

Sustainability in (Re-)Insurance Conference 2024

3rd October 2024

SAA publication – Climate Scenario Analysis

Markus Haas

Agenda

1. Definitions and Regulation
2. Climate Scenario Models
3. Implementation Considerations
4. Examples for Climate Scenario Exercises

INTRODUCTION TO CLIMATE SCENARIOS SAA Sustainability Working Group



Definitions and Regulation



Definition: Scenario

“A **method of assessment** that considers the impact of a **combination of circumstances** to reflect historical or other scenarios which are analysed in light of current conditions. Such analysis may be conducted **deterministically** or **stochastically**” – *Source: IAIS Glossary*

Definition: Climate Risk

Climate-related risks

Potential negative impacts of climate change, and society's responses to it.

Transition risks

Risks emanating from transitioning to a lower-carbon economy [...]

Policy/
Legal

Technology

Market
sentiment

Reputation

Physical risks

Risks resulting from climate.

Acute
(event-driven)

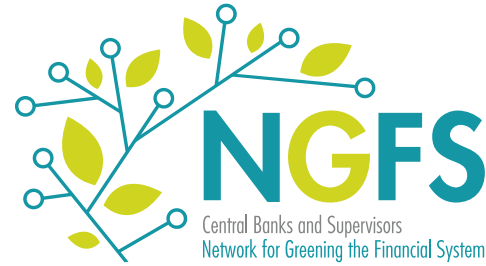
Chronic
(long-term climate
pattern shifts)

Framework & Guidance delivering bodies



IAIS

INTERNATIONAL ASSOCIATION OF
INSURANCE SUPERVISORS



TCFD

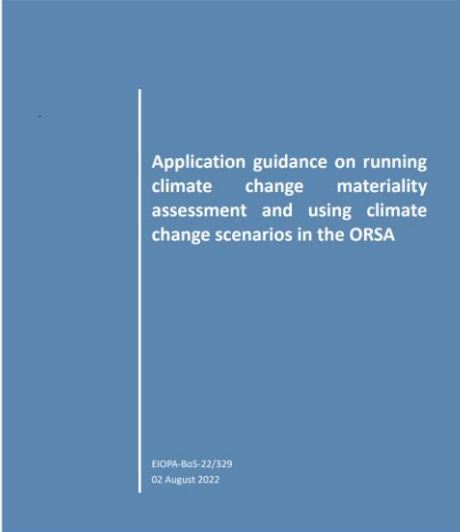
TASK FORCE ON
CLIMATE-RELATED
FINANCIAL
DISCLOSURES



eiopa

European Insurance and
Occupational Pensions Authority

Climate Scenario Analysis in Risk Management - Regulation



Source: EIOPA (2022)

Glii hinterlegt und Referenzen zu Artikeln der folgenden Texte von internationalen Standardsystemen:

- "ICBS-CPFR: ICBS Principles for the effective management and supervision of climate-related financial risks, Juni 2022"
- "IAIS-AP: IAS Application Paper on the Supervision of Climate-related Risks in the Insurance Sector, Mai 2021"

Diese dienen den Aufsichtsbekleidenden zur Orientierung und werden nicht Teil des strengen Aufsichtseinsatzes sein.



Rundschreiben 2024/xx Naturbezogene Finanzrisiken

Management der naturbezogenen Finanzrisiken

Referenz: FINMARS 24xx „...“
 Datum: 1. Januar 2025
 Kwalifikation: FINMASG Art. 7 Abs. 1 Bst. b, 29 Abs. 1
 Rechtliche Grundlagen: BernG Art. 1a, 3 Abs. 2 Bst. A, 3c
 BernV Art. 52 Abs. 2, 3
 FING Art. 45
 VAG Art. 22
 AVG Art. 64, 72, 96-98a, 191, 195-196, 206

