

**Minutes of the Climate-related Financial Risk Advisory Committee
of the Financial Stability Oversight Council**

March 7, 2023

PRESENT:

Department of the Treasury (Treasury)

Sandra Lee, Deputy Assistant Secretary for the Financial Stability Oversight Council (Council)
and Chairperson of the Climate-related Financial Risk Advisory Committee (CFRAC)

CFRAC Members

Robert Litterman, Founder of Kepos Capital and Presiding Member of the CFRAC
Catherine Ansell, Executive Director of Climate Risk, JP Morgan Chase
Cecilia Martinez, Principal Advisor for Resilience and Communities, Bezos Earth Fund
Ed Kearns, Chief Data Officer, First Street Foundation
James Stock, Vice Provost for Climate and Sustainability, Harvard University
Laura Bakkensen, Associate Professor, University of Arizona's School of Government and
Public Policy (via videoconference)
Noah Kaufman, Research Scholar, Columbia University School of International and Public
Affairs' Center on Global Energy Policy
Peter Wilcoxon, Ajello Professor of Energy and Environmental Policy, Syracuse University
Department of Public Administration and International Affairs
Viral Acharya, C.V. Starr Professor of Economics, New York University Stern School of
Business Department of Finance (via videoconference)
William Pizer, Vice President for Research and Policy Engagement, Resources for the Future
Emily Grover-Kopec, Director, Energy and Climate Practice, Rhodium Group
Ilmi Granoff, Senior Fellow and Adjunct Research Scholar, Columbia Law School Sabin Center
for Climate Change Law
Ivan Frishberg, Senior Vice President and Chief Sustainability Officer, Amalgamated Bank
Janine Guillot, Special Advisor to the Chair, International Sustainability Standards Board
Julie Renderos, Executive Vice President and Chief Financial Officer, Suncoast Credit Union
Karen Diver, Senior Advisor to the President for Native American Affairs, University of
Minnesota
Michael Panfil, Senior Director and Lead Counsel, Environmental Defense Fund
Wendy Cromwell, Vice Chair and Head of Sustainable Investment, Wellington Management

CFRAC Observer

Allen Fawcett, Chief of Climate Economics, Environmental Protection Agency

GUESTS:

Department of the Treasury

Janet Yellen, Secretary of the Treasury
Nellie Liang, Under Secretary for Domestic Finance
Mark Schlegel, Attorney-Advisor

Carol Rodrigues, Attorney-Advisor
Kaitlin Hildner, Policy Advisor, Office of the Financial Stability Oversight Council
Sean Hoskins, Director of Policy, Office of the Financial Stability Oversight Council
Sini Matikainen, Policy Advisor, Office of the Financial Stability Oversight Council
Henry Perillo, Policy Analyst, Office of the Financial Stability Oversight Council
Joshua Zajdel, Special Assistant for Policy, Office of the Financial Stability Oversight Council

Board of Governors of the Federal Reserve (Federal Reserve)

Michael Kiley, Deputy Director for Financial Stability
Caroline Norris, Financial Analyst, Financial Stability Climate Committee
Morgan Lewis, Manager, Division of Supervision and Regulation
Adele Morris, Senior Advisor, Financial Stability
Kevin Stiroh, Senior Advisor, Supervision and Regulation

Federal Deposit Insurance Corporation (FDIC)

Andrew Felton, Deputy Director, Systemic Risk

Securities and Exchange Commission (SEC)

Mika Morse, Climate Policy Counsel

Consumer Financial Protection Bureau (CFPB)

Eva Nagypal, Senior Economist

Federal Housing Finance Agency (FHFA)

Dan Coates, Deputy Director

Comptroller of the Currency (OCC)

Yue Chen, Chief Climate Risk Officer
Terri Barger, Credit Risk Specialist

Federal Reserve Bank of New York (FRBNY)

Dina Maher, Vice President

Office of Financial Research (OFR)

Melissa Avstreich, Public Affairs and Media Specialist
Brook Herlach, Senior Management and Program Analyst
Daren Purnell, Associate Director, Data Products

Federal Insurance Office (FIO)

Silabhadra Mohanty, Senior Insurance Regulatory Policy Analyst

PRESENTERS:

