



## Summary

The rising importance of Scenario Analysis for AMA has increased the need for acceptable estimates regarding these scenarios. Since the impact of events is often given in the narrative of the scenario, the attention must be on estimating likelihood. As is well known, this is an area full of pitfalls. Some suggestions to overcome the most obvious ones are outlined here.

## Dear reader,

Scenario Analysis has become *de rigueur* in AMA programmes. The need to augment internal and external loss data with scenario information is now widely accepted, although there still are outstanding questions regarding the quantification of such scenarios. Probably the biggest challenge in developing scenarios is to derive a reasonable likelihood figure. As has been shown numerous times (most famously in the works of Tversky and Kahneman<sup>1</sup>) people make inconsistent estimates of likelihood even for simple cases and are all over the map when it comes to complex scenarios. To get out of this impasse (since finding likelihood estimates is the very thing we are expecting to get from Scenario Analysis in AMA) the guidelines in this newsletter may prove useful.

## Five do's and don'ts for Scenario Analysis

As a starting point, we must acknowledge that estimating Operational Risk involves both statistical data and expert opinion. Neither will suffice in isolation for all but the most trivial events. Since calculating capital for OpRisk, which is the main concern of AMA, is determined by very few extreme events, the approximation of the likelihood and impact of such events becomes paramount. The following five lessons have been learned trying to implement scenario analysis for AMA:

1. Always start by making full use of the internal loss data to establish a risk profile. There is far more information in the data than merely the amount, the event type and the date of occurrence. Fleshing out the causes for the events that took place will help provide an actual risk profile of the organisation.
2. Always use a combination of threat analysis and external losses to develop scenarios. The scenarios are developed to account for unlikely, but possible situations. To make them useful, a separate threat analysis is necessary for which external loss is the best starting place.
3. Always use groups rather than individuals to make estimations. The psychology of why groups generally do better in estimations may not be scientific or even universal, individual estimations that are unchallenged are certainly not helpful.
4. Always include the impact of the event in the scenario description.
5. Never estimate likelihood directly.

The first three items are indeed commonly applied throughout the industry. I shall therefore elaborate on the last two items, since they may not be as obvious.

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<sup>1</sup> Many references, but a useful starting place would be their very readable 1981 article: The Framing of Decisions and the Psychology of Choice by Amos Tversky and Daniel Kahneman in *Science*, New Series, Vol. 211, No. 4481. (Jan. 30, 1981), pp. 453-458



## **Including impact in the Scenario description**

It is common practise to model impact and likelihood in separate, independent distributions. This is, however, unwanted in scenario analysis for AMA. Failing to include the impact explicitly in the narrative weakens the group's ability to come to a reasoned estimate of the likelihood. The more information that can be provided within the case description, including detailed causal narrative, external similar experiences, processes affected, controls involved and full blown descriptions of effects, the better the group of experts will be able to make a reasonable estimation for likelihood.

By its very nature, the AMA scenarios are 'extreme'. We can enhance the ability of the expert group to come to a reasonable estimate of the likelihood by avoiding any need to engage in guesswork. Items that can be ascertained without the group's opinion, such as impact, must be provided to the group. That will allow the group to focus on the information we truly need from the group: the likelihood estimation. As such, the impact is one element that should be fully researched, discussed and incorporated in the scenario description *prior* to the likelihood estimation. That way, the 'extreme' nature of the scenario is at least clear for all parties involved.

## **Estimating Likelihood indirectly**

When using an expert panel to determine the likelihood of extreme scenarios, benchmarks and prior analysis set the boundaries within which the panel can agree on a likelihood. It is, however, beyond a normal expert panel's ability to arrive at a reasonable likelihood estimation directly.

Since likelihood is a function of external circumstances and internal controls, the more we know about both, the better the result will be. The scenario narrative should include a full description of the external circumstances. The missing part is information on the effectiveness of internal controls. This is what the expert panel should be occupied with.

Shifting the focus of the expert panel from estimating likelihood to estimating the effectiveness of the internal controls has three immediate positive effects:

1. The bank's own actions (i.e. the controls), and thus its actual processes become the centre piece of the scenario analysis. This allows AMA capital estimation and practical ORM to speak the same language and reinforce each other.
2. The burden of estimating likelihood directly is transformed into the task of discovering the relation between likelihood and the effectiveness of controls
3. The link between controls and likelihood is not expected to be deterministic. Rather, one would assume that the pre-existing likelihood (from research) is only marginally affected by the quality of the internal control. This is probably a true reflection of the limited influence banks have over extreme events.