Adressaten	
<input checked="" type="checkbox"/>	Banken
<input checked="" type="checkbox"/>	Finanzdienstleister (FinDI)
<input checked="" type="checkbox"/>	Finanzunternehmen (FinU)
<input checked="" type="checkbox"/>	Finanzintermediäre (FinIM)
<input checked="" type="checkbox"/>	Finanzinvestoren (FinIN)
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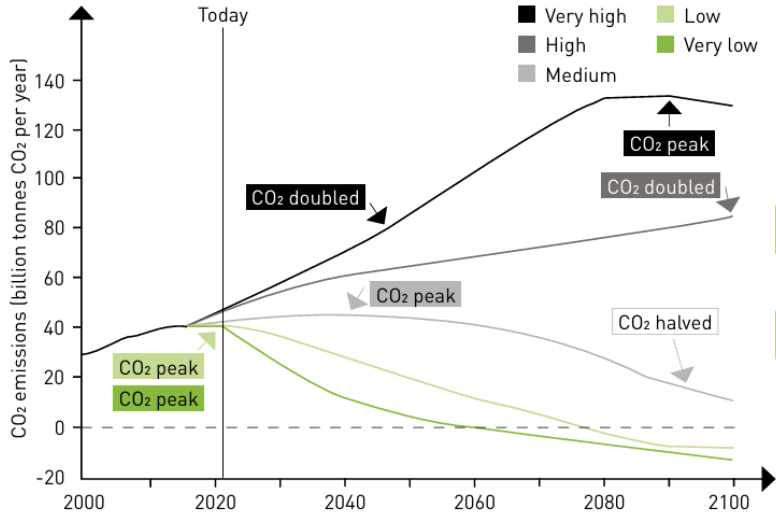
Source: FINMA (2024)

Climate Scenario Models

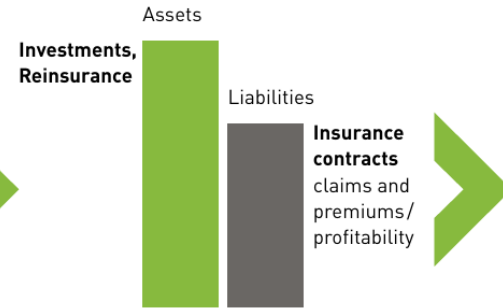


High-level Process

Climate scenario pathways (emission pathways)



