Principles for setting mortality assumptions

(Final report prepared by members of the Standard-Setters Round Table in November 2011)

Background: The May 2007 Discussion Paper (Preliminary Views on Insurance Contracts), published by the International Accounting Standards Board (IASB), included the following remarks (IN18, page 11):

"The Board's preliminary view is that an insurer should measure all its insurance liabilities using the following three building blocks:

(a) explicit, unbiased, market-consistent, probability weighted and current estimates of the contractual cash flows.

(b) Current market discount rates that adjust the estimated future cash flows for the time value of money.

(c) An explicit and unbiased estimate of the margin that market participants require for bearing risk (a risk margin) and for providing other services, if any (a service margin)."

An Exposure Draft was expected fairly soon. In the light of this a survey was commissioned by the Standard-Setters Round Table, for consideration at its planned meeting in Cape Town on 4 March 2010. For the purposes of this survey respondents were asked to assume that the final version of IFRS 4 would reflect the above views.

The aim was to find out if, and to what extent, different countries' existing actuarial standards provide instructions to actuaries in calculating policy liabilities for insurance contracts. This was done initially in respect of a single set of assumptions – those for mortality.

Following completion of the survey, the Standard-Setters Round Table drafted a set of principles for setting mortality assumptions which combined and generalised the content of different existing standards.

In accordance with minute 4.6 of the Vienna meeting, members of the Standard-Setters Round Table were asked the following questions:

(i) Please look at the standards set by the standard-setter you represent to determine if they would be congruent with these principles;

(ii) Please specify what problems would be encountered in your local jurisdiction if the principles in the paper were adopted as an international standard.

(iii) Are these principles appropriate for a general standard across all practice areas or should different principles apply for different circumstances (e.g. for different practice areas, different products or for different purposes)?

(iv) In particular, would your answer be different if the principles were to be applied only for financial reporting of insurance contract liabilities?

(v) Are any of these principles inappropriate for a general standard?

(vi) Are there additional principles relating to mortality assumptions which should be included in a general standard?

(vii) What form of disclosure would you consider appropriate in case the actuary decides not to follow one or more of these principles?

A summary of the answers received to these questions is given in an Annex to this final report.

Conclusions

It was not the intention of this exercise to try to reach full agreement on a set of principles with which every existing actuarial standard-setter would be comfortable, but rather to explore whether it would be possible to draft a set of principles which, with further work, might be congruent with current approaches to standard-setting.

Even in the case of a relatively simple topic such as mortality assumptions, it is clear that there are considerable differences in approach, both in terms of principles versus rules and also in respect of what level of detail the standard might contain, how directional it should be, and what level of disclosure might be required concerning the assumptions adopted.

Particular care would need to be taken over scope, since different principles might apply in general purpose accounting as compared to regulatory reporting, and between insurance and pensions. The background to the exercise, as originally conceived, was the expected developments in general purpose accounting for insurance contracts, but the specific request which gave rise to the current draft was to find out if, and to what extent, different countries' existing actuarial standards provide instructions regarding mortality assumptions to actuaries in calculating policy liabilities for insurance contracts. In practice this was interpreted more in relation to prudential regulation – since it is this field to which most current actuarial standards of practice relate.

A general lesson would that clear definition of the scope of the standard is essential.

A generic standard on assumption-setting could be prepared only at a very high level of generality. Many of the specifics about how mortality assumptions should be set could differ between general purpose financial reporting and regulatory reporting, and, in the latter case, between different regulatory frameworks. The section on 'risk margins or solvency capital' might be regarded as primarily needed in the context of prudential regulation, although there is an expectation that IFRS4 will require provisions to be set as best estimates plus a risk margin. Consideration of the risk margin might be in another part of the standard, rather than part of the mortality assumption setting.

It seems desirable that an actuary should be required to document the reasons for making particular assumptions. However, views differed on whether this should be disclosed to the intended user, which would presumably depend on the specific framework for the actuarial work.

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Principles for setting mortality assumptions (17 November 2011)

Purpose

The selection of mortality assumptions should take account of the purpose of the calculations for which they will be used.

Evidence base (credibility)

Mortality assumptions should be chosen having regard to relevant available data for the firm and the contracts for which the assumptions are to be used.

To the extent that the firm's mortality experience is too limited to be reliable as a basis, the assumptions should have regard to appropriate experience in a relevant insurance market for similar products with similar underwriting characteristics. In the event that no relevant insurance market mortality data is available, the actuary should apply appropriate actuarial judgement to develop assumptions from published population mortality rates. In the absence of sufficient data with regard to the local conditions, the actuary should also take into account experience of other countries with similar characteristics.

Relevance (risk classification)

Mortality rates should be appropriate to the country or territory of residence of the insured lives and have regard to relevant risk classification factors.

Some relevant risk classification factors are:

- age of insured lives (by individual age if known)
- gender of insured lives
- birth year
- geographical considerations
- whether insurance is of death or of survival
- in case of death insurance, any restriction to the mortality event (sport, profession, suicide, war, terrorism, …)
- sum assured
- whether there are any explicit or implicit guarantees relating to insurability
- smoker or non-smoker
- health and/or lifestyle status
- epidemiological characteristics
- underwriting policy adopted, including any deviation in practice from it
- distribution system of company and target insured population
- risk of anti-selection or moral hazard

Recent events

The selection of mortality assumptions should take account of any material events, and changes in circumstances or of underwriting policy or practice which are relevant to the choice of assumptions and have taken place since the effective date of the available data.

Consistency

Mortality assumptions should be consistent with other relevant assumptions, such as lapse or morbidity, having regard to relevant experience.

No offsetting

No adjustment should be made to mortality assumptions to compensate for a shortcoming in other assumptions.

Future changes in mortality

Appropriate allowance should be made for expected future changes in mortality, where this will have a material impact on the calculations. Mortality assumptions should distinguish between the base-line level adopted and the assumptions made in respect of future mortality improvement or worsening trends. Account should be taken of the latest actuarial and demographic research in relation to future changes in longevity at different ages and for different categories of individual.

Risk margins

Where a risk margin is required under the accounting framework, appropriate allowance should be made in determining the risk margin for the uncertainty in future mortality rates, having regard to the credibility and relevance of the data available for past experience and a reasonable range of outcomes in respect of future mortality development.

Legislation

Where risk classification or the selection of mortality assumptions is constrained by legislation or standards set by another profession, this should be disclosed by the actuary, in particular where such constraints conflict with the actuary's professional opinion regarding the appropriate mortality assumptions to adopt.

Disclosure

The rationale for the choice of mortality assumptions should be documented and disclosed to the intended user.

Back-testing

A comparison between past assumptions and real experience should be carried out and documented.

Glossary

'should' – an actuary must comply unless there are good and sound professional reasons not to, in which case these reasons must be documented (comply or explain)

'document' – write down in the formal documentation associated with the task, which might be made available to a peer reviewer or to a successor actuarial adviser.