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20 February 2009

Dear Louise

MODELLING: CONSULTATION PAPER

I am writing to comment primarily on the *purpose* of the TAS proposed in the Modelling consultation document ("ConDoc"). I have made a couple of supplemental points (in the Appendix to this letter) regarding the treatment of *proportionality* and *materiality*, mainly because the issues I identify could have repercussions for future TASs.

Purpose of the standard

The ConDoc is focussed on the proper working of models. This is important, but it plays only a limited role in delivering the FRC's strategic goal for Actuarial Practice. The strategic goal is (paraphrasing) that users should be able to rely not only on the information being properly derived, but also on other factors such as the information's relevance and completeness. The following two examples illustrate an aspect of modelling which the standard does not seem to address, but which I believe to be important.

The internet bubble

A powerful example of actuarial information that conveyed the wrong message – despite being properly derived – was the introduction of stochastic projections of pension scheme surpluses in the late 1990s. Actuaries generally showed projected out-turns from, typically, the 5th to the 95th percentile, and lay people would feel safe if they planned on something around the middle.

The underlying economic reality at the time was a stock market racing away under the influence of a widespread belief in a new paradigm: the internet economy. Those who suspected the new paradigm to be a fiction – of which there were many – should have been focusing on the outcomes that were implicitly based on a (significant) correction in share prices.

But few people asked, and so few were told, which of these scenarios was consistent with a stock market correction of, say, 10%, 25%, 50%, etc. Most trustees and certainly the overwhelming majority of finance directors could have related to information expressed in that form. And they could have related the projections to their own view of the internet economy. Instead, presentations were typically divorced from the underlying economic story and instead shown as probabilities.

[For the sake of absolute clarity, I am not suggesting that there was anything wrong with the working of the models used at the time, nor am I suggesting that the models produced inappropriate probabilities. My point is that, in the circumstances of the times, it was well understood in the business community that the continuation (or not) of the new "internet economy" was critical to future investment prospects. Useful information would have been provided if the presentation of future outturns had separated out the possible impact of the internet economy from other factors.]

The credit crunch

Suppose (hypothetically) that, in 2006, the modelling team for one of the UK's clearing banks had produced results which showed that an additional capital requirement of £10bn, £20bn or £30bn, would be required in the near future with probabilities of x%, y% and z% respectively – and with these probabilities being large enough to be of concern to senior management of the bank.

Faced with this modelling output, would the reaction of the bank have been to enquire whether the models had been tested to ensure they were functioning in accordance with technical standards (such as BAS standards)? Or would a more likely reaction have been:

“There is no reasonable prospect [given the state of the world in 2006] of raising £10bn, £20bn or £30bn in the market place. Worrying about the accuracy of the probabilities isn't the prime issue. The bank needs to understand what the scenario is that takes us from our present position to this catastrophic result and how can we prevent it happening?”

I am not dismissing the importance of getting the probability model right. My point is that, once the possibility of ruin has been identified as a plausible outcome, it becomes essential for management to understand the ruin scenarios (as well) and explore how they can be eliminated. The probabilities may come back into focus later, for example if the cost of avoidance is so expensive that one has to consider whether it is in the shareholders' interests to incur the cost. But first one has to identify the ruin scenarios and whether it is possible to eliminate them.

I recognise that banking is not an area which is typically worked in by actuaries, nor is it on the list of standards to be developed in the immediate phase of the BAS's work. I use this example because the story (and the numbers) are easily recognisable from recent events. Similar storylines could be developed for insurance (both life and general).

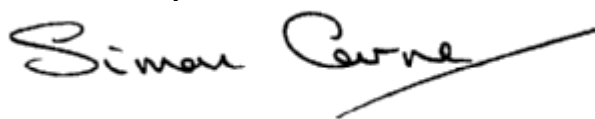
The common theme of these two examples is that the proper functioning of a model is only part of the issue for a modelling standard. The fundamental design of the model and whether it is asking the right questions is critical also. I would argue that it is more critical.