Insurer: balance sheet implications

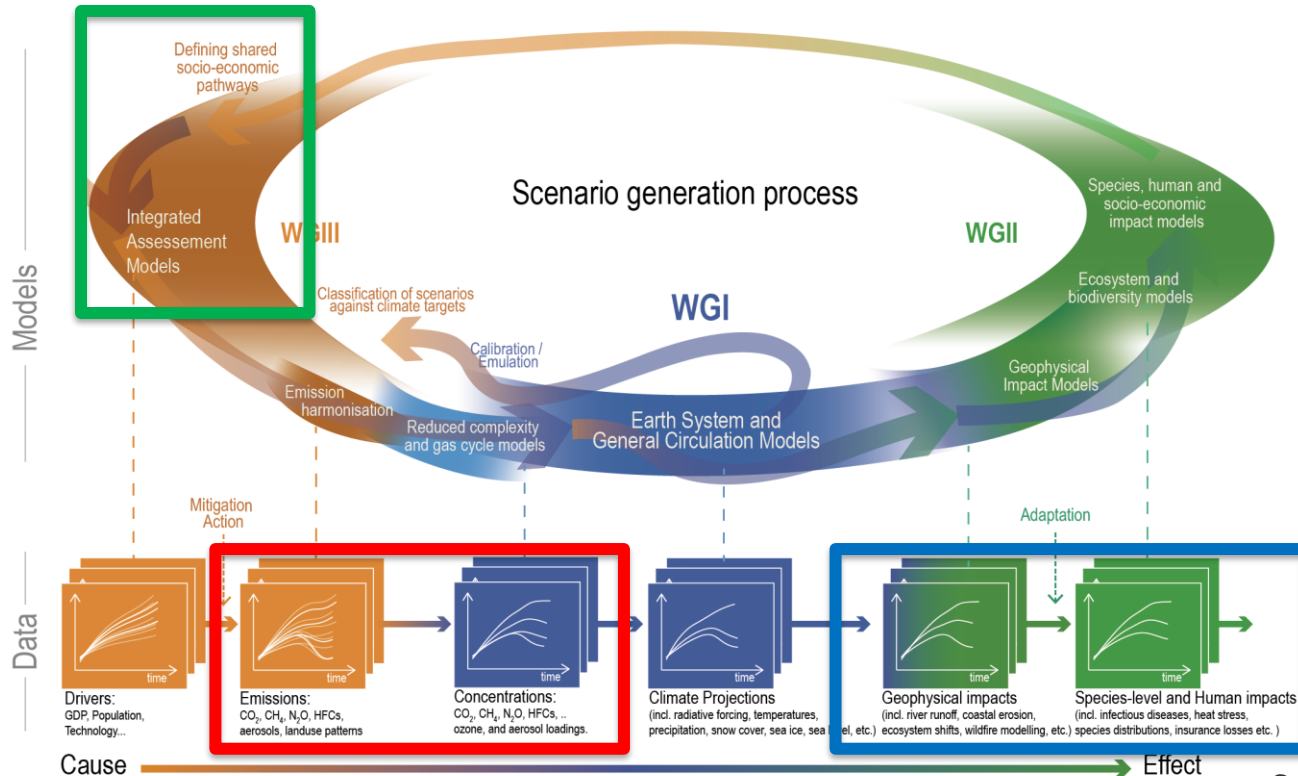


- e. g.
- short-term (1–5 years or to 2030)
 - mid-term (5–10 years or to 2050)
 - long-term (>10 years or to 2100)

Insurer: outlook on business model



Ecosystem of Models



RCP and SSP nomenclature

RCP

(Representative
Concentration
Pathways)

Scenarios that include time series of emissions and concentrations of the full suite of greenhouse gases (GHGs) and aerosols and chemically active gases, as well as land use/land cover.

Notation:

RCP x , (e.g. RCP2.6)

x = Radiative forcing level in $Watts/m^2$ relative to baseline year 1850.

SSP

(Shared socio-
economic
pathways)

Developed to complement the Representative Concentration Pathways (RCPs) with varying socio-economic challenges to adaptation and mitigation. Based on five narratives, the SSPs describe alternative socio-economic futures in the absence of climate policy intervention.

SSP1: Sustainability: Taking the Green Road

SSP2: Middle of the Road

SSP3: Regional Rivalry: A Rocky Road

SSP4: Inequality: A Road Divided

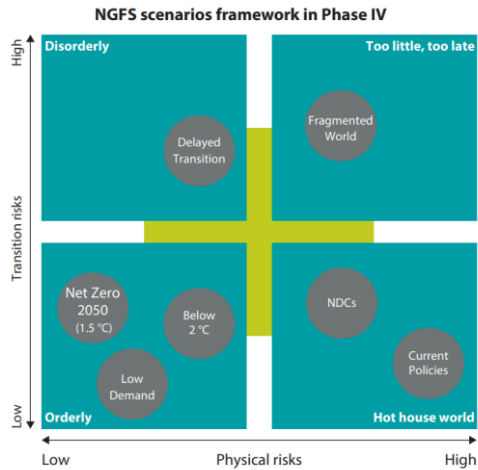
SSP5: Fossil-fueled Development: Taking the Highway



