

## Scenario Analysis Workshop / Record of Panel Discussion

June 19 (Tue): 16:50 -17:50 Main Conference Room A,  
9<sup>th</sup> Floor, Head Office, Bank of Japan

Panel Members:

Dr. Eric Rosengren, Federal Reserve Bank of  
Boston

Mr. Mike Finlay, Risk Business International  
Limited

Mr. Robin L. Phillips, JP Morgan Chase & Co.

Mr. Takashi Kanemori, OYO RMS Corporation

Mr. Hidehisa Hanzawa, Shinsei Bank, Limited

Mr. Akio Nakamura, Shizuoka Bank, Limited

Host : Mr. Oyama, Deputy Director-General, Center for  
Advanced Financial Technology, Bank of  
Japan

### 1. Scope of events to be assumed for scenario analysis

(Mr. Oyama, Deputy Director-General)

For adoption of the AMA as provided by Basel II or operation of economic capital management, suppose we conduct calculations of operational risk with a confidence interval of 99.9% or 99.97%, what is the scope of events that should be incorporated into the scenario analysis?

(Mr. Hanzawa, Shinsei Bank)

I think it is important to incorporate scenarios that are low in frequency but that have great impact. At our bank, although we do not impose an upper or lower limit on the number of scenarios that are included, we ask our departments to incorporate 5 or 6 scenarios that are positioned as tail events.

We already have internal loss data for scenarios covering events or incidents that occur once or twice a year, and since we can use these for the purpose of operational risk control, we do not have to take time to create scenarios for such events. In contrast, it is difficult for the relevant department in the field to formulate low frequency scenarios for events or incidents that occur "once in 100 to 200 years". For these reasons, many our scenarios are for events that occur once every 2-3 years to 20-30 years. In addition, since it is difficult for a single department to formulate scenarios that extend to multiple business lines or events, a "scenario verification team" composed of the internal audit and

other relevant departments take charge of the development of such cross-sectional scenarios and offer various sorts of advice to the departments in charge.

(Mr. Oyama, Deputy Director-General)

When conducting scenario analysis, do you set any specific criteria of their scope?

(Mr. Nakamura, Shizuoka Bank)

We do not set any specific criteria, but we do use historical events during which the banking industry was faced with crises as objects in scenario analysis. This is because such a scenario analysis is in itself useful for risk management for a bank.

(Dr. Rosengren, Federal Reserve Bank of Boston)

After having heard all the discussions at this workshop, I was under the impression that seismic risk is one of the criteria used. However, looking at all the countries in the world, there seems to be no other country that takes the risk of earthquake generation into consideration in the same way as Japan. Furthermore, from the standpoint of a supervisory authority, suppose each bank formulates scenarios for earthquake occurrence, although the estimated amount of loss should be different depending on the bank, if the frequency of occurrence varies depending on the bank then this can in its own way be considered unnatural.

(Mr. Phillips, JP Morgan Chase)

It is difficult to answer the question, "what are the criteria used?" I think it is important to formulate scenarios that can be used not only for ensuring capital adequacy but also for risk management and aiding business decisions. With the object of maintaining capital adequacy, it is important to formulate as many stress scenarios as are necessary to cover all material tail risks. In terms of the relevance to business, it is essential to ensure coverage of scenarios that can help business managers make informed decisions, e.g. "How much should I invest in controls, in terms of personnel and financial resources to mitigate my risks?", "To what extent do I need to incorporate the cost of risk into product pricing?".

## 2. How to ensure the objectivity of the scenarios

(Mr. Oyama, Deputy Director-General)

I think that in scenario analysis it is important to consider how to eliminate “subjectively” as well as how to keep “comprehensiveness” or set appropriate scope of analysis. Do you have any comments on this point?

(Mr. Finlay, Risk Business)

In scenario analysis, it is true that we have no choice but to rely on expert judgment. However, we need to note that the answers may be biased depending on the ways in which questions are asked to the experts. In this regard, studies at Quebec University in Canada have been conducted to try to determine methods that can be used to eliminate as much of the subjectivity of answers as possible by using a model-based approach. However, this approach also has a problem in that the answers are concentrated in the vicinity of the mode (the most frequent value of a set of data), so I don't think this can be seen as the perfect solution. At present, probably the best method we have of avoiding subjective answers is for interviewers to pay close attention to the way they are asking the questions. In this case, it may be useful to compare the answers of staff directly in charge of the activity with those of staff engaged in other activities (the peer group) to analyze tendencies towards bias and make the appropriate adjustments.

