



The Actuarial Profession

making financial sense of the future

consultation response

The Board for Actuarial Standards

Actuarial Mortality Assumptions

June 2008

The Director
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(sent by e-mail to: basmortality@frc.org.uk)

27 June 2008

Dear Sir/Madam

Response to consultation: Actuarial Mortality Assumptions: Discussion Paper

Thank you for providing The Actuarial Profession with the opportunity to comment on this discussion paper and to contribute to the continuing debate on mortality assumptions.

The Actuarial Profession recognises the importance of developing a standardised approach to the development and application of mortality assumptions and is keen to work closely with the BAS in this endeavour.

We are generally supportive of the concept of suitable reporting standards, provided appropriate and practical guidance is given in the uses to which such standards are put, and that it is clear when they are required and who the intended readers are. However, fundamentally the level of communication needs to be proportionate and appropriate for the audience.

Whilst it could be useful to set out the issues to be considered in setting assumptions, some of the criteria in the paper are misdirected. Further, the growing evidence that mortality rates can vary significantly depending upon personal circumstances means that any standard specifying specific tables or benchmarks could be inappropriate. However, there are differing views among actuaries on the usefulness or otherwise of benchmarks.

The Profession recognises the need for further research in this area and actively works to provide better information to users of mortality information.

Our comments on the specific consultation questions are attached to this letter.

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If you have any questions or would like to discuss any of these matters further, please do not hesitate to contact us. Should you wish to do so, please contact Martin Hewitt, Pensions Practice Manager on 0207 632 2185 or via martin.hewitt@actuaries.org.uk.

Yours sincerely,



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ACTUARIAL MORTALITY ASSUMPTIONS: DISCUSSION PAPER

Question 1: Do respondents have any views on the significance of the adverse effects that over- or underestimation of future mortality may have on pension scheme members, scheme sponsors, life insurance policyholders and life insurance companies?

- An under- or overestimation can have a very large impact, especially on pension schemes. It may affect, for example, not just the overall financial position (and the finances of a sponsor), but also the benefits a member receives. The underestimation of mortality can lead to lower commutation terms than is reasonable to represent the benefits forgone. The list in 2.17 doesn't cover the effects on member options.
- Since over- or underestimation directly affects the estimate of future costs, it will also affect both affordability and pension scheme design. Exposure to future costs is a significant factor in the migration from DB to DC (or to cash balance which, while DB, can avoid mortality exposure for the sponsor). It is also worth considering the continuing impact for schemes closed to future accrual or those introducing higher NRAs etc.
- Effects on P&L (2.17(b)) are often below the line and therefore small. However they can have a bigger impact on balance sheet liabilities under more recent accounting standards
- Of central importance is that underestimating longevity can lead to under reserving and members losing out in the event of a wind up. Overestimating longevity can lead to over reserving and companies paying too much for their employee benefits (hence affecting DB / DC decisions etc).

Question 2a: Do respondents have views on appropriate methods of communicating the extent and impact of the inherent uncertainty involved in mortality assumptions?

- The impact is best assessed by showing the financial effect on possible outcomes (e.g. changes in technical provisions or in the contribution rate to provide benefits)
- It is important to show the effects of alternative assumptions and the sensitivities of liabilities to different levels of changes in future longevity.

Question 2b: Do respondents agree that the use of separate assumptions for base mortality and future changes in mortality, not taking the form of margins in other assumptions, would be desirable?

- It is important that assumptions are explained rationally; separate assumptions makes justification easier
- In many situations there can be much greater certainty over the rates of mortality experienced currently than over the changes in future longevity. In most situations it would be incorrect to present assumptions in either case as being "precise" and there will inevitably be some margins involved.

Question 2c: Do respondents have views on appropriate methods of communicating the significance of assumptions, both in absolute terms and relative to that of other assumptions?

- The financial impact in outcomes is the most important measure of significance
- The BAS' analysis in the appendix is reasonable
- Cohort life expectancies are useful for communications to trustees and an easy way to compare like with like; but we need to show the range of ages to describe the full effects
- Cohort life expectancies are also of some use to users of company financial statements

- Period life expectancies may be useful in communications between actuaries to summarise complex patterns, but they need to be communicated with care to other users
- The form and technical content of the message must be suitable for the intended audience.

Question 3a: Do respondents foresee any practical difficulties in communicating the assumptions about subsequent changes in mortality rates underlying life expectancy statistics?

- Yes – for example trustees can struggle with explanations of the “cohort effect” and more sophisticated approaches will cause greater problems with understanding.

Question 3b: Do respondents have suggestions for summary statistics that can be used to describe changes in mortality rates?

- There are a number of different approaches that can be employed for example: future developments in expectation of life or the proportions of a population expected to survive to a particular age. We would be happy to discuss this question separately with the BAS.

Question 3c: Do respondents think that the use of benchmarks is useful, and if so, should the development of standard benchmarks for future changes in mortality be encouraged?

- There is a risk that an assumption based on the benchmark will be seen by the user of information (e.g. the trustee) to have more credibility or certainty than is the case: for example, the case cited in 4.16 was unlikely to have been addressed by benchmarks, since it was the accepted practice at the time which has proved inadequate in hindsight.
- Benchmarks can be seen as counter-productive, and it could be argued that their presence can inhibit proper discussion. Mortality assumptions (including allowance for future improvement) vary so much from case to case and from application to application that a benchmark could be inappropriate (and even dangerous if it became a de facto default assumption). However, there are differing views among actuaries on the usefulness or otherwise of benchmarks.

Question 4a: Do respondents agree that the BAS should set some standards for mortality assumptions?