Climate-related Financial Risk Advisory Committee Member Orientation

- *Mark Schlegel, Attorney-Advisor, Treasury*

- *Carol Rodrigues, Attorney-Advisor, Treasury*

Introduction to the Climate-related Financial Risk Committee and Associated Working Groups

- *Sini Matikainen, Policy Advisor, Office of the Financial Stability Oversight Council*
- *Terri Barger, Credit Risk Specialist, OCC*
- *Andrew Felton, Deputy Director for Systemic Risk, FDIC*
- *Silabhadra Mohanty, Senior Insurance Regulatory Policy Analyst, FIO*
- *Adele Morris, Senior Advisor, Financial Stability, Federal Reserve*

Charge Model Briefing

- *Sandra Lee, Deputy Assistant Secretary for the Council, Treasury*
- *Kaitlin Hildner, Policy Advisor, Office of the Financial Stability Oversight Council, Treasury*

1. Welcome and Opening Remarks

Sandra Lee, Chairperson of the CFRAC, called the meeting to order at approximately 11:00 A.M.

The Chairperson welcomed and thanked CFRAC members and guests for attending the first meeting of the CFRAC. She began by stating that the CFRAC is the Council's first external advisory committee, and she noted that its creation reflects the importance that the Council places on assessing and addressing climate-related financial risk. She said that in establishing this committee, the Council sought to leverage the expertise of individuals outside of government and to work collaboratively to improve the Council's understanding of how climate change may impact the financial sector. She noted the range of experience, expertise, and backgrounds among CFRAC members. Further, she said that the CFRAC includes individuals from the financial services industry, NGOs, climate-related data and analytics providers, non-profit organizations, and academia. She stated that she looked forward to working with CFRAC members to support the Council's efforts to translate climate-related risks into economic and financial impacts.

The Chairperson stated that the Council has an important mandate. She noted that the Council was established in 2010 under the Dodd-Frank Wall Street Reform and Consumer Protection Act (Dodd-Frank Act) and was charged with identifying risks to the financial stability of the United States; promoting market discipline; and responding to emerging threats to the stability of the U.S. financial system. She stated that the Council had identified four priority areas for 2023: climate-related financial risk, digital assets, nonbank financial intermediation, and Treasury market resilience.

The Chairperson noted that in October 2021 the Council published a report on climate-related financial risk, which included over 30 recommendations to U.S. financial regulators on how to identify and address climate-related risks to the financial system. She said that the report also stated for the first time that climate change is an emerging and growing threat to U.S. financial stability. The Chairperson further stated that the Council was working to promote coordination,

collaboration, and information sharing on analysis and insights across the Council's member agencies regarding climate-related financial risks.

The Chairperson said that addressing climate-related financial risk is a complex and complicated undertaking, and she said that the Council's staff-level climate committee, the Climate-related Financial Risk Committee (CFRC), would benefit from receiving technical expertise and insights from members of the CFRAC. She then outlined the meeting agenda, which had previously been distributed to the members together with other materials. She noted that CFRAC members would receive an orientation about the CFRAC and its mandate; an overview of the CFRC; and an explanation of how the CFRAC would operate, in accordance with its charter.

The Chairperson then introduced the Presiding Member of the CFRAC, Robert Litterman, Founding Partner of Kepos Capital. She said that Mr. Litterman, in his role as Presiding Member, would work with the Chairperson to help advance the work of the CFRAC.

Mr. Litterman led the introductions of the CFRAC members. The members introduced themselves and discussed their professional experience in connection with climate-related financial risks.

The Chairperson then introduced Janet Yellen, the Secretary of the Treasury. Secretary Yellen stated that the establishment of the CFRAC was an important milestone in the Council's efforts to understand and mitigate the risks that climate change poses to U.S. financial stability. Secretary Yellen noted that in October 2021, the Council published its Report on Climate-Related Financial Risk. She said that the Council for the first time identified climate change as an emerging and increasing threat to U.S. financial stability. She said that the report stated that climate change would likely become a source of shocks to the financial system in the coming years. She stated that, as climate change intensifies, natural disasters and warming temperatures can lead to declines in asset values that could cascade through the financial system and that a delayed and disorderly transition to a net-zero economy can also lead to shocks to the financial system.

