

Questions and Answers from the Scenario Analysis Workshop

Day 1 (July 18, Tue)

1. Keynote speech (Mr. Oyama, Deputy Director-General)

(Q1) It is believed to be important for supervisory authorities around the world to share the same sense of risk recognition when applying scenario analysis. Are there any concrete discussions or moves regarding this issue among supervisory authorities?

(A1) The AIGOR has prepared and published a range of practice papers, but there has as yet been no discussion between supervisory authorities as to a standard approach towards scenario analysis; this is an issue that remains to be discussed in future.

We invited the supervisory authorities of various countries with advanced expertise in this field to participate in this scenario analysis workshop. In light of this discussion, this invitation may be seen as the first attempt to promote sharing of information regarding scenario analysis.

(Q2) In scenario analysis, it is necessary to bear in mind that there may be significant differences in the scenarios to be assumed, depending on the location. I think earthquakes in Japan, tsunamis in Asia, and volcanic explosions and avian flu in Europe will be considered risks of great account. I would like to add that slightly different scenarios should be considered, even for regions within the same country. For instance, in the case of regional financial institutions, the risk of isolation and inability to continue business as a result of concentrated heavy rains for branches in mountain areas should be considered based upon the characteristics of the region.

As just described, since there are different risk profiles for each country or region, I think it is essentially difficult to have a common global recognition of risks in this field. However, since it is believed to be reasonably meaningful to recognize such differences, if there is another opportunity to participate in a workshop such as this, I would like to take an active part in it.

(A2) If we receive comments such as “the workshop was meaningful” from a number of participants, we would consider holding a second or third workshop.

2. Key points of scenario analysis (Mr. Arai, Director)

(Q1) When management assumes the responsibility for developing “top-down scenarios”, there is a concern that without proper verification management may only develop scenarios that serve to protect its own interests. While we can conduct verification such as a back test using historical loss data for “bottom-up scenarios”, such verification seems to be difficult to perform for “top-down scenarios”. What is your view on this?

(A1) Discussions on this issue have not made progress nationally or internationally but going forward, the methods used to verify such “top-down scenarios” may become an important issue. I guess, in so doing, basically, verification would be conducted within the framework of corporate governance. In more concrete terms, in addition to checks by internal and accounting auditors, supervisory authorities are expected to play a certain role from the perspective of “validation”. In addition, if the day comes when such “top-down scenarios” are disclosed in IR materials or other documents, it will be possible for stake holders, including shareholders and depositors, to check or evaluate them. Rating agencies may also play a role in verification.

3. Quantification of operational risk using scenario data (Mr. Nagafuji, Director)

(Q1) I would like to ask two questions. (1) When “the aggregated sum of the risk amount of individual banks” was compared to “the amount of risk when all banks are considered to be a single entity”, was the sub-additivity satisfied? And, (2) did you use for example low-frequency scenarios for events that only occur once in ten thousand years to calculate the risk amount with a confidence interval of 99.9%?

(A1) Since we did not have sufficient data from the banks, we did not conduct analysis on an individual bank basis; however, I think the sub-additivity is probably satisfied. In addition, we did not include scenarios with very low frequency in the analysis.

(Q2) I would like to ask two questions. (1) Did you include in the analysis not only the scenarios developed based on the current risk profile but also risk scenarios assuming future profiles different from the current one? I think such scenarios should be excluded when calculating the amount of risk at present. What is your view?

And, (2) the number of scenario data presented at this workshop was different depending on the loss event type: 30 for loss event type 1, 38 for type 7, 3 for type 2, and 5 for type 3. Do you think there are an appropriate number of scenarios for each event type?

(A2) Scenarios assumed by the future risk profiles are not included in this analysis. In market practice in general, operational risks are quantified on the assumption of a “holding period of one year”, and, in such a case, perhaps, development of scenarios incorporating changes in risk profiles over the coming year would be required. Nonetheless, in a theoretical sense, we have an option of conducting risk quantification assuming longer holding periods of 3 or 5 years, for example. In that case, I think it may be necessary to conduct scenario analysis assuming changes in the profile over the longer term and to quantify the risk.