There are generic aspects to this issue running across the whole of financial services. If these aspects are not addressed in a generic standard, the emerging book of standards will lack the “cohesion across the range of work”, which the BAS said was the purpose behind the creation of generic standards.

I am aware that the ConDoc addresses a topic which it describes as “fitness for purpose” (of models). But when one delves into the details, set out in Section 6, it becomes clear that the various sub-headings identify the focus of this section as checking the model, along with the related topics of robustness, reasonableness, reproducibility, validation of the (theoretical) construct, implementation (in practice) and use of data and assumptions (in specific realisations) – none of which address the issue I describe above.

I hope the development of the modelling standard will take on board this issue, as well as the secondary issues identified in the Appendix to this letter.

Yours sincerely

A handwritten signature in black ink that reads "Simon Carne". The signature is written in a cursive style with a long horizontal stroke extending to the right.

Simon Carne

APPENDIX

Proportionality principle

The proportionality principle proposed in the ConDoc says, in effect: “Don’t do anything disproportionate” (see below for the actual wording). The equivalent principle in the Reporting ED of April 2008 says, in effect: “If this standard pushes you towards anything disproportionate, reign it in so that the content is proportionate.” In other words, the proposal in the Modelling ConDoc is that disproportionate behaviour will be *prima facie* a disciplinary offence, whereas the proposal in the Reporting ED was that (dis)proportionality serves as an upper limit on the requirements of the standard.

These are obviously two quite different proposals and I doubt the difference was intended. The Conceptual Framework suggests that the April 2008 approach is what the BAS had in mind.

The precise wording used in the Modelling ConDoc and in the April 2008 Reporting ED are as follows:

- In the Modelling ConDoc, the proposed proportionality principle begins with the words “The development and use of models should be proportionate to ...” (paragraph 3.22), ie “Don’t be disproportionate in your modelling.”
- In the April 2008 Exposure Draft of the Reporting Standard, the proposed principle contained some crucial extra words which I highlight here in italics: “The information *provided in compliance with this standard* ... should be proportionate to ...” (paragraph 4.1(d)). It is the inclusion of the italicised words which gives this the meaning: “If this standard pushes you towards something disproportionate, reign it in so that it becomes proportionate.”

In preparing this submission, it occurs to me that even the wording of the Reporting ED was not quite right, because it says, in effect “... reign it in, or be guilty of a disciplinary offence.” The wording should probably be adjusted so that it says: “... you *may* reign it in.” Without this adjustment, actuaries (and others complying with a TAS) will be sandwiched between the requirement to take the specified actions and a limit on just how far those actions may go before they become a disciplinary offence.

Materiality

I find it difficult to attach any reasonable meaning to the second sentence of the definition of *materiality* set out in paragraph 3.5 of the ConDoc. The first sentence says (paraphrasing): “A departure from the TAS is material if it could influence the decisions to be taken.” The second sentence says (again, paraphrasing): “A departure relating to [certain aspects of documentation] is material if its effect could influence the decisions to be taken.” I see several problems with the second sentence:

- 1 As written, the second sentence is redundant. The departures referred to are a subset of the departures in the first sentence, because the first sentence refers to *any* departure.
- 2 Perhaps the second sentence is intended to say: “A departure relating to [certain aspects of documentation] is material only if [or not material unless] ...” But this would imply that any other requirements relating to documentation were, by definition, *not* material. This creates two dilemmas:
 - There is no point in the BAS creating a [documentation] requirement which is, by definition, immaterial regardless of the entity’s circumstances and, therefore, free to be breached.
 - If such a requirement was, nevertheless, created and departure from it is capable of affecting the decisions taken, the requirement should be observed and, therefore, not defined as immaterial.

I recognise that documentation of a model is not normally seen by the ultimate decision-makers within an entity and so documentation failures would not normally affect their decisions. But, nevertheless, (a) there may be exceptions in which (some) documentation *is* seen by the decision makers and (b) the model developer’s documentation is normally seen by the developer’s supervisor(s) and failures may well affect what the supervisors report to the decision makers.