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Date: 23 February 2009
Prepared for: Board for Actuarial Standards
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Modelling standard - consultation document

Introduction

We set out below our response to the consultation paper on actuarial modelling.

We give some general comments as well as responses to specific questions. Our response draws on our experience as consultants and advisers to trustees and sponsors of UK occupational pension schemes.

General comments

We have a small number of general comments:

- The proposed scope of the standard, based on the definition of a model in 2.13 is too wide. As drafted, the definition could be read to include almost all actuarial calculation. We suggest that the definition should be restricted to exclude elementary actuarial calculations which are not designed to model multiple or configurable scenarios.
- The proposed definition of materiality is also too wide.
- We suggest that the proposed standard should draw a clear distinction between actuarial information consisting of models and related documentation and actuarial information and advice prepared using outputs from such models. Our understanding from a presentation given at the ACA conference on 6 February is that 'documentation' is intended for internal purposes (and therefore presumably drafted with an expert readership in mind) whereas 'actuarial information' is aimed at the end users. This distinction is helpful and should be made completely clear.
- We suggest that the principle outlined in 4.12 that "models should cover all materially relevant phenomena…." is naively optimistic and indeed impossible to achieve.

Question 1

Will the proposed purpose of the modelling TAS as set out in paragraph 2.9 help to ensure that users of actuarial information can place a high degree of reliance on its relevance, transparency of assumptions, completeness and comprehensibility?

Although the principles are helpful it is not clear how these features of actuarial information can be tested by a user who is not already technically competent. Such users are more likely to be influenced by ex-post judgement (or "hindsight").

Question 2

Will the definition of a model given in paragraph 2.13 encompass the full range of models that contribute to actuarial information?

The definition is extremely wide-ranging and appears to extend even to elementary actuarial techniques such as premium and valuation

calculations for annuities, assurances and pension fund liabilities. Application of the TAS to such circumstances would be disproportionate.

We suggest that the definition should be restricted to exclude elementary actuarial calculations which do not model multiple or configurable scenarios. One possible restriction would be to include only *'stochastic calculation'* models as defined in the BAS Exposure Draft: Reporting Actuarial Information from April 2008. However, this definition may be too narrow because it excludes models developed for scenario testing which do not assign probabilities to alternative scenarios.

Question 3

Do respondents have any comments on the proposals in section 3, especially those in paragraphs 3.15, 3.22 and 3.27?

Documentation cannot both contain enough detail for a technically competent user and at the same time be clear and unambiguous where the intended readership is not technically competent. The position may become clearer if the distinction between the 'documentation' required for internal purposes and the 'actuarial information' to be provided to the user of actuarial information is clarified.

We would also suggest an extension to the principle set out in paragraph 3.22 to make it clear that the documentation of models should also be proportionate.

Question 4

Do respondents have any views on the definition of materiality that is proposed in paragraph 3.5?

This definition is very wide. We would suggest replacing the two references to 'could influence the decisions' with 'is likely to influence the decisions'.

In addition the test for documentation should be whether the relevant documentation is likely to influence the decisions rather than whether the documentation 'concerns an assumption, data item, or other piece of information' which could influence the decisions. The existing definition would appear to make virtually all documentation material.

Question 5

Should the modelling TAS include principles concerning the need for documentation as discussed in paragraphs 3.9 to 3.18?

No. The principle given in 3.15 is sufficient provided the amendments outlined above are incorporated.

Question 6

Do respondents have any comments on the proposals concerning relevance and parsimony that are presented in section 4, especially those in paragraphs 4.12 and 4.17?

It is impossible to demonstrate, as paragraph 4.12 requires, that there is no materially relevant phenomenon that has not been allowed for in a particular model. Paragraph 4.9 correctly states that there are an infinite number of factors which could be taken into account. Paragraph 4.8 suggests that in considering whether each factor is material, judgements should be reasoned and documented. This would require a huge amount of work. The fact that there might be a reasonable chance of one of the large number of 'extremely unlikely' events occurring makes this a very

real problem. With the benefit of hindsight a user might well ask – where is your documentation justifying the exclusion of a certain (extremely unlikely) event from your modelling?

It's also impossible to demonstrate, as paragraph 4.17 requires, that increased complexity will not make a material difference to the outputs or limitations of a particular model.

Question 7

Do respondents have any comments on the proposals concerning inputs and outputs that are presented in section 5, especially those in paragraphs 5.17, 5.28, 5.29, 5.35, 5.42 and 5.51?

The TAS should ensure that the mechanics of a model meet its requirements irrespective of the assumptions which are used for a particular realisation. Paragraphs 5.35, 5.42 and 5.51 apply to the context in which the model is applied rather than to the model itself. Discussion of the appropriateness of assumptions and whether and how to apply prudence should take place according to context. Derived assumptions, which are not based on directly observable real world quantities, should be considered as part of the model.