In addition, I believe that whether “an appropriate number of scenarios by event type” is necessary to be prepared or not depends on the framework of the model. In other words, our current model has a specification where the scenario with the highest loss severity has an exceptionally large impact on the calculation of the amount of operational risk, so the concept that “an appropriate number of scenarios by event type is necessary to be prepared” is not necessarily important. In contrast, in the case of a model with a specification to “first calculate the loss distribution by event type by using scenario data only, and then combine these with the loss distribution estimated from the real loss data”, a certain number of scenarios may be required.

4. Illustrative example of scenario analysis at a foreign bank (Mr. Taylor, Mr. Shelton and Mr. Farmer, Commonwealth Bank)

(Q1) How do you provide incentives to the front departments and ensure the accuracy of scenario analysis?

(A1) We have introduced portfolio review metrics in the amount of risk verification process to cross-check “bottom-up scenarios” from a top-down perspective and have attached importance to the accountability of each department for its risk management conditions to ensure that the departments in the field do not underestimate the risks.

Furthermore, if any weakness is identified in the risk management conditions

of a department after the fact, we ask it to adjust its scenario analysis.

(Q2) Do the subject matter experts (SME) who participate in the workshop also hold the CSA officer's post at the relevant department?

(A2) That's right. The same people hold concurrent posts.

(Q3) I would like to ask two questions. (1) What are the positions of the employees who participated in the workshop? (2) Do the operations departments place importance on and use the discussions at the workshop for their decision-making?

(A3) Although the members of top management do not participate in the workshop themselves, the experts participating in the session are those appointed by the senior managers of each department. In addition, since there are many examples where internal control has improved as a result of discussions at workshops, I think that the operations departments consider the scenario analysis process has a certain value.

(Q4) How do you conduct scenario analysis at the entities located outside Australia?

(A4) Scenario analysis in New Zealand is conducted in the same process as in Australia. Since the entities in New York, London, Singapore and Tokyo are of relatively less importance, we do not conduct a scenario analysis in the form of workshops in these locations.

(Q5) During your presentation, you explained that you use external data for quantification. Is there any move among Australian banks to share or accumulate their internal data?

(A5) As the banks are preparing for Basel II prior to other issues, sharing of internal data has not achieved yet. However, we believe that the sharing of not only loss data but also of other data, including indices relating to the business environment, would be of great value. We would like to consider the establishment of a data consortium going forward.

(Q6) How many departments is the operational risk capital allocated to?

(A6) We allocate the risk capital to approx. 300 departments. I would like to add that we take correlations between risk quantification classes into consideration when conducting risk quantification. In other words, at our bank, we conduct analysis of correlations between quantification classes and, for example, if a single risk factor causes losses to more than two departments, we set the correlation between both departments to a high level to adjust the loss frequency.

5. Quantification of operational risk and scenario analysis (Dr. Nakagawa, Assistant Professor, Tokyo Institute of Technology)

(Q1) What is your view on the issue of the stability of the quantification model when supplementing tail data through scenario analysis using the extreme value theory?

(A1) It would be important to know the impact of changing the assumed frequency of occurrence or amount of damage of each major scenario.

(Q2) What is the most appropriate distribution function for the tail?

(A2) Although there is some difficulty such as choosing how to set the threshold between low and high losses, as long as the goodness of fit test is satisfied, I don't think there is any problem using any distribution form. However, in the Peak-Over-Threshold(POT) method, it is known that the generalized Pareto distribution can approximate the conditional distribution of excess losses over a certain threshold; so personally, I prefer using the generalized Pareto distribution.

(Q3) How well does it work if the method explained in the presentation, the combination of the generalized Pareto distribution and method of probability-weighted moments? What examples did you use to check this? Please tell us about your findings, if available.

(A3) I remember that it led to a good fit when some virtual data were used as extreme cases for the model.

(Q4) Even if it had a good fit to the data, I don't think we can always derive the accurate volume of risk from the model. In other words, I do not think the goodness of fit test is always effective. Do you have any good ideas on how to solve this problem?

(A4) I don't have any good ideas on that issue so far. I think this is a problem that remains to be solved.

(A comment from a participant) There is no satisfactory method yet for choosing the boundary value between the tail and the body parts when using the extreme value theory. We would like to explore a rational approach to solving this issue in collaboration with authorities and industry participants. I hope to share the content of studies by financial institutions, including our bank, to establish best practice in this case.