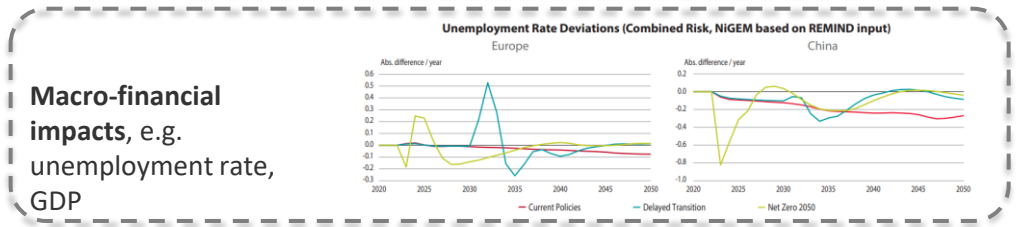
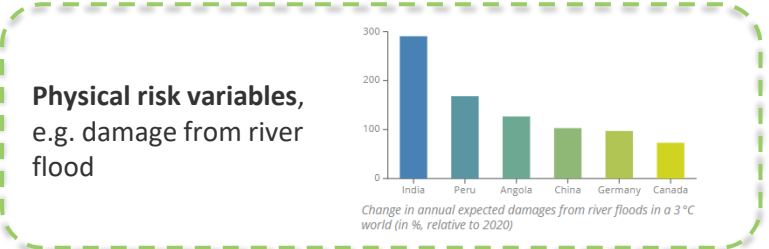
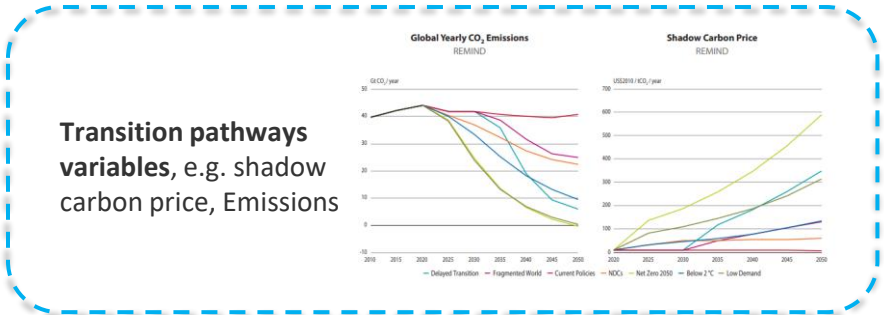
Integrated **SSP-RCP framework** since AR6.

Notation: SSP y - x with y = SSP number and x = radiative forcing level.

NGFS Scenarios



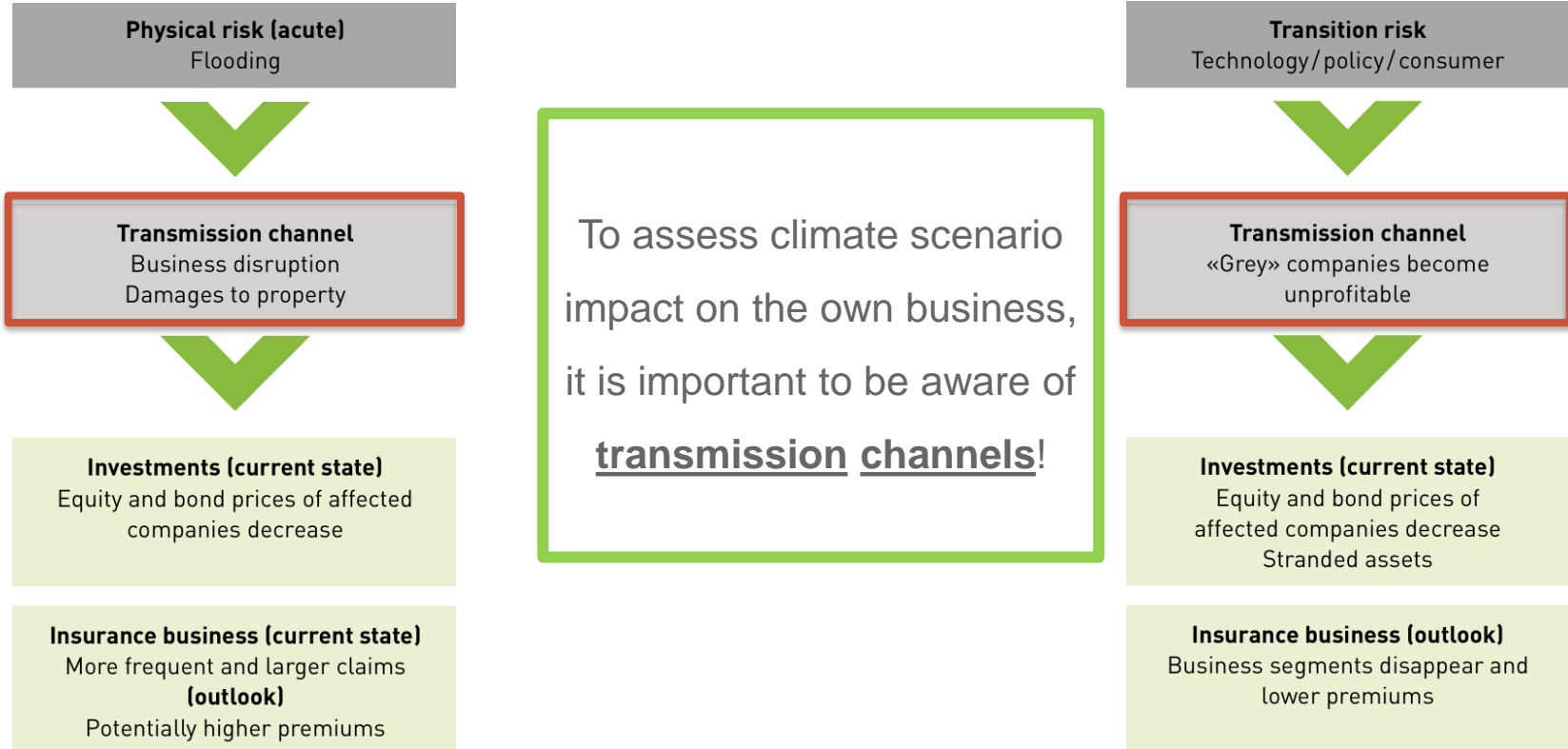
Source: NGFS (2023)



