

THE SECOND OF A SERIES OF OECD WORKSHOPS ON
CLIMATE SCIENCE, POLICY, REGULATION AND PRACTICE

CLIMATE TRANSITION SCENARIOS:
INTEGRATING MODELS INTO RISK ASSESSMENT UNDER UNCERTAINTY
AND THE COST OF DELAYED ACTION

6 July 2022 – Hybrid event

(Virtual Zoom Meeting and in-person at OECD Headquarters – CC15)

AGENDA

OVERVIEW

This workshop was the second of a series of workshops on **Climate Science, Policy, Regulation and Practice**. It discussed key issues for financial supervisors, market participants and policy makers to use climate transition scenarios to assess climate risks, with a focus on the financial sector. It gathered climate modellers and economists, climate policy makers as well as representatives from central banks, financial supervisors, banks, asset managers, pension funds, insurers, data providers, civil society and academia, to foster knowledge sharing and dialogue on transition scenarios. The workshop notably discussed modelling issues and assumptions associated with assessing the cost of a delayed transition, included linked to stranded assets. It also discussed key issues to integrate climate transition scenarios and modelling into financial risk assessment.

LOGISTICS

Timing 6 July 2022 from 12:30 – 18:00 CET (Paris time), followed by a cocktail from 18:00 – 19:30 CET.

Format The workshop was held as a hybrid event. Participants joined either virtually using Zoom Conferencing, or attended in person at the OECD Headquarters in Paris (2 rue Andre-Pascal, 75016 Paris, France). The workshop was held under the Chatham House rule. The workshop was recorded for purposes of internal note-taking.

Chair Geraldine Ang, Senior Policy Analyst, Green Finance and Investment, Environment, Transitions, and Resilience Division, Environment Directorate, OECD.

COMMUNICATION AND REGISTRATION

The event web page is available [here](#). To register or for more information, please email: climatedialogue@oecd.org.

OECD CONTACTS

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SPONSORS

This workshop was hosted thanks to support from **ADEME** and **Finance for Tomorrow** in the context of the **Finance ClimAct** initiative, supported by a grant from the LIFE program.

Wednesday 6 July 2022

12:30– 12:45 CET **Opening Session**

Brief welcoming remarks

- **Alain de Serres**, Acting Director, Environment Directorate, OECD
- **Valérie Quiniou-Ramus**, Executive Director for Prospective and Research, ADEME, the French Agency for Ecological Transition (sponsor)

12:45 – 14:15 **Session 1: Transition scenarios: assumptions and modelling under uncertainty, and financial risks associated with delayed political action**

The session examined how delayed political support to the low-carbon transition could create macro-economic and financial risks. This session provided an overview of relevant climate transition scenarios for the financial sector, especially the Network for Greening the Financial System (NGFS) Climate Scenarios for central banks and financial supervisors, which explore a range of plausible outcomes for how climate change (and associated physical risks) and policy and technology trends (and associated transition risks) could evolve in the future, in addition other scenarios. The session notably discussed assumptions and modelling issues associated with developing transition scenarios under uncertainty. It discussed the importance of macro-economic and policy choices, e.g. with regards to recycling tax revenues, distributional impacts, trajectories of energies prices, as well as monetary policy. The session also discussed the conditions needed to achieve carbon neutrality and price climate risks under uncertainty.

Questions for discussion

- What are the key sources of variability with regard to model interpretation for climate scenarios?
- How do we overcome un-modellable drivers within scenarios under uncertainty, for example the uncertainty from future climate policy?
- How should short term volatility be considered under climate modelling scenarios? What are the different approaches to integrating volatility into longer term scenarios?
- What are the best practices to establish the most appropriate modelling assumptions and interpret the results of the analysis? Is stranded asset modelling a must have practices for delayed transition scenario?
- Which key limitations to scenarios and climate analysis which need to be considered by financial institutions in their assessment of the results?

Moderator

- **Hugues Chenet**, Scientific Collaborator, École Polytechnique; Honorary Senior Research Associate, UCL; Special Research Fellow, Japan FSA; and Research Associate, Chair on Energy & Prosperity

Presentations

- **Stéphane Dees**, Head of the Climate Economics Unit, Banque de France, and **Annabelle De Gaye**, Economist, Banque de France – Presentation of NGFS Climate Scenarios
- **Baptiste Boitier**, Economist, SEURECO – Implementation of NGFS Climate Scenarios in France with four multisectoral models, presentation of findings and limits

Panellists

- **Blandine Barreau**, World Energy Outlook, International Energy Agency (IEA)



- **Frederic Gherzi**, Economic Modeller, CIRED

Discussants

- **Hugues Chenet**, Scientific Collaborator, École Polytechnique; Honorary Senior Research Associate, UCL; Special Research Fellow, Japan FSA; and Research Associate, Chair on Energy & Prosperity