6. Scenario analysis by French banks from the viewpoint of the supervisory authorities (Dr. Duc Pham-Hi, French Banking Commission)

(Q1) As one of the reasons why scenario analysis is getting attention recently, you cited satisfaction of the requirement to adjust equity capital; what do you mean by that? Does this include downward adjustment of the quantified amount of risk?

(A1) What is assumed here is upward adjustment of risk capital. I think banks can use scenario analysis to cover lack of internal loss data and calculate their Operational risk capital more conservatively.

(Q2) During your presentation, you introduced the classification of (i) an approach where a statistics expert develops scenarios based on a mathematical interpretation (distributional scenario approach), (ii) an approach where a business expert sets up a committee to explore a number of worst case scenarios (catastrophic scenarios; circumstances scenario approach), (iii) an approach where risk factors are modeled, including their causal connection with the losses (mechanism scenario approach). Do the approaches described in (i), (ii) or (iii) tend to be “effective for certain types of events”?

(A2) I think there is a correlation between these approaches and event

types to a certain degree. For example, for a type of event with low frequency that requires expertise in developing scenarios, as “trading and sales”, perhaps (ii) may be appropriate. Such correlations between event types and effective approaches are exactly what we are studying.

(Q3) In the case of the approach described in (iii), how many risk factors do banks use? Don't you think if there are too many factors it could cause difficulties in analysis? Also, could you give actual examples of risk factors?

(A3) We see practically use of 3 to 4 factors for each cell. There are factors that may be common to several cells. An example of a factor is “the number of employees who know the password to modify business data”.

(Q4) I think there are significant differences in the ways scenarios are used among French banks. In the first place, if it is banks with similar risk profiles, I think it is desirable to obtain a similar amount of risk through calculation, regardless of the scenario analysis approach applied. In this light, what is the state of the banks' actual amount of risk?

(A4) Some of the banks mentioned in the presentation have similar risk profiles to each other and, in fact, they present a similar risk amount, too. Anyway, similar scenarios should be developed by all banks for catastrophic disasters and we promote sharing of information between banks for this purpose.

(Q5) Although there are significant differences in approaches depending on the bank, as a supervisory authority, will you approve the AMA if sufficient capital has been reserved?

(A5) It is important that the banks reserve sufficient capital. Although this is my personal opinion, in an extreme case, even if the model is insufficient, if a sufficiently large amount capital has been reserved, this may be a factor in relieving the insufficiency of the model. Going forward, when we visit banks for on-site interviews, we plan to check whether they have sufficient capital as well check the framework of their model.

(Q6) At the moment, are you at the transition stage in preparing for the development of new guidelines?

(A6) That's right. We are preparing to offer more extensive guidelines than those currently existing towards 2007.

(Q7) I have two questions. First, (1) in EU countries other than France is scenario analysis conducted in a similar framework? That is, can the classification of (i), (ii) and (iii) be applied? Second, (2) what is the practice in the EU regarding the home-host issue?

(A7) In answer to question (1), I have the intuition that basically other E.U. banks' approaches can also be classified into (i), (ii) and (iii). To answer question (2), there is an EU directive that provides that if the home country accepts the AMA, this will be binding on all host countries.

7. International trends in scenario analysis (Mr. Finlay, Risk Business)

(Q1) What is the common means of applying Basel II and Solvency II to bancassurances (banks that operate financial and insurance services in a comprehensive manner) in Europe?

(A1) Although they have the same basic goal of securing sufficient capital, Solvency II allows for a wider variety of capital calculations than Basel II and is interpreted in different ways, depending on the country. However, basically, Basel II would be applied to financial conglomerates that are positioned as bancassurances.

(Q2) What are the possible risk events to be noted when calculating the risk capital of 99.9% confidence level? And, are there any global trends in this regard?

(A2) There is no such thing as a "global trend" in this regard. However, I would like to emphasize that "the most important thing in scenario analysis is to avoid 'the Titanic disaster'".