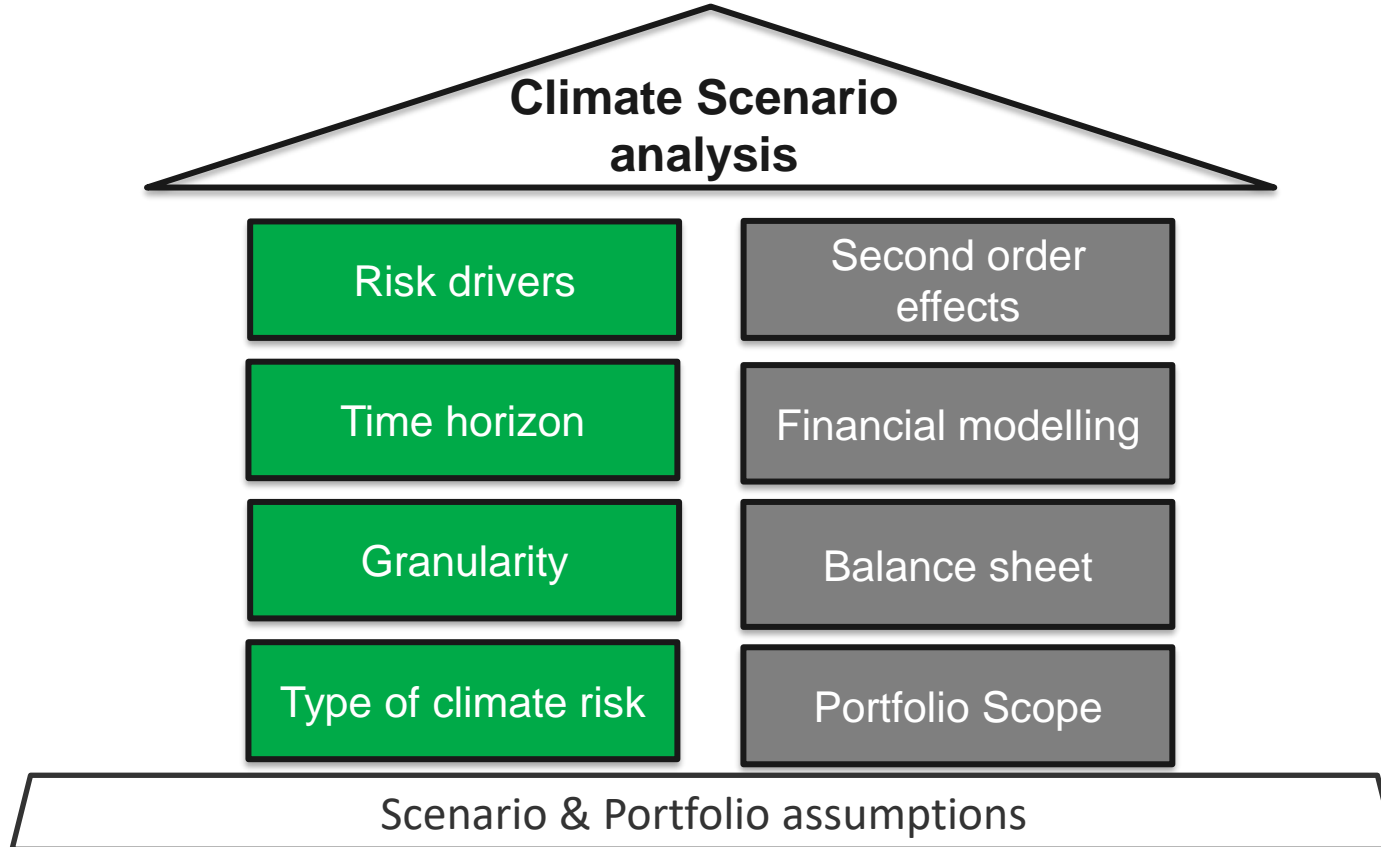
Implementation Considerations



Transmission channels



Building blocks

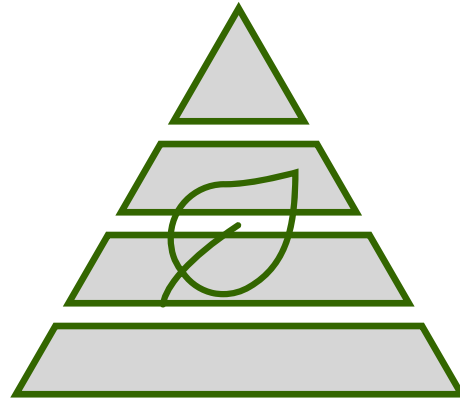


Integration into Corporate processes



