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## **Pilot Scenario Analysis Exercise on Climate-Related Risks Based on Common Scenarios (Executive Summary)**

- The Financial Services Agency (FSA) and the Bank of Japan (BOJ), in cooperation with three major banks and three major non-life insurance groups, conducted a pilot scenario analysis using scenarios published by the Network for Greening the Financial System (NGFS) as common scenarios, in response to the recommendations by the Expert Panel on Sustainable Finance. This attempt is in line with the recent efforts of many central banks and supervisory authorities to understand the impacts of climate change on the financial system and financial institutions through scenario analyses on climate-related risks with common scenarios across financial institutions.
- With data availability limited and no standard analytical method established for climate-related scenario analysis, this exercise was not intended to assess quantitative impacts of climate change on the financial system and financial institutions. Rather, the FSA and BOJ considered this exercise as a means to continuously improve the scenario analysis and focused on understanding data constraints, assessing the validity of analytical assumptions and methods, and identifying issues for future improvement.
- The FSA and BOJ adopted a bottom-up approach, whereby the FSA and BOJ laid out a basic framework with three NGFS scenarios (namely, Net Zero 2050, Delayed transition, and Current policies) and let financial institutions conduct the analysis with their own models in line with the framework.
- Regarding banks' analysis, the FSA and BOJ examined the impacts of both transition and physical risks (mainly acute risks by floods) to assess the mid- to long-term effects of climate change on banks' business and financial soundness via credit risks, based on credit exposures as of March 31, 2021.
- The results indicated that the banks' estimated increase in annual credit costs due to transition and physical risks was considerably lower than their average

annual net income. The levels of the estimated increase in credit costs were not significantly different from those published by individual banks in their TCFD Reports, although caution is warranted in the comparison due to the differences in models and sectors covered. The results also demonstrated that each bank had the capacity to conduct a risk analysis not only for the scenarios set in its own TCFD Report but also for the common scenarios of the exercise (NGFS scenarios). However, note that the results should not be interpreted as a definitive assessment of the impacts of climate-related risks, as the objective of the exercise is not to provide a quantitative assessment of climate-related risks.

- On the other hand, the exercise also revealed that the estimated results significantly depend not only on banks' analytical models and the selection of variables for the models, but also on additional assumptions made by each bank. With a lack of information and data on future prospects, the assumptions varied in how businesses and technologies in the specific sectors will evolve, whether and how clients' business models will be transformed, to what extent clients will be required to finance in transforming their business, and to what extent increased carbon prices will be passed on to the selling prices.
- To understand the issues in risk estimation and enhancing risk management at individual banks through horizontal reviews, it is important to ensure more comparability across banks in the exercise, including through encouraging the use of common assumptions. On the other hand, the application of a scenario analysis in engagement with clients to support addressing climate change would require banks to refine their analysis of individual companies. In the course of refinement, banks may need to consider the impacts of structural changes in related industries on individual companies as well as the effects of business transformation by individual companies with banks' engagement.
- Regarding non-life insurers' analysis, the FSA focused on physical risks (acute risks by typhoons and floods) related to their underwriting business and assessed the magnitude of climate-driven physical risks (as changes in insurance claim payments) by using the scenarios with intensified magnitude of specific disasters. The results showed that claim payments increase as temperatures rise. However, it was also shown that analyzing specific

scenarios (disasters) is insufficient to assess the changes in the probability/frequency of the occurrence of disasters in the future and that the results vary due to limitation in uniformity of assumptions and risk models of each non-life insurance group. In order to overcome these issues, the FSA would need to consider conducting a stochastic analysis that takes into account the probability of occurrence of various scenarios which incorporate the impact of future climate change, using the same risk model across the non-life insurance companies.

- To utilize the scenario analysis in the business strategy development and risk management, financial institutions need to further enhance the methodology, including addressing the issues identified in the exercise, taking into account their risk profiles as well as international discussions and developments in practice. Going forward, the FSA and BOJ will continue dialogue with financial institutions on methods and practical application of the scenario analysis, including on how to address the issues identified in the exercise. The FSA and BOJ will also contribute to the improvement of standard scenarios and international data initiatives, including through sharing the issues identified in this exercise with central banks and supervisory authorities at international forums.