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Climate Risk: FRB's Pilot Scenario Analysis and Risk Management Practices

***KPMG Insight.** FRB's issuance of the climate scenario analysis pilot exercise instructions is unusual in its amount of detail publicly provided. This issuance is meant to both provide transparency of the FRB's approach, as well as clearly set expectations for all financial institutions regardless of size in areas to strengthen quantitative climate analysis (both physical and transitional). The FRB is clear that scenario analysis will be an important mechanism to assess risk exposures, and it is anticipated that model capabilities will expand (beyond limited pilot parameters) to other credit portfolios, geographies, etc. in time.*

The Federal Reserve Board (FRB) published [Participant Instructions](#) for the six large U.S. banks participating in its pilot climate scenario analysis (CSA) exercise, which was initially announced in September 2022 (see KPMG Regulatory Alert, [here](#)). The document provides details, highlighted below, on how the FRB will conduct the exercise and the information on risk management practices that will be gathered.

The FRB states the CSA exercise has two primary objectives: "to learn about large banking organizations' climate risk management practices and challenges; and to enhance the ability of large banking organizations and supervisors to identify, measure, monitor, and manage these risks."

Exercise Design

At a high level:

- The exercise is comprised of two independent modules, a physical risk module and a transition risk module.
- For each module, the FRB will describe forward-looking scenarios, including core climate, economic, and financial variables, where appropriate.
- Participants will estimate the impact of these scenarios on a relevant subset of their loan portfolios over a future time horizon. Balance sheets will remain static.
 - The physical risk scenario will focus on estimating the effect on directly held residential and commercial real estate (CRE) credit exposures over a one-year horizon in 2023.

- The transition risk module will focus on estimating the effect on corporate and CRE loan portfolios over a 10-year horizon from 2023-2032.
- For each scenario, participants will calculate traditional credit risk parameters, such as probability of default, risk rating grade, and loss given default, for each loan.
- Participants will submit supporting documentation, and also responses to qualitative questions oriented around four areas: 1) Governance and risk-management practices, 2) Measurement methodologies, 3) Results (including risk metrics and data challenges), and 4) Lessons learned and future plans.

Participants are expected to submit completed data templates, supporting documentation, and responses to qualitative questions to the FRB by July 31, 2023. FRB plans to review qualitative and quantitative submissions and hold meetings with participant banks to gain additional insight into approaches and challenges faced in evaluating climate-related financial risks. The pilot exercise is expected to conclude around the end of 2023; at the conclusion of the exercise, the FRB anticipates publishing insights gained at an aggregate level, reflecting what has been learned about climate risk-management practices and how insights from scenario analysis will help identify potential risks and promote effective risk-management practices.

Physical Risk Module

The physical risk exercise is comprised of two components:

- A common physical risk shock (a severe hurricane or series of hurricanes resulting in storm surge and flooding in the Northeast region of the U.S.) with varying levels of severity that applies to all participant banks.
- An idiosyncratic physical risk shock (a hazard event or series of events) in a geographic region that each participant bank chooses based on materiality to its business model and credit exposures.

The shocks are assumed to occur on January 1, 2023, to the relevant asset positions (residential and CRE credit exposures) held by the participants as of December 31, 2022.

The FRB selected scenarios (three for the common shock and three for the idiosyncratic shock) that leverage the Intergovernmental Panel on Climate Change's (IPCC) Greenhouse Gas (GHG) concentration trajectories. "The IPCC reports that the magnitude of climate change in the next few decades, and the resultant physical impact, will depend primarily on the amount of GHGs emitted globally. To gauge potential future climate conditions, the IPCC generates illustrative GHG concentration trajectories to characterize how the climate may evolve under different mitigation and adaptation strategies." The exercise also considers the effect of insurance as a mitigant to potential losses.

Transition Risk Module

The transition risk exercise considers the impact of two distinct scenarios on a participant's corporate and CRE loan portfolios using positions reported as of December 31, 2022. These scenarios have been designed by the Network of Central Banks and Supervisors for Greening the Financial System (NGFS) and include the:

- *Current Policies Scenario*, which assumes that all countries or regional groups preserve currently implemented policies

and adopt no new policies, including those already announced, to abate emissions.

- *Net Zero 2050 Scenario*, which assumes stringent policies to control GHG emissions are introduced immediately, and carbon prices increase over the time horizon of the exercise.

The scenarios reflect different combinations of economic, technological, and policy assumptions that generate projections for economic and financial variables like GDP growth, inflation, unemployment, and price indices, but do not represent forecasts or policy recommendations.

The FRB states an obligor's capacity to adapt or respond to potential climate-related transitions of the economy may help mitigate the impact of transition risks on its financial performance or business model. As part of the exercise, participants may incorporate information about an obligor's forward-looking transition capacity when estimating the impact of the scenarios on obligor- or facility-specific risk parameters.

Additional Information

Appendices to the Participants Instructions address:

- Information regarding the two NGFS scenarios, including naming conventions and conversion methodologies.
- Submission and documentation requirements, including "indicative qualitative questions" in each of the four areas of interest (FRB notes that more detailed questions and submission information would be provided to the participants through "normal supervisory channels").
- Detailed information regarding the standardized data templates for both risk modules.

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