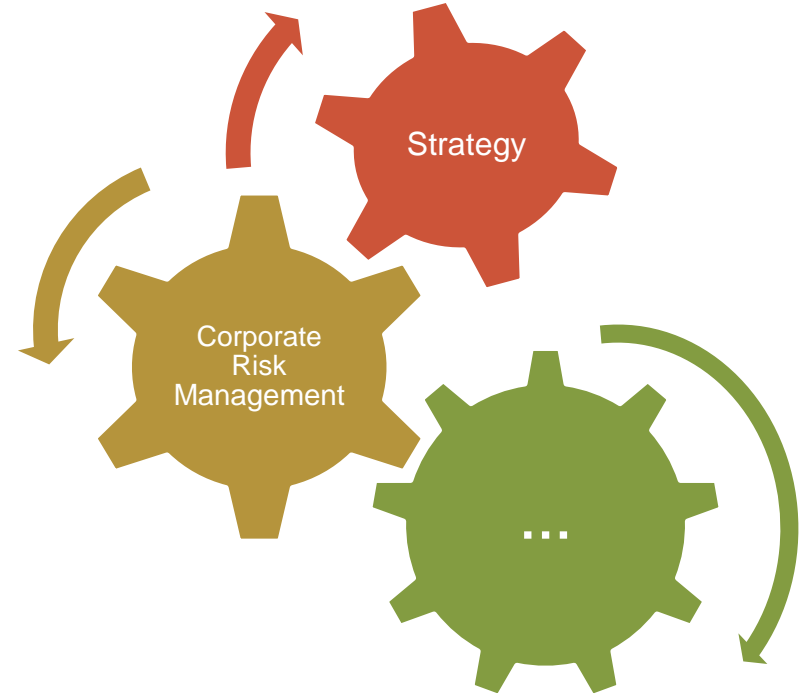
Climate Scenario
Analysis

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Climate Risk
Management

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Examples for Climate Scenario Exercises