- Where appropriate it should limit standards to areas where best practice can be codified and generically set.

Question 4b: Do respondents agree that reporting standards would play a significant role in increasing the transparency of assumptions and their comprehensibility to users of actuarial information?

- Yes, if the reporting standards are carefully set for appropriate contexts
- The reporting standards should only be required in circumstances where the mortality assumption is material to the issues under consideration
- They may be more useful to users educated in mortality issues – e.g. pension trustees – rather than to lay persons (e.g. a purchaser of an annuity product is unlikely to have an appreciation of the issues however communicated)
- In general, the reasoning behind any specific assumption should be disclosed
- Since it is often difficult (especially for future improvements) to form a view on what is prudent or best estimate, the last bullet point in 4.17 may be challenging

- We have less sympathy with setting criteria (which may differ by purpose) and especially with specific limits, which may lead to overconfidence by users in the reliability of the assumptions (e.g. in the early days of the MFR).

Question 4c: Do respondents have any comments on how to assess the likely impact of possible BAS standards for mortality assumptions?

- To the extent that the introduction of BAS standards lead to better transparency and disclosure of mortality assumptions, any impact should be measured in the better understanding by users of actuarial advice.

Question 5a: Do respondents believe that it would be desirable for a BAS standard to require the use of the most recent applicable published tables, taking into account both the communication problems and the practicality of setting a limit on the tables to be used?

- No – the BAS standard should not *require* the use of the most recent applicable published tables. For example, until the final publication of SAPS tables, pension schemes with sufficient credible data generally found 92 series tables a better fit both in level and shape than 2000 series tables. There are examples where the a(55) tables were a significantly better fit for the pensioners' mortality experience for a large pension scheme than were much later standard tables
- For specific groups of lives, older tables could be appropriate – e.g. scheme with mainly manual workers doing heavy labour
- It is more sensible to require justification and disclosure where a decision is made not to use the latest tables (so the user should be aware that the latest tables exist and of the reasons why an actuary has chosen not to use them)
- Where credible data exist, and are used to fit to an existing table rather than to create a new one, fitting to a specific table is little more than a graduating exercise. In this case the data and the time they were derived are not relevant. How this is communicated is the important issue.

Question 5b: Do respondents have any comments on the proposals for possible requirements for reporting on assumptions about base mortality, criteria that assumptions should meet, or limits that should be observed when setting assumptions?

- The reporting proposals here are reasonable. They generally codify best practice, but they should use appropriate terminology
- It is important to use focused summary statistics to explain the impact on overall outcome (and the impact of changes on assumptions since the last time such calculations were produced)
- Base mortality is very specific to the population under consideration and the use to which it will be put
- It is important to avoid very long disclosures that impart little useful information
- Criteria for assumptions:
 - we don't agree with the need to use the latest tables in all situations
 - in pension scheme work, there may be a need to adjust published tables subjectively based on evidence in other populations and known factors e.g. industry and pension size. However this practice wouldn't fit with the listed criteria
- Generally we are not supportive of illustrated limits
- On balance, disclosure requirements should be proportionate.

Question 6a: Do respondents agree there is no objective basis for differentiating the future changes in mortality likely to be experienced by a particular small group of lives from those likely to be experienced by the population as a whole?

- No - contrary to the view expressed in 6a, we believe that with scientific advances - both actuarial and non-actuarial - into understanding mortality trends, it should be possible to differentiate the experience of growing numbers of small groups from the larger population.
- At present there may well be justifiable arguments for a particular group to show different characteristics – e.g. members already in ill-health
- There continue to be very significant differences in underlying rates between different groups in the population. Therefore it is difficult to justify using the same allowance for future improvements for all groups
- There should also be reference to the need to allow for statistical uncertainty in small portfolios
- There is some evidence that female improvements are happening at a slower rate than male improvements.

Question 6b: Do respondents have any comments on the proposals for possible requirements for reporting on assumptions about future changes in mortality, criteria that assumptions should meet, or limits that should be observed when setting assumptions?

- We support a reporting standard
- The main thrust should be to quantify the financial effects of assumptions made and illustrate the effects of alternative assumptions
- Models for future improvements range from complex formulae and parameter-driven approaches to simple general reasoning (e.g. fixed rates for periods of years, some level of underpin). Proposals in 6.51 may require immense detail for some approaches and would not be appropriate for the simpler models
- We are not sure about 6.56; surely the mortality assumption is not the main issue for reinsurance/swaps, but rather that one has used like for like in valuing any liability and the asset held (in the form of the swap or reinsurance) to back it? – this is a difficult area.
- Whilst it could be useful to set out the issues to be considered in setting assumptions, some of the criteria listed in the paper are misdirected. 6.60 is only necessary if material; for example, it is not material in a scheme that is 95% female.
- We do support the limit in 6.66, but would rephrase it to state that it is required where there is evidence that recent past experience has demonstrated improvements.

Responses to specific paragraphs of the Discussion Paper

- For 3.44, in almost all pension schemes, adjustments are allowed for early and late payment, so timing is less significant here.
- For 4.4, there is a need to address the distinction between assumptions based on prudent principles and prudent assumption that is drawn in the scheme funding regulations
- For 5.9 published statistics often lag behind events to an extent that is not helpful for rolling forward tables. For large enough data, it may be possible to extrapolate experience of the data set – even if only fairly crudely in simple percentages.



- In 6.31 the discussion is misleading. For example, the rates of mortality improvement may be the same for the two tables for a relevant cohort, but underlying mortality rates themselves will be lighter for the long cohort projections.