Which is to say, it is inappropriate to think that "the ship will never sink" or "it is not necessary for our bank to consider this risk as it will never occur"; it is always necessary to think over "what will happen if this risk does occur?" In an extreme case, even if the bank is in a remote location in Switzerland in the bosom of mountains far from the sea, it should still provide for flood risk as it may still suffer damages from concentrated heavy rains.

(Q3) During your presentation, you explained that “it is useful to change the risk management approach in the vicinity of a boundary point equal to ‘UL₁₀’ (the largest amount of loss that may be suffered by a financial institution at any one time in 10 years)” on the operational risk severity distribution. What is the reason you applied the figure of “10 years” to ‘UL₁₀’ here?

(A3) The figure of 10 years was chosen as an example that represents the median of short-term business, such as investment banking, and long-term business, such as housing loans that would continue over several decades. You can use other figures, depending on the business context.

(Q4) Which scenarios should be considered for the two frameworks of ‘UL₁₀’ and ‘UL_{99.9}’ ?

(A4) Even if the frequency of the scenario itself is the same, the probability of suffering an actual loss as provided for in the scenario will be different depending on the bank. As for which framework should be used, at the moment, I can only say that “for events of which the probability is expected to be low, ‘UL_{99.9}’ should be applied rather than ‘UL₁₀’”.

Day 2 (July 19, Wed)

8. Illustrative example of scenario analysis at a domestic bank (Mr. Hanzawa, Deputy Director, Shinsei Bank)

(Q1) How do you estimate top-down scenarios with high severity?

(A1) For example, a relevant scenario would be one that determines the risk of business disruption due to a large earthquake or a system failure. Note that it is not the bank as a whole that develops a “single” scenario but individual departments develop individual scenarios relevant to their own situations. Since the amount of loss may vary depending on the business characteristics and the timing of the occurrence of the event, even “top-down scenarios” cannot be developed without using the expertise of staff in the field.

(Q2) I would like to ask 3 questions. (1) Who is the final decision maker for the scenarios? (2) When are the scenarios updated? (3) What do you see as influences on other risks such as credit risk, and liquidity risk?

(A2) (1) Currently, it is the Director of the Risk Control Department who makes a final decision on scenarios. (2) As a rule, the scenarios are updated once a year, which has only been done at the end of the fiscal year so far. From now on, we plan to change the timing of the scenario updates to fall due to the pressure of business. In addition, whenever there is a significant change in circumstances, the scenario may be updated on a case-by-case basis. (3) The scenarios are developed considering their influence on credit and other risk categories as well as on operational risks, and the results of the analysis will be communicated to the department in charge of the risk category.

9. Illustrative example of scenario analysis by a foreign bank (Mr. Phillips, JP Morgan Chase)

(Q1) During your presentation, you explained that “quantification of operational risk is still at a basic stage”. Doesn’t this contradict the fact that the amount of operational risk is calculated at a high level of confidence (in the same way as for other risk categories) given a confidence interval of 99.97%?

(A1) I can answer both “Yes” and “No” to your question. The answer is “No” because, for instance, in the future as more actual loss data are accumulated, we should be able to calculate the amount of risk with almost the same high degree of accuracy as other risks. Even today, when we use scenario analysis to complement actual loss data, where 99.97% is deemed as the target for overall capital adequacy, it is necessary for consistency to use 99.97% for quantification of operational risk.

On the other hand, “Yes, it is contradictory”. This may sound contrary to what I have just said, but at the current time, the 99.97% calculation is not always stable, due to the incompleteness of the data. Although we compensate for infrequent, actual large losses by using scenarios, which help to stabilize the calculation from a statistical perspective, we still need to operate within certain sensitivity latitudes.

(Q2) During your presentation, you explained that “in case of losses of US\$1 million or more, we combine the scenario and actual data in the proportion of four to one in the model”. Could you please describe the exact

procedures you use?

(A2) In the Monte Carlo simulation for a given frequency of losses over US\$1 million, in 80% of the cases we draw a loss from the severity distribution described by the scenarios, and in 20% of the cases we draw a loss from the severity distribution described by the data. Note that for losses below US\$1 million we use the data distributions for both frequency and severity.

(Q3) You explained that “the size of the tail event assumed in scenario analysis varies significantly depending on the business line”. Is it related to the ranges of β factor (the weight by business line) of TSA (the approach to allocate gross profits) as provided in Basel II (12-18%)? And, when choosing a scenario, which do you consider first, the causal or the impact factor?