(Mr. Kanemori, OYO RMS)

In terms of seismic risk in Japan, it was impossible to estimate the amount of loss a mere ten years or so ago. This was because we had little loss amount data and also because damages are suffered contingently. So it was difficult to determine the amount of loss analytically. Perception of risk is “subjective” in some respects and it was difficult to evaluate future prospects in a quantitative manner. In the US, approx. 20 years ago, structural consultants got together in California and, for the first time, developed some sort of “guidelines” for the evaluation of seismic risk. Adjustments have been made to these “guidelines” on a case-by-case basis based on a positive analysis of damages caused by earthquakes that have occurred since then. In that context, a common

consensus has been built up gradually to increase the objectivity of the evaluation of such “subjective” risk. In Japan too, quantitative analysis of seismic risk based on the damage forecasting method applied in the US has, for about 8 years, been put to practical use using data from the casualty insurance industry and the real estate industry.

Many aspects of the banks’ methods for evaluating seismic risk are still ad-hoc; however, what is important is that everyone both inside and outside the industry gets together to discuss possible future directions. Seen in this light, this workshop has been quite beneficial. However, if we focus too much on detailed procedures, it will be impossible to reach a breakthrough, so it is also important to have an “overall view”.

(Dr. Rosengren, Federal Reserve Bank of Boston)

As a test to eliminate subjectivity, the questions should at least be checked for “consistency” or “conformity”. In addition, if progress is made in the accumulation of internal data or in the collection of external data, checking the questions against the bank’s empirical distribution and external examples will also be possible.

### 3. Industrial standards for scenario analysis

(Mr. Oyama, Deputy Director-General)

For the purpose of Basel II / AMA, it will be inappropriate to demand an excessive degree of industry standards; however, in order to secure a “level playing field”, a certain level of standardization may be necessary. In this case, to what extent will it be appropriate to require standardization?

(Mr. Phillips, JP Morgan Chase)

Standardization may be useful for particular areas. However, it may not be appropriate to apply standardization across the board.

For instance, although an attempt at standardizing scenarios assuming earthquakes and terrorist attacks may be meaningful for the purpose of business continuity management, caution will be necessary for standardization of scenarios in other areas. In our limited experience, there is high value in asking businesses to identify their key risks and issues - essentially starting with a “blank piece of paper”. We do not want to stifle broad thinking. If the process of scenario analysis simply requires consideration of standard

scenarios, the process will be relegated to a form-filling exercise and creativity will be significantly harmed. Rather than use the term “standardization”, benchmark analysis through a comparison with other banks’ scenarios may be an acceptable and workable solution.

(Mr. Hanzawa, Shinsei Bank)

It is easiest to estimate the “frequency of occurrence” or the “severity of loss” for operations that are not expected to undergo significant changes over time, foreign exchange trading for example. However, it is difficult to estimate these factors for new businesses such as loan trading and securitization or businesses that have undergone significant changes in their work flow. At the initial stage, we have to base the scenarios on the images of the business and the scale of transaction value. In this case, we have to be greatly reliant on the expertise of the relevant department.

We conduct an annual review of initial scenarios established this way to check their validity on a case-by-case basis. In so doing, we commit ourselves to verify the grounds for assumptions and background circumstances.

(Mr. Finlay, Risk Business)

We should clarify the definition of the term “standardization”. Is it a term about the events to be assumed or about the process? There are various approaches. In terms of “standardization” of the scenario analysis process, there are issues such as whether or not to use the CSA (risk control self assessment) or to use single or multiple variables and whether scenarios combining multiple factors should be taken into consideration. However, I also think that it may not be appropriate to stick to the word “standardization”. All I can say at the present stage is “benchmark analysis” is useful in this sense.

In this light, as is the case for risk analysis based on the event types provided by Basel II, in benchmark analysis, a data consortium such as ORX may play an active role. I think that banks want to conduct benchmark analyses of earthquakes and hurricane disasters. For example, by gathering earthquake scenarios for a group and comparing the estimated frequency of occurrence and severity of loss with each member of the group, we should be able to pick out the scenarios that are vastly different from those of other banks.