Secretary Yellen stated that these impacts are not hypothetical and that they are already occurring. She stated that in the United States, there had been at least a five-fold increase in the annual number of billion-dollar disasters over the past five years compared to the 1980s, even after adjusting for inflation. She said that states like California, Florida, and Louisiana had recently experienced especially severe storms and wildfires, and that recent devastating tornadoes across the South and intensifying storms on the West Coast were reminders of how climate change is accelerating.

Secretary Yellen stated that in addition to the toll of these disasters on individuals and families, the economic and financial impacts of these events are significant. She noted that, for example, in response to rising insured losses, some insurers were raising rates or even pulling back from high-risk areas. She said that this has potentially devastating consequences for homeowners and their property values, noting that developments like these can spill over to other parts of the interconnected financial system.

Secretary Yellen stated that taking climate change into account is prudent risk management. She said that the Council's work on this issue builds on the scientific consensus regarding the projected effects of climate change and is based on a widely accepted understanding of how the financial system works.

Secretary Yellen stated that the publication of the Council's report was a critical step in evaluating how climate change will impact the financial system and establishing a common framework for state and federal financial regulators to act. She said that the report included over 30 recommendations to U.S. financial regulators on how to identify and address climate-related risks to the financial system and noted that these recommendations cover vital actions to enhance public climate-related disclosures, fill gaps in climate-related data, and build capacity to further address risks.

Secretary Yellen noted that since the publication of its report, the Council and its member agencies had been working to advance these recommendations. She said that the OCC, FDIC, and Federal Reserve each proposed principles on climate-related financial risk management for large banks. She noted that FIO had issued a proposal to collect data from insurers to assess climate-related financial risk across the United States. She also stated that in January 2023, the Federal Reserve announced that it was conducting a pilot climate scenario analysis exercise to learn about large banking organizations' climate risk-management practices and challenges. She added that the Council had established the CFRC, a staff-level committee specifically dedicated to coordinating and facilitating this work.

Secretary Yellen noted that the Council's climate report also recommended the creation of an external advisory committee, the CFRAC. She said that CFRAC members represented a broad array of experts from academia, the private sector, and nonprofits. She stated that some members have specialized expertise in modeling climate risks and working with climate data. She noted that other members have experience helping financial institutions respond to and manage their own climate risks, and others have experience advancing environmental justice.

Secretary Yellen stated that the CFRAC would be a crucial resource for the CFRC and the Council. She noted that the CFRAC would help the CFRC and the Council gather information and advance their understanding of climate-related financial risks, enrich the work that the CFRC and the Council had already begun, and find new avenues for the CFRC and the Council to explore. She stated that many of the CFRAC members had previously collaborated with other groups that were advancing important work on climate-related financial risks, such as the U.N. Intergovernmental Panel on Climate Change and the Glasgow Financial Alliance for Net Zero. She said that this range of experience would help the CFRAC develop informed perspectives on climate-related financial risks. Secretary Yellen concluded by noting that the work the CFRAC would undertake is critical to improving the resilience of the U.S. financial system to the effects of climate change.

The Chairperson then introduced Nellie Liang, Under Secretary for Domestic Finance at Treasury. Under Secretary Liang stated that responding to climate-related financial risks was a priority for Treasury and for the Council. She said that assessing the risks of climate change involves accounting for both current and future risks. She said that it was necessary to better assess climate-related financial risks and to develop tools to prepare the global financial system

for those risks. She noted that while best practices were still being developed in this area, the Council's member agencies were nonetheless already engaged in this work.

2. CFRAC Member Orientation

The Chairperson then introduced Mark Schlegel, Attorney-Advisor, and Carol Rodrigues, Attorney-Advisor, both in the Office of the General Counsel at Treasury. Mr. Schlegel provided an overview of the establishment and statutory duties of the Council. He said that Secretary Yellen is the Chairperson of the Council and that the Council is supported by the Council Secretariat staff at Treasury.

Ms. Rodrigues stated that the CFRAC is the Council's first external advisory committee. She provided an overview of the duties and governance structure of the CFRAC. She said that the publicly available CFRAC charter is the governing document for the CFRAC, and she summarized several of its terms. She said that the purpose of the CFRAC is to assist the Council in gathering information on, conducting analysis of, and making recommendations to identify, assess, and mitigate climate-related risks to the financial system, consistent with the Council's purposes and duties under the Dodd-Frank Act. She noted that CFRAC reports to the CFRC and that the Deputy Assistant Secretary for the Council at Treasury is the chairperson of the CFRAC. She said that the duties of the CFRAC are solely advisory and will extend only to the submission of advice and recommendations to the CFRC, which will be non-binding to the CFRC, and she noted that no determination of fact or policy will be made by the CFRAC. She discussed the composition of the CFRAC, and she noted that the CFRAC can have a maximum of 30 members.