(A3) We have found a spread of “implied β ” based on our AMA calculations that is both lower and higher than the 12%-18% range for some granular units of analysis (e.g. lower in the case of some retail business group risks and higher in the case of some investment banking group risks). At a more aggregated level, comparable to the Basel II business lines, the implied β factors are less extreme, and at a firm wide level the numbers are very consistent. Despite the differences where they do exist, the β factors serve as a useful benchmark.

For the purpose of measuring risk and calculating capital we only consider impact: – we ask managers “what keeps you awake at night?” and “how much money can you lose?”

(Q4) How are external data and anecdotal information used when developing the scenario?

(A4) We often get the reaction from people involved in scenario development that “these external events will never happen in our business”. However, at our bank, in the guidelines for scenario development, we provide a general rule saying that “what has happened to other banks should also be considered as likely to happen at our bank. There is always a possibility that our controls will fail and result in a similar exposure. Unless the business itself has changed, what has happened once will happen again”. This rule is included to aid people’s understanding of the real risks

faced.

(Q5) (1) You explained that in quantification of operational risk, for losses of US\$1 million or more, you use scenario and real loss data in the proportion of four to one. Doesn't this result in a kind of unevenness for the purpose of quantification because the treatment of the losses is different for the domains of US\$0.9 million and US\$1.1 million? (2) And, how do you reflect the occurrence frequency of actual events or incidents on the frequency set for scenario analysis?

(A5) (1) I'm afraid I do not have enough time now to go into detail to address the first question. I'll simply say that the process has been developed in a way to prevent such unevenness occurring.

(2) The events assumed in the tail scenarios should occur with low frequency, say, once in 20 or 50 years. At the moment, by definition we obviously don't have internal loss data to validate these estimates. We use scenarios to apply judgment to the expected frequency, and as previously described we combine scenario and data distributions in or simulation.

For instance, we have experienced two large losses in the investment banking business over the last 5 years. Through scenarios, we position these as loss events that represent the tail in the severity distribution (loss events that are rare). So, we effectively discount the expected future frequency through the scenario process. In other words, the losses did occur and we can be certain about their severity, and we make the assumption that something of a similar severity will happen again, but we assume it will happen with a frequency less than the observed level. This is a small practical example of the essence of scenario analysis.

10. Scenario analysis by the US banks from the viewpoint of the supervisory authorities (Dr. Rosengren)

(Q1) Have the US supervisory authorities already developed criteria for scenarios?

(A1) There are no defined "final rules" for application of the AMA, nor have we any criteria for scenarios. Although the US supervisory authorities have engaged in collection and analysis of loss data and are conducting studies on the distribution forms of the models and benchmark analysis of the banks,

the field of scenario analysis is an issue that still needs to be addressed in the future.

(Q2) As you explained in your presentation, are the US supervisory authorities trying to examine the banks' procedures for developing scenarios taking such factors as "different answers will be given depending on the format of the question (when asking questions, even if the gist of the questions is the same, the answers may vary depending on the ways the questions are presented)" into consideration?

(A2) At this presentation, I discussed the subjects that we would like to pursue going forward rather than the current supervisory measures. From now on, while we are required to conduct more accurate verification of scenario analysis, it will be necessary to check whether the differences in the banks' scenarios are due to the format of the questions asked or whether they reflect differences in the risks. In addition, we need to advance discussions in the AIGOR focusing on how to reflect the characteristics of the regions during verification of scenario analysis.

(Q3) During your presentation, you explained that "there are slight differences in the occurrence of losses between the US, Japan and Europe". Is this also because of the differences in the ways in which incentives are provided to employees? And, if the ways incentives are provided is the issue, I think that, in the case of Japan, an approach based on criminal psychology rather than on behavioral economics may be more effective. What is your view?

(A3) We also have external / internal fraud in the US. However, except for a number of huge losses resulting from lawsuits that are highly visible, it is not so different from the situation in Japan or Europe. Although this has not been proven yet, I don't think there is much difference in the occurrence of internal fraud between countries.