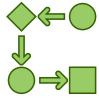


Overview

Institution (<i>Jurisdiction</i>)	Name	Year	Link
ACPR (<i>France</i>)	Climate pilot exercise	2020	🔗
ACPR (<i>France</i>)	Insurance climate exercise	2023	🔗
BoE (<i>UK</i>)	Climate Biennial Exploratory Scenario	2021	🔗
ECB (<i>EMU</i>)	2 nd Economy-Wide Climate Stress Test	2023	🔗
ECB (<i>EMU</i>)	Climate risk stress test	2022	🔗
ECB (<i>EMU</i>)	Economy-Wide Climate Stress Test	2021	🔗
EIOPA (<i>EMU</i>)	IORP stress test (2019)	2019	🔗
EIOPA (<i>EMU</i>)	Sensitivity Analysis of Climate-Change Related Transition Risks	2020	🔗
EIOPA (<i>EMU</i>)	IORP stress test (2022)	2022	🔗
OSFI (<i>Canada</i>)	Standardized Climate Scenario Exercise	2024	🔗
US FED (<i>USA</i>)	Climate Scenario Analysis	2023	🔗

Climate Scenario Exercise: Example 1

2023 ACPR insurance climate exercise



- One short term scenario 2023-2027 (extreme weather events, dam failure and market stress)
- Two long-term scenarios until 2050 (Baseline & «Below 2°C» & «Delayed Transition»)



- **Short-term scenario:** projection of SII balance sheet including the solvency ratio
- **Long-term Scenarios:** simplified SII balance sheet projection (including management actions)



- Uninsurability assessment
- Management actions (asset allocation, business model changes)

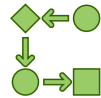


Climate Scenario Exercises: Example 2

2021 Climate Biennial Exploratory Scenario (CBES)



Bank of
England



- Long-term scenarios until 2050 («No Additional Action» & «Late Action» & «Early Action»)



- Impact on today's balance sheet (potential management actions in qualitative questionnaire)



- Extensive qualitative questionnaire on
 - Risk Management framework & governance
 - Risk appetite
 - Regulation impact
 - Operational risk
 - ...

Final thoughts



Source:
DALL E by Open AI

Q&A



Contact information



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[LinkedIn](#) 

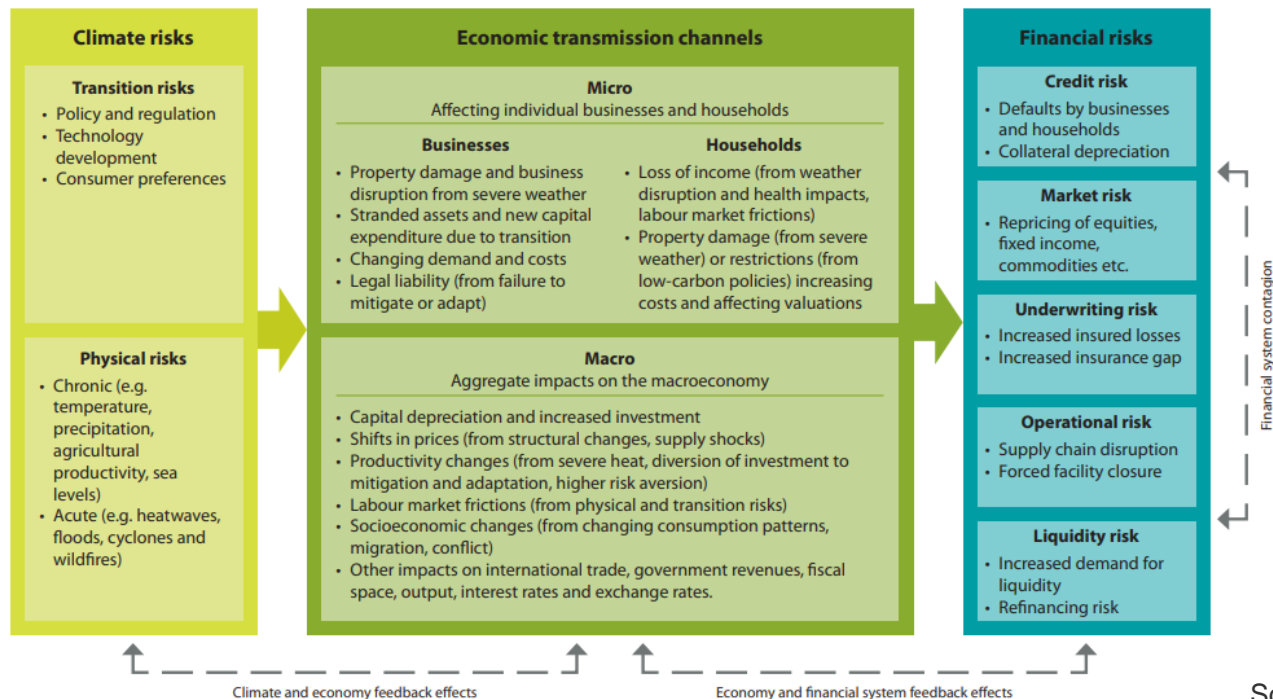
References

- (1) [IAIS Glossary](#)
- (2) [IPCC Glossary](#)
- (3) [TCFD \(2017\)](#) - Recommendations of the Task Force on Climate-related Financial Disclosures
- (4) [IAIS \(2021\)](#) - Application Paper on the Supervision of Climate-related Risks in the Insurance Sector
- (5) [IPCC \(2021\)](#) - Climate Change 2021: The Physical Science Basis
- (6) [BCBS \(2022\)](#) - Principles for the effective management and supervision of climate-related financial risks
- (7) [EIOPA \(2022\)](#) - Application guidance on running climate change materiality assessment and using climate change scenarios in the ORSA
- (8) [IAIS \(2023\)](#) - Draft Application Paper on climate scenario analysis in the insurance sector
- (9) [IAA Glossary \(2023\)](#) - Glossary of Defined Terms Used in IAA Climate -Related Risk Publications
- (10) [NGFS \(2023\)](#) - NGFS Scenarios for central banks and supervisors
- (11) [SAA \(2024\)](#) – Introduction to Climate Scenarios
- (12) [NGFS \(2024\)](#) - Nature-related Financial Risks: a Conceptual Framework to guide Action by Central Banks and Supervisors
- (13) [FINMA \(2024\)](#) - Rundschreiben 2024/xx: Naturbezogene Finanzrisiken Management der naturbezogenen Finanzrisiken

Details on Transmission channels

Transmission channels

Climate risks to financial risks



Source: NGFS (2024)

Glossary

Abbreviation	Long
ACPR	Autorité de contrôle prudentiel et de résolution
AR6	6 th Assessment Report of the IPCC
BCBS	Basel Committee on Banking Supervision
BIS	Bank for International Settlements
BoE	Bank of England
ECB	European Central Bank
EIOPA	European Insurance and Occupational Pensions Authority
FED	Federal Reserve System
GHG	Greenhouse Gas
IAIS	International Association of Insurance Supervisors
IAM	Integrated assessment modelling
IPCC	Intergovernmental Panel on Climate Change
NGFS	Network for Greening the Financial System
OSFI	Office of the Superintendent of Financial Institutions
RCP	Representative Concentration Pathways
SAA	Swiss Association of Actuaries
SSP	Shared Socioeconomic Pathways
TCFD	Task Force on Climate-Related Financial Disclosures
TNFD	Taskforce on Nature-related Financial Disclosures
WG I-III	IPCC Working Group I-III