Ms. Rodrigues stated that, under the CFRAC charter, the Council or the Council's Deputies Committee may, by majority vote, remove a member prior to the designated end of the member's term and the Council Secretariat may designate federal and state government employees to serve as observers at CFRAC meetings, subject to certain terms in the CFRAC charter. She stated that the CFRC would assign activities to the CFRAC. She noted that the CFRAC is required to meet at least twice a year. She said that the Council Secretariat would perform certain administrative functions related to the CFRAC; would publish on the Treasury website a list of the names of CFRAC members who are not employees of, or affiliated with, the U.S. government; and would prepare meeting minutes, which will be published on the Treasury website. She said that all decisions of the CFRAC would be made by majority vote of the members and that all votes would be recorded in the meeting minutes. She concluded by stating that the Chairperson may determine to publish meeting materials of the CFRAC on the Treasury website.

The Chairperson then called for a recess of the meeting.

3. Introduction to the CFRC and Associated Working Groups

The Chairperson reconvened the meeting at approximately 1:45 P.M. and introduced Sini Matikainen, Policy Advisor in the Office of the Financial Stability Oversight Council at Treasury. Ms. Matikainen described the structure of the CFRC and the work it was currently undertaking. She noted that the CFRC had established working groups for data infrastructure,

data requirements, scenario analysis, and risk assessment, in each case to address recommendations in the Council's climate report.

Ms. Matikainen then introduced Silabhadra Mohanty, Senior Insurance Regulatory Policy Analyst in FIO, who co-leads the CFRC's Data Infrastructure Working Group. Mr. Mohanty said that the working group was created to (1) identify common infrastructure elements based on agency requirements, (2) build preparedness across member agencies to access OFR infrastructure, and (3) monitor and share progress on the development of the OFR's Joint Analytics Data Environment (JADE). Mr. Mohanty summarized the working group's progress and discussed current workstreams.

Ms. Matikainen then introduced Andrew Felton, Deputy Director of Systemic Risk at the FDIC, who co-leads the CFRC's Data Requirements Working Group. Mr. Felton provided an overview of the work that the working group had undertaken during the previous year, as well as the current challenges and questions faced by the working group, which include the need to identify data needed to assess climate-related financial risks and evaluate options to procure costly data.

Ms. Matikainen then introduced Adele Morris, Senior Adviser at the Federal Reserve, who leads the CFRC's Scenario Analysis Working Group. Ms. Morris provided background on the purpose of scenario analysis and explained the differences between scenario analysis and stress testing in the financial sector. She provided an overview of the activities of the Scenario Analysis Working Group and highlighted the questions and challenges that the working group is evaluating, including the need to continue to build expertise and manage priorities across agencies.

Ms. Matikainen then introduced Terri Barger, Credit Risk Specialist at the OCC, who leads the CFRC's Risk Assessment Working Group. Ms. Barger provided an overview of the objectives, membership, and activities of the working group. She discussed how the working group intends to engage with the CFRAC, and she noted several challenges that the working group is evaluating, such as data gaps, diverse regulatory domains, and identification of transmission vectors and risk prioritization.

Ms. Barger and Ms. Morris then responded to questions regarding the connections between the risk assessment and scenario analysis workstreams.

Ms. Matikainen then divided CFRAC members into separate groups focused on three CFRC priority areas: data, scenario analysis, and risk assessment. The data breakout group consisted of (1) CFRAC members Edward Kearns, Laura Bakkensen, and Emily Grover-Kopec; (2) CFRC members Andrew Felton, Brook Herlach, and Silabhadra Mohanty; and (3) Joshua Zajdel, Special Assistant for Policy Advisor in the Office of the Financial Stability Oversight Council at Treasury. The scenario analysis breakout group consisted of (1) CFRAC members Ilmi Granoff, James Stock, Peter Wilcoxon, Noah Kaufman, and Karen Diver, and CFRAC observer Allen Fawcett; (2) CFRC members Daniel Coates, Adele Morris, Kevin Stiroh, and Caroline Norris; and (3) Kaitlin Hildner, Policy Advisor in the Office of the Financial Stability Oversight Council at Treasury. The risk assessment breakout group consisted of (1) CFRAC members Robert Litterman, Catherine Ansell, Wendy Cromwell, Ivan Frishberg, Janine Guillot, Cecilia Martinez,

Michael Panfil, William Pizer, and Julie Renderos; (2) CFRC member Terri Barger; and (3) Ms. Matikainen.