Furthermore, I think it is useful to analyze the examples of huge losses associated with lawsuits in the US from a different perspective than the traditional one. For instance, when analyzing a legal case relating to mortgage-backed financing, I would like to explore how the differences in the banks' recognition of the litigation risk and their approaches or the "habits" of

the courts (judges) exercise effects on the outcome.

(Q4) Can I understand that in order to complement the actual loss data, it is necessary to combine scenario analysis and external data in a balanced manner?

(A4) Yes. However, the methods of combination will differ depending on each bank. Some position “external data” as reference materials for scenario development and others directly input “external data” into the quantification model and the scenario data are quantified separately from the external data.

(Q5) How should scenario analysis verification by supervisory authorities be shared between the host and the home countries?

(A5) I think we should comply with general principles regarding problem processing between the home and the host countries. That is to say, while scenario analysis by Japanese banks should be verified by Japanese supervisory authorities, the part relating to their US subsidiaries should be examined by the US supervisory authorities. And, coordination between the US and Japanese supervisory authorities may be required to ensure consistency of the results of their verification.

(Q6) We manage a consortium for KRIs. When we analyze the banks’ KRIs, we find common tendencies in size, location or business characteristics between the financial institutions. Can’t we use KRIs to increase the objectivity of scenario analysis?

(A6) If accumulation of KRI data makes advances, it will be easier to develop certain patterns of relationships between KRIs and actual loss events. In any case, this will be the issue in the future.

(Q7) What do you think about the ways to deal with catastrophic risks?

(A7) Taking earthquakes as an example, although the occurrence frequency is common to all banks, as a matter of course, the severity of loss incurred should vary depending on the location of the banks and the availability of backup centers. I think these differences will become evident

through the result of a scenario analysis performed by each bank.

11. Fundamentals of analysis of huge seismic risk (President Kanemori, OYO RMS)

(Q1) In our risk analysis, we use a process where we first identify the risk factors (key drivers) of “composite risks” and then synthesize the risks. How do you deal with the composite risks where seismic risk is combined with other kinds of risks?

(A1) Our model incorporates the situation where earthquakes are combined with other multiple risk factors. For example, when evaluating the risk of damage to the same equipment during an earthquake, differences in the amount of damage that will occur depending on the floor of the building where the equipment is installed are considered in the model.

(Q2) You explained that you take various earthquakes into consideration when developing the “seismic risk curve”. To what extent do you take these into consideration?

(A2) We assume earthquakes at 26,000 locations nationwide based on seismic focus. Although there is no end to detailed analysis, we need to make estimates that are as accurate as possible to satisfy our client companies.

(Q3) Although financial institutions are satisfied with using earthquake insurance or CAT bonds to hedge the seismic risk, if this insurance is underwritten by another company within the same group, the risk will not be transferred. As supervisory authorities, what is your view on such a situation?

(A3) (Mr. Oyama, Deputy Director-General) In our country, although we have not dealt with cases such as bancassurances yet, I expect consolidations between banks and insurance companies will progress in the future. In this case, if a bank asks its affiliate insurance company to provide insurance coverage not only against earthquakes but also against other risks, the risk will remain within the group. In such circumstances, supervisory authorities may monitor the locus and the size of the risk borne by the financial group, including the insurance companies.

(President Kanemori) Until about 10 years ago, seismic risk was underwritten on a “bulk” basis, although the details of the risk were unclear. Today, as ways of figuring out the seismic risk are being standardized, the seismic risks are underwritten with data supporting the details of the risk, so it is now rare for companies to say that “we did not realize that we were burdened with exorbitant risk”.

(Q4) In order to estimate the severity of the damage to tangible assets in the earthquake scenario, should we use the book value or the replacement cost?

(A4) I think it is appropriate to use the replacement cost. If it is clear that the business will definitely be closed after the collapse caused by the earthquake, using the book value will be allowed. But if there is a possibility of resumption of business, the replacement cost of the buildings and equipment for such purposes should be estimated.

(Q5) (1) Please explain again the purpose of using the seismic index of structure (IS) to estimate the amount of loss. Also, (2) please explain the difference between the risk curve and the event curve.