Question 8

Should the modelling TAS include:

a) any requirements relating to the disclosure of known or suspected shortcomings in data, over and above those expected to be included in the reporting TAS?

b) requirements to provide an estimate of the effects of any data shortcomings, and that any compensating adjustments should avoid bias?

No comments.

Question 9

Should the modelling TAS include a requirement that, if data is grouped, the effects of the grouping should be quantified?

No comments.

Question 10

Do respondents agree that best estimates (and other similar estimates) should be independent of the use to which they will be put?

Yes

Question 11

Do respondents have any views on:

a) whether biased estimates such as those concerning prudence depend on context?

They may so depend.

b) the practicality or otherwise of requiring that the equivalent best estimate be presented alongside every prudent estimate, and the benefits to users of actuarial information of doing so?

Advice may be given under regulations or other terms of reference which do not require the degree of prudence to be quantified. In such circumstances, it should not be necessary for a model automatically to state results with and without prudence.

Question 12

Do respondents have any views on the practicality or otherwise of requiring the use of a range in conjunction with every single point estimate?

This would be impractical. Models developed explicitly for stress testing purposes must by their very nature use a range of assumptions. Other models can produce valid results without the use of assumption ranges.

Question 13

Do respondents have any comments on the proposals concerning the fitness for purpose of models that are presented in section 6, especially those in paragraphs 6.8, 6.12, 6.20, 6.28 and 6.33?

What standard of proof is required by paragraph 6.8? Checks of any kind can only establish in general terms whether the output from the model conforms to prior expectation. A practical implementation or particular realisation can only be fully proved by comparing outputs from a different practical implementation with consistent inputs. Unexpected results from particular realisations may not, of themselves, give reason to doubt the validity of the theoretical construct, or the implementation.

Paragraph 6.12 requires only that the output should be reproducible. It may still not be correct. This paragraph should be extended to require that it should be possible to demonstrate that specific realisations give effect to the intended mathematics and algorithms of the model.

Question 14

Are there any types of model that cannot be implemented in such a way that they exhibit reproducibility?

No comments.

Question 15

Should the modelling TAS include a principle concerning back testing?

The past need not be a reliable guide to the future, therefore back-testing should not be required.

a) Are there any models for which back testing is impossible?

Actuarial models almost always produce estimates of monetary quantities which are inherently unknowable, or at least are not crystallised for many years. As such, it is impossible to assess whether the results of back

testing, for a necessarily small number of years relative to the period of future projection, are any more correct than results for current circumstances. For example, it is impossible to state whether valuation reserves assessed 5 years ago for XYZ insurance company or pension scheme are in some sense "correct".

b) Are there any practical difficulties that might arise if back testing were to be a requirement?

No further comment.

Question 16

Would it be desirable and practical for users of external models to document the judgements they make, the checks that they perform and other relevant matters, and include explanations of the inputs, outputs and limitations in the same way as they would for models that they themselves have developed? Respondents who believe that this would not be practical should suggest alternative ways in which the objective set out in paragraph 2.9 could be met by users of external models.

In the first instance it should be for the developers of external models to provide this information. This will be automatic where such models are developed by individuals covered by the TAS. Where the requirements of the TAS are not met by the model developer (eg because the entity, firm or individual is not obliged to conform to BAS standards), any user who is subject to BAS standards should apply the requirements of the TAS as though they themselves had developed the model. If this proves impossible or unduly time consuming or costly, they should consider whether it would be appropriate to use such a model.

Question 17

Do respondents agree that requirements for robustness and reasonableness would not be enforceable and could have undesirable consequences?

No comments.

Question 18

Do respondents have any comments on the proposals concerning the limitations of models that are presented in section 7, especially those in paragraphs 7.29 and 7.41?

No comments.

Question 19

Does the discussion in paragraphs 7.7 to 7.24 include all the major sources of limitations in models?

No comments.

Question 20

Do respondents have any comments on the advantages and disadvantage of the options set out in paragraphs 7.38 to 7.42?

No comments.

Question 21

Should the modelling TAS identify specific types of limitation that should be explained in actuarial information?

No comments.

Question 22

Are there any matters not covered in this consultation paper that should be addressed in the BAS's modelling TAS?

There is no definition of a "user of actuarial information" for the purpose of this TAS. Many of the principles appear directed more at informing a discussion between technically competent individuals than at informing discussion between an actuary and the recipient of actuarial *advice*. The position may become clearer if the distinction between the 'documentation' required for internal purposes and the 'actuarial information' to be provided to the user of actuarial information is clarified.