EUROPEAN CENTRAL BANK
BANKING SUPERVISION

2022 ECB Climate Risk Stress Test

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