14:15 – 14:30 Coffee Break

14:30 – 15:45 **Session 2: The cost of a delayed transition: the central impact of stranded assets**

This session explored how the cost of a delayed and disorderly transition may lead to a large amount of “stranded assets”, as a result of disruptive climate mitigation policy or technological innovations. The session discussed the micro-economic implications of a delayed transition, both in terms of stranding of physical energy and other infrastructure assets, as well as their consequences in terms of financial, economic and social consequences, with labour market frictions regarding skills, training and employability. The session also explored the role of central banks in accounting for risks of stranded assets within a delayed transition scenario, and the macro-economic effects of the integration of stranded assets and their costs, which could create systemic risks to financial stability. The session discussed transmission channels to the financial sector and the accumulation of macro-economic, credit, and financial valuation risks resulting from asset devaluation.

Questions for discussion

- How should the notion of cascading stranded assets be modelled within climate scenario analysis and climate stress testing?
- How should the analysis on stranded assets and implications on labour markets and training be integrated into scenario modelling as well as the pricing of financial assets?
- What is the most appropriate approach to reconciling the short-term repricing of assets with the long time horizon of climate scenarios?
- What are the wider economic implications of stranded assets, and what are the best approaches to modelling these?

Moderator

- **Robert Patalano**, Head of Financial Markets Division, OECD Directorate for Financial and Enterprise Affairs

Panellists

- **Jean-Francois Mercure**, Senior Climate Economist, World Bank Group; Associate Professor in Climate Change Policy, Global Systems Institute, Department of Geography, University of Exeter, UK; and Research Fellow, Cambridge Centre for Energy, Environment and Natural Resource Governance (C-EENRG), Department of Land Economy, University of Cambridge, UK
- **Russell Bishop**, Principle Economist, European Bank for Reconstruction and Development
- **Irene Monasterolo**, Professor of Climate Finance, EDHEC Business School, ERCII

Discussant

- **Gael Callonnec**, Economist, ADEME

15:45 – 16:00 Coffee Break

16:00 – 17:55 **Session 3: The way forward for climate risk management in the financial sector under uncertainty**

This session explored options for the financial sector to better manage climate risks under uncertainty, including through climate stress testing and climate scenario analysis. Additionally, the session examined better integration of climate risks in market participants' risk management practices and financial supervisors' prudential assessments.

Questions for discussion

- What is the role of climate scenario analysis in informing financial institutions' risk management practices?
- Are the climate scenarios appropriate for prudential use, and if so, how should financial supervisors use these scenarios to inform their prudential supervision of financial institutions?
- What are lessons learned from climate stress tests and broader climate risk management on how to manage climate uncertainty?
- What are key priorities to improve climate risk management under uncertainty?
- What are the clear pathways forward to improve the current climate scenarios for the purpose of risk management?

Moderator

- **Robert Patalano**, Head of Financial Markets Division, OECD Directorate for Financial and Enterprise Affairs

Keynote followed by a short Q&A

- **Lars Peter Hansen**, Director, Macro Finance Research Program, Beck Friedman Institute (BFI), University of Chicago, and David Rockefeller Distinguished Service Professor in Economics and Statistics, Booth School of Business, University of Chicago

Panellists

- **Laurent Clerc**, Director for Research and Risk Analysis, ACPR, French Prudential Supervision and Resolution Authority
- **Irene Monasterolo**, Professor of Climate Finance, EDHEC Business School, ERCII
- **Anuschka Hilke**, Programme Director, Climate Finance and Investment, I4CE

Discussants

- **Roger Pulwarty**, Senior Scientist, National Oceanic and Atmospheric Administration (NOAA) Physical Sciences Laboratory
- **Mike Clark**, Founder Director, Ario Advisory

17:55 – 18:00 **Closing remarks**

- **Alain de Serres**, Acting Director, Environment Directorate, OECD

18:00-19:30 CET **Champagne Cocktail at the OECD headquarters in the Garden Lounge**

ABOUT THE OECD



The Organisation for Economic Co-operation and Development (OECD) is an international organisation that works to build better policies for better lives. Our goal is to shape policies that foster prosperity, equality, opportunity and well-being for all. Together with governments, policy makers and citizens, we work on establishing evidence-based international standards and finding solutions to a range of social, economic and environmental challenges. We provide a unique forum and knowledge hub for data and analysis, exchange of experiences, best-practice sharing, and advice on public policies and international standard-setting. As well as supporting the international climate negotiations over many years, the OECD has increased its efforts to help countries to deliver on their national and international climate commitments and contributions. Relevant OECD work addresses the range of environmental, economic, financial and social dimensions that are critical to the creation of low-emissions, climate-resilient development pathways.