(A5) (1)The seismic index of structure represents the structural earthquake-resistant strength of the building and we cannot use it to directly calculate the economic losses caused by the earthquake. The economic losses can be considered the aggregate sum of damages to the structures, non-structures, equipments and other losses from suspension of operations. (2) The “risk curve” represents the probability of losses incurred due to earthquakes, while the “event curve” shows the probability of occurrence of earthquakes.

(Q6) You explained that “if a huge earthquake occurs, no other earthquakes may occur for a while”. Is this “time dependence” reflected in the model too?

(A6) Yes. For example, based on the occurrence of the “Tokachi-oki Earthquake in 2003”, the probability of occurrence of earthquakes in the region was reduced in our model.

(Q7) How should the loss severity of human damage be calculated?

(A7) First of all, instead of estimating the severity of human damage, I think we need to give priority to remedying the situation in which human damage is expected from destruction of buildings caused by an earthquake. Constructing a building that is destroyed by an earthquake is a defeat for earthquake engineering. Japan is the only developed country in the top 40 countries listed in the earthquake statistics (death toll statistics) by Swiss Re (approx. 6,000 victims in the Great Hanshin Earthquake) and we have to realize that that is quite a shame.

(Q8) (1) How are the soil foundation conditions incorporated in the estimation of damages caused by earthquakes? (2) Have you factored in damage caused by earthquakes causing tsunamis?

(A8) (1) We have nationwide soil foundation data (intensity) covered by 100 meter square (meshes) and assess the seismic risk based on this data. (2) Although it is possible to simulate damages caused by tsunamis, these are not at the moment incorporated in our model. However, on a national basis, the economic impact of tsunamis seems to be modest at best. In fact, during the Great Kanto Earthquake in 1923, while the tsunami of 3-6 meters high rolled on in Kamakura located outside Tokyo Bay, it raised the sea level by only 60-80 centimeters at a maximum in the center of Tokyo.

12. Risk analysis and response based on an assumption of the Great Tokai Earthquake (Mr. Nakamura, General Manager, Shizuoka Bank)

(Q1) In the stress test for earthquakes, you calculated the risk of stock price decline as JPY67 billion. Is this calculated in addition to the risk of stock price fluctuation during normal operation?

(A1) Yes. Although there may be the problem of double counting in our calculation, we take a conservative approach here.

(Q2) Have you already transferred the risk through condominium loans or other credit derivatives?

(A2) No, not yet. However, since we have already completed preparation

for documentation, we can put the plan into action at any time. By the way, the underlying loans for this derivative product are condominium loans selected at random; in other words, it is established as a basket-type scheme.

(Q3) I would like to ask two questions. (1) Have you considered other means for risk hedging than credit derivatives? (2) In promoting businesses, do you try to reduce the credit risks when extending credits based on the current state of the seismic risk in the credit portfolio?

(A3) (1) We are considering exchanging portfolios with regional banks located in remote places in order to reduce the “regional concentration risk”, which is specific to regional financial institutions and closely related to the seismic risk.

(2) Since we have enough equity capital and our management focuses on how best to use the equity capital, we do not take such repressive measures as limiting the breadth of increase in loans to small and medium companies and condominium loans to certain extent.

(Q4) Do you only estimate the personnel damage relating to the bank’s employees?

(A4) Yes. For example, consolation payments to customers injured by destruction of the bank’s building during business hours are not included.

(Q5) Are earthquake disaster drills conducted at every branch?

(A5) Most of the “base items” are conducted at every branch. In addition, cash transfers and some other special drills are conducted at core branches only.

(Q6) Of the two capital buffers to prepare for “risk at normal times” and the “emergency risk”, how do you allocate necessary capital in consideration of “risk at normal times” to relevant departments?

(A6) It is determined through consultation between the risk control, management planning and business planning departments two months prior to the beginning of the fiscal year, based on the actual results of the previous

fiscal year. If capital efficiency is found to be remarkably poor during the fiscal year, we will consider revising the allocation.

(Q7) You estimated approx. JPY100 billion of losses for the Great Tokai Earthquake. What was the reaction from management?

(A7) Management seemed to find this figure appropriate. Our former president seemed to have originally estimated the risk as approx. JPY100 billion and he said “we should reserve JPY100 billion of our unrealized profits in the case of an earthquake”.

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