4. Readout of Group Discussions on CFRC Priorities

Following the separate group discussions, Ms. Matikainen provided a summary of the discussion in the risk assessment breakout group. She began by noting that the discussion covered topics including insurance, risks to financial stability from chronic and acute impacts of climate change, and the possibility of rapid market repricing of climate-related risk. She noted that the group discussed the challenges, including data availability and granularity, in assessing financial stability risks at a macroeconomic level based on firm-level data. She said that the group discussed how risks could be correlated across individual firms and sectors and could be geographically concentrated, especially for physical infrastructure. She noted that the discussion covered possible taxonomies of risk assessment, and mitigating factors such as insurance availability. She said that the group also discussed how those mitigating factors might change over time. She said that the group discussed how chronic risk might be understated relative to acute risk, and the possibility of rapid market repricing following a step-change event that leads to a sudden shift in the market perception of risk.

Ms. Morris then summarized the conversations in the scenario analysis breakout group. She began by highlighting several aspects of the group's discussion, including how to consider short-term impacts and the importance of methodological tools such as macroeconomic modeling and statistical analysis. She said that the group also discussed the role of high-level narratives in scenario analysis, reverse-stress analysis, and how to consider features of the financial sector, including derivatives and financial engineering, in a scenario analysis. She noted that the group discussed the importance of evaluating non-standard channels for risk transmission and the need to consider the role of regulators in mitigating climate-related financial risks.

Mr. Granoff then provided additional information on the scenario analysis breakout group discussion. He noted that there was discussion about the limits of bottom-up quantitative modeling tools. He said that the group discussed the incremental improvement process and how currently available tools could be improved. He stated that the group discussed how current climate-related financial risk assessment tools do not include information on specific financial channels and said that the group discussed how different tools could complement back-testing efforts. He noted that a recurring theme in the discussion was whether the CFRAC could provide advice on thresholds of unmanageable risk.

Mr. Felton then summarized the discussion in the data breakout group. He noted that the group discussed challenges associated with data, including the need to work with large and complicated datasets, the large number of datasets available, and the challenges related to merging climate and financial data. He said that despite the challenge of large amounts of data, more data is needed for analysis of climate-related financial risk, particularly more frequent and granular data. He noted that the group discussed the benefits of open-source, large datasets, such as those available from the Federal Emergency Management Agency (FEMA), the National Aeronautics and Space Administration (NASA), and the National Oceanic and Atmospheric Administration (NOAA). He said that the group discussed the need to find ways to aggregate these large data sources into charts and graphs that can communicate the scope of climate-related financial risks.

He stated that climate-related financial risks might not be fully priced into financial products. He concluded by summarizing the group's discussion on ways of looking at and measuring different risk levels and measures of vulnerability that were specific to the timing, frequency, and intensity of climate-related events.

5. Charge Model Briefing and Initial Proposed Charges

The Chairperson then introduced Kaitlin Hildner, Policy Advisor in the Office of the Financial Stability Oversight Council at Treasury, to discuss the charge model that would be used to assign tasks to CFRAC members.

Ms. Hildner said that members would be assigned research topics relating to climate-related financial risks and would report back to the CFRAC on the assigned topic. She highlighted the flexibility associated with this model and noted that the charge model had been used successfully by other external advisory committees. She said that the charge model would enable the Council to develop a robust, clear, and regular set of deliverables for each CFRAC meeting. She said that this approach was intended to facilitate transparent and reportable progress on fulfilling the CFRAC's purpose and duties. She also noted that charge questions should not be interpreted as implying that the CFRC or the Council would take any particular action related to the assignments.

CFRAC members then had a discussion about the charge model and potential charges that the CFRAC could consider in the future.

The Chairperson adjourned the meeting at approximately 5:00 P.M.