ABOUT THE SPONSORS

The OECD would like to acknowledge the support of the two sponsors for this workshop:

ADEME is active in the implementation of public policy in the areas of the environment, energy and sustainable development. ADEME provides expertise and advisory services to businesses, local authorities and communities, government bodies and the public at large, to enable them to establish and consolidate their environmental action. As part of this work the agency helps finance projects, from research to implementation, in its areas of action.

Finance for Tomorrow, launched in June 2017 is the branch of Paris EUROPLACE to make green and sustainable finance a key driving force in the development of the Paris Financial Centre and to position it as a hub of reference on these issues. The nearly 80 members and observers of Finance for Tomorrow are committed by a joint charter to help redirect financial flows towards a low-carbon and inclusive economy, in line with the Paris Agreement and the UN's Sustainable Development Goals (SDGs).

The **Finance ClimAct** project contributes to the implementation of the French National Low Carbon Strategy and the Action Plan for Sustainable Finance of the European Union. It aims at developing new expertise, tools and methods enabling (1) retail investors to integrate environmental objectives in their investment choices, and (2) financial institutions and their supervisors to integrate climate considerations in their decision-making processes and to align financial flows with energy-climate objectives. The consortium coordinated by the *Agence de la Transition Écologique* (ADEME), also includes the *Ministère de la Transition Écologique et Solidaire*, the *Autorité des Marchés Financiers* (AMF), the *Autorité de Contrôle Prudentiel et de Résolution* (ACPR), 2°Investing Initiative, the Institute for Climate Economics, Finance for Tomorrow and GreenFlex. Finance ClimAct is a unique program with a total budget of 18 million euros and endowed with 10 million funding by the European Commission. Duration: 2019-2024.

BACKGROUND

Climate policy is informed by a range of different disciplines, assumptions and models of many different types and levels of sophistication. These include, among others, complex scientific models of planetary processes, climate impact models and integrated assessment models assessing trade-offs between socio-economic choices, choices on the energy system and on the environment for achieving low-emissions transition. The key features, assumptions, uncertainties, strengths and weaknesses of these approaches have not always been adequately reflected in policy and decision-making, whether to inform climate

mitigation or resilience goals, or in climate risk management by financial regulators, supervisors and industry practitioners.

In particular, an increasing number of central banks, financial supervisors as well as individual investors, insurers and financial institutions are trying to better understand climate change-related risks, including physical and transition risks, and to develop climate scenario analysis and stress tests in order to better assess and manage these risks. This is partly thanks to momentum amongst financial regulators generated by the Network of Central Banks and Supervisors for Greening the Financial System (NGFS), to which the OECD serves as observer, as well as a transition in thinking amongst investors based on implementation of the recommendations of the Financial Stability Board's Task Force on Climate-related Financial Disclosures (TCFD), in addition to broader climate alignment goals.

At the same time, policy makers need research insights to inform their approach to climate mitigation and adaptation policy. Understanding the likely intensity and frequency of future climate extremes and the pace and scale of slow onset events is key to assessing their potential social and economic impacts and deciding on responses. Likewise, understanding the costs and financing needs of different options for reducing greenhouse gas emissions under different assumed scenarios underpins countries' long-term low-emissions development strategies and the near-term actions that will be required to achieve stringent mitigation goals.

In 2020, the OECD launched a series of OECD workshops on [Climate Science, Policy, Regulation and Practice](#) to foster an outcome-oriented, interactive dialogue between climate researchers, financial regulators, supervisors, climate policy makers and industry practitioners. This series of OECD workshops aims to: (i) explore the potential policy implications of a range of evidence relating to climate science; (ii) identify where scientific insights might help with emerging policy problems that require robust and pragmatic ways forward in the near term; and (iii) inform OECD work, including work on the implications of climate change for vulnerable and developing countries. The intention was to host several interactive workshops in 2020-22 to bring together a range of leading scientific, economic and financial experts with senior policy makers on focused issues. Science-policy dialogues that bring together climate scientists, economists, researchers, financial regulators, policy makers and investors can play an important role helping us collectively to navigate the myriad risks, challenges and opportunities that we will face from climate change in the coming decades.

As part of this series, the OECD held the first virtual workshop on 3-4 September 2020 focusing on "Climate Change: Assumptions, Uncertainties and Surprises". This workshop set the scene by highlighting key issues relevant to the design and use of climate research and science within policy, regulation and practice. It framed key issues to support economic and financial decision actors (private and public) to interpret and use scientific evidence and modelling in their approaches to climate risks. In particular, physical and transition risks (e.g. to undertake climate stress tests and scenario analysis), and in their consistency assessments against mitigation and resilience, were addressed. This workshop provided the opportunity for decision makers, whether in finance or policy, to explore with leading researchers the implications, underlying assumptions, uncertainties and limitations of the range of climate-related research and modelling. It aimed to help researchers to understand how their work can even better address the needs of those decision-makers and practitioners.