



Board for Actuarial Standards – Modelling: Consultation Paper

The ABI's response to the BAS's Modelling: Consultation Paper

Introduction

The ABI is the voice of the insurance and investment industry. Its members constitute over 90 per cent of the insurance market in the UK and 20 per cent across the EU. They control assets equivalent to a quarter of the UK's capital. They are the risk managers of the UK's economy and society. Through the ABI their voice is heard in Government and in public debate on insurance, savings, and investment matters.

The ABI is grateful for the opportunity to comment on the Board for Actuarial Standard's (BAS) Modelling: Consultation Paper.

Overall comments

We think that this is an important area, generally in the present stressed economic times and particularly for insurers in relation to the internal models that are likely to have a significant role in Solvency II. We welcome this opportunity to understand better the likely direction of guidance to be issued by the BAS.

We agree overall with the main discussion in this consultation and with the recommendations for the principles and definitions to be included in the modelling TAS. We have two comments that we highlight below, and we provide others in the annex that sets out our responses to the BAS's consultation questions.

Firstly, we support the BAS's emphasis on the importance of models. Solvency II, for example, depends on them, and it is vital that insurers' management and Boards understand the implications behind their models. Though current comments in the media and elsewhere seem to indicate that models have failed, it is more likely that models have been applied where the underlying assumptions have not been solid enough.

Secondly, whilst we agree that giving information about the accuracy of data is essential, we think that there is a risk that the general trend towards more documentation and explanation may result in the meaning of the data being lost if there is too much focus on the detail rather than the overall picture. We suggest that the BAS's standard on modelling will need to strike a balance between the two.

ABI responses to consultation questions

1 & 2. We suggest adding the underlined phrase to paragraphs 2.9 and 2.13 on the purpose of modelling TAS:

“...a) be based on models that sufficiently represent those aspects of the real world (as represented by the underlying assumptions) that are relevant to the decisions for which the actuarial information will be used; ...”

“A model is an abstract and simplified representation of some aspect of the real world (represented by underlying assumptions) consisting of a set of mathematical formulae...”

3. We suggest that the “competent person with no previous involvement” should be made more specific; perhaps as the “competent person with no previous involvement in the creation or development of this model...” The competent person would have had some experience of models in order to be able to understand the particular model in question.

4. We agree with the principle that assumptions may also be considered to be material aspects of a model, not just data inputs and outputs.

5. We agree that the documentation of a model needs to be necessary and sufficient for the purpose for which it is intended. This also means that any extra detail should not detract from the overall purpose and scope of the model. If necessary, a summary should be provided which gives the main details of the model with extra information giving the technical specifications for each component.

6. In paragraph 4.17, there needs to be the recognition that an increase in complexity may decrease another aspect of the model. We would therefore recommend the following addition to the text: “Increasing degrees of complexity should be introduced into models if and only if they make a material difference to the outputs or materially reduce the limitations of the model in question, without the loss of any relevant information.”

7. In general, we believe that the principles suggested in chapter 5 give appropriate guidance to the issues. For clarity, we think that paragraph 5.51 might include the following explanatory sentence: “... should be derived using methods, assumptions and judgements that are independent of the purpose of the model. Given the uncertainty regarding these terms, the exact method used to calculate these outputs or assumptions should be described or documented.”

8(a) We agree that more detail should be given regarding the disclosure of known or suspected shortcomings in the data than those that would be included in a reporting TAS.

8(b) It may not always be possible to estimate the effects of data shortcomings. At least there should be a clear description of the problem and possible compensating methods, together with an assessment of any bias that may be introduced. Of course, the best outcome would be for these effects to be estimated and an unbiased solution to be found, but this is not always possible.

9. Once again, if data is grouped, the fact that this may affect the results should be documented. The effects of grouping data should only be required to be disclosed if it is unusual to group data in this way or if grouping, and not grouping, the data are both generally accepted methods.

10. We agree that best estimates (and other similar estimates) should be independent, but appropriate, to the use to which they will be put. In some instances using a median rather than a mean, or a mean when a mode is usually used, can give an erroneous impression of the data.

11(a). We agree that biased estimates depend on context. Bias is a problem if it is not known about, or not taken into account when basing decisions on biased data. If both the users and preparers of data know and understand the cause of the bias, then it can be adjusted for or allowed to work for a specific purpose - for example, to increase a level of prudence in years when financial performance appears to be good.

11(b). We suggest that providing more than one estimate is only recommended when it is clear that this would provide increased understanding. In some cases, additional information can add confusion. Providing key estimates at key stages may be better at every stage. The benefit of providing both a prudent estimate and a best estimate is that it shows the direction and magnitude of the bias inherent in a prudent estimate. However, when modelling we would suggest that the decision of whether to use prudent estimates or best estimates should be made at the outset of the modelling exercise, and then used consistently throughout. By reflecting both estimates at every point, it may not be clear which method has been chosen and this may lead to erroneous assessments of the data.

12. Similarly to our response to question 11b) we believe that in some instances it may aid understanding of the data to include a range with some key estimates. Providing a range with every estimate, particularly point estimates, can create confusion and the overall picture of the data may be lost.

13. We believe that the significance of outliers has been highlighted by current economic conditions. In light of this we believe that any exclusion of outliers when they are not erroneous should be explained and the effects quantified where possible and described where not possible. We would suggest the following addition to paragraph 6.33: "If outliers are removed from the data used for a specific reason other than because they are erroneous, the reasons for their removal should be documented, and the actuarial information should include an explanation of the implications. As part of this information should be the results of the data with the outliers included."

14. It has been suggested that Monte Carlo simulations can be run using seeded random number generators in order to be able to reproduce the simulations. It must be noted that this means that these are not genuine random numbers and, from a statistical point of view this can introduce a bias. This should be checked to evaluate whether this forms a significant bias in the results generated, or if it can be overlooked.

15 (a) and (b). We would encourage the use of back testing wherever possible. However this should not exclude the use of other methods.

16. The documentation of an external model should include this information as a starting point for anyone using the model. Whilst taking account of a risk that that some information may be part of a competitive advantage, there should be enough explanation so that the limitations of the models are clearly understood by the person using the model. The user should perform tests that verify certain outcomes that are explicable within the framework of the model, and are consistent with the user's understanding of the situation being tested. Any deviation from the expected outcome of these tests should be checked with the model developers until it has been sufficiently understood. The user, once convinced that a full understanding of the model has been obtained, can establish the sensitivities and limitations of the model and possible ways of dealing with those limitations.

17. Whilst we agree that requirements would not be enforceable and may have undesirable consequences, this does not mean that guidance in the areas of reasonableness and robustness should not be provided. Exceptional tests should be in addition to, and not replace, current ideas of changes in, or magnitudes of, parameters. Furthermore, this argues for an explanation of the reasonableness and robustness of the model so that arbitrary decisions are not made that would further weaken the perception of models in the industry.

18. We have no specific comments on these sections.

19. We believe that this paper documents the major sources of limitations in models. It should be noted, however, that limitations of models can relate to both potential profits and potential losses.

20. We agree that paragraph 7.39 does not meet the requirements of paragraph 2.9, the objective of the modelling TAS. We agree that both the benefits and limitations of the model or models in question should be highlighted. The best option would be a combination of 7.40 and 7.41. We suggest the following wording: "Actuarial information should include an explanation of why the models on which it is based address the needs of the user. In addition, it always should include an explanation of the limitations of modelling generally, together with explanations of any significant limitations that are specific to the model or models that have been used."

21. One specific type of limitation that should be included is an explanation of where the model is inappropriate for a related type of application. For example, if a model works for a financial loss that is high impact/low frequency but not for one that is low

impact/high frequency, this should be stated. Or if it has been known that the model was incorrectly used in a specific situation, this should be highlighted. Furthermore users should assume that if a specific use is not specified they will need to justify their use of a model in an unusual application of the model.

22. The modelling TAS does not seem to set a frequency for the documentation of the model to be updated. Should this be done as more is known about the model, and updating the sections relevant to the checks that are made, but not to those sections unless these have changed materially? Or should the documentation be checked periodically? Sometimes it is only through re-evaluating an entire model that potential sources of error are established.