(Dr. Rosengren, Federal Reserve Bank of Boston)

As Mr. Finlay just mentioned, for verification of scenarios, benchmark analysis should be useful. In the US, data consortia have been developed and since it is easy to obtain external data, it is easier to conduct such an analysis. However, in Japan and Europe, not a lot of external data have been accumulated and this makes conducting such an analysis a bit difficult. In order to facilitate benchmark analysis, I believe it is desirable to develop data consortia under the initiative of the private sector, or, in certain countries, with the commitment of the public sector.

Although this is the first step, I don't think that it is likely that there will be a time when a universal list of scenarios is developed. Flexibility is necessary for scenario analysis and this is a point that all the banks and authorities have to note.

(Mr. Kanemori, OYO RMS)

In the context of "standardizing scenario analysis relating to seismic risk", professional firms like ours have taken the lead in building models and comparing them to their own and casualty insurance company data on the amount of loss to expand upon the details of "standardization". In this regard, the matter has progressed so far as to be "driven by the model".

In addition, if "standardization" as mentioned here is conducted at too early a stage, it may finally converge at the lowest level and rather disturb expansibility, so due caution should be exercised.

(Mr. Hanzawa, Shinsei Bank)

Since we still have difficulties with standardization, I think it is important to keep the grounds for developing each scenario clear. The scenario should facilitate verification and should be easily improved if an unexpected situation occurs.

#### 4. Implications of introducing scenario analysis from an economic perspective

(Mr. Oyama, Deputy Director-General)

Suppose Basel II were not released, would you think you have introduced a tool such as scenario analysis to enhance operational risk control? In other words, is scenario analysis really useful for bank management from an economic perspective?

(Mr. Nakamura, Shizuoka Bank)

At our bank, we conduct scenario analysis based on the Tokai earthquake and other cases using the concept of enterprise risk management. Given the general tendency of corporate managers not to be willing to spend “money” on risk control, I think the most important fact is that regulations such as Basel II served as an effective “brake” on such behavior and everybody is now aware of the importance of risk control. Globally, the axis is shifting to the point where “the importance of recognizing (operational) risk” is acknowledged. I think this is quite important.

(Mr. Phillips, JP Morgan Chase)

At our bank, although we did not use the word *scenario analysis* in 2001, even without Basel II, we would have introduced the process to support our economic capital calculation and risk management. We do not discuss our risk management system based on whether it is useful for Basel II or not. In any event, it is not that expensive to introduce tools for scenario analysis.

However, in some businesses, the existence of Basel II has raised the profile of the operational risk framework, and heightened the need to implement the supporting tools, including scenario analysis. So in that sense, Basel II can be considered to be helping to advance the state-of-the-art in operational risk.

(Mr. Hanzawa, Shinsei Bank)

Maybe because management had the idea that “scenario analysis is useful for understanding the bank’s risk”, the introduction of scenario analysis was easy at our bank. I also think that people who are in management positions actually like this kind of analysis. Partly because of this situation, in our case the comment “Basel II accelerated the introduction of scenario analysis” is not applicable. However, a number of our employees have joined the bank from other industries, including securities companies, and when we require them to formulate scenarios it is easier to obtain their cooperation if we refer to Basel II, which is the international framework for risk management of banks.

(Mr. Finlay, Risk Business)

In the late 1980s, I was an officer in charge of starting up a derivative trading business in a company in South Africa. As there was no antecedent available, I had to plan out the business process almost from scratch. In those days, when even the term “operational risk” did not exist, I used to conduct a scenario

analysis that relied on instinct to determine “if this happens here, it will result in that”. As shown by this example, the need for scenario analysis has existed all over the world for a long time and I don’t think Basel II was the direct cause of the introduction of scenario analysis.

(Mr. Phillips, JP Morgan Chase)

In most instances, when releasing a new product, every financial institution should be considering the question: “what are the potential risks that can arise when we release this product?” This may not be formally “analyzed” or documented but can equally well be considered as conducting a scenario analysis exercise.

(Mr. Oyama, Deputy Director-General)

Scenario analysis is still at an “early stage” and it is a subject that needs further review by the industry as a whole going forward. I hope we can continue exchanging ideas and opinions and sharing issues in this regard from now on.

—— Session Closed ——  
End of Document