. No rigid minimum or maximum requirement, but strong regulatory governance and disclosure, with Regulator intervening if sponsors and trustees cannot agree a suitable funding plan (including a plan for recovering deficits) or if funding plan considered too weak. • Old MFR minimum standard to continue until every scheme has had a new style valuation (by September 2008). Except in very limited circumstances, no new calculations need to be performed under this Standard after September 2005. 	

		For all actuarial valuations after September 2005
1	Liability definition for minimum technical reserves	‘Accrued benefits’ method.
2	Maximum discount rate <ul style="list-style-type: none"> • Current pensioners • Non pensioners 	No prescribed maximum.
3	Does discount rate reflect actual investment policy of pension scheme?	Not necessarily. Discount rate must take account of either or both: <ul style="list-style-type: none"> (i) the yield on and the anticipated future investment returns from the scheme’s assets; and (ii) the yields on government or other high quality bonds.
4	Does discount rate reflect characteristics of liability profile?	See (3).
5	Does discount rate include allowance for expected out-performance (relative to, say, government bonds), and how much?	Discount rate can include allowance for expected out-performance.
6	Provisions for member controlled options.	No explicit requirements.
7	Solvency margins and prudence	No explicit solvency margins required. Assumptions ‘must be chosen prudently, taking account, if applicable, of an appropriate margin for adverse deviation.’
8	Do minimum technical reserves include allowance for future salary increases (and at what rate)?	No requirement to include allowance for future salary increases in technical reserves – eg, if ABO2 method is used.
9	Do minimum technical reserves include allowance for discretionary benefits?	No requirement to allow for discretionary benefits in technical provisions.
10	Do minimum technical reserves include a provision for expenses?	No requirement to allow for expenses in technical provisions.

C Glossary

Accumulated Benefit Obligation 1 (AB01) – The benefit valued is the ‘accrued’ benefit, based on completed service and salary at the valuation date with allowance for the probability of dying, leaving service or early retiring before normal pension age. There is no allowance for any salary increases or revaluation of accrued benefits between the valuation date and pension age. In many countries the calculation is adapted for prudence by applying specific rates on the allowance for early leavers, generous member options, etc.

Accumulated Benefit Obligation 2 (AB02) – Same as AB01, but with revaluation of the accrued benefit between valuation date and pension age in line with price inflation (possibly subject to a cap).

Vested Benefit Obligation (VBO) – Same as AB01 or AB02 (as applicable), but excluding benefits that had not vested at the valuation date. In each country surveyed, where vesting periods were known to be common, the reserving was nevertheless based on the assumption of full vesting.

Projected Benefit Obligation (PBO) – Same as AB01, but with full allowance for expected salary increases between the date of valuation and the normal pension age.

Statutory Valuation refers to a valuation for the purpose of establishing the minimum technical reserves required by legislation. Valuations for the purposes of setting a contribution plan for the future, or for calculating pension costs for reporting in the plan sponsor’s accounts, or for other purposes such as corporate transactions, were outside the scope of this survey.

Vesting period – the period of service required in the pension scheme before an early leaver can qualify for a deferred benefit. The usual benefit for early leavers during the vesting period is a refund of members’ contributions.

Insured plans

Type A is a plan where the employer makes a defined benefits promise to the member and insures part of the benefits with an insurer. The insurer’s liability is restricted to whatever the contributions purchase and the employer carries the residual defined benefit risks. In this case, the arrangement between the employer and the insurer is merely a financing arrangement, or an investment, and it appears that the employer would need to establish minimum technical provisions for the risks that are not covered by the insurer.

Type B are plans where the benefit promised by the employer to the member is matched exactly by an insurance policy. In this case the employer does not carry any residual defined benefit or biometric risks and does not need to establish any technical reserve. The insurer’s reserving requirements are covered by the Life Directive and are not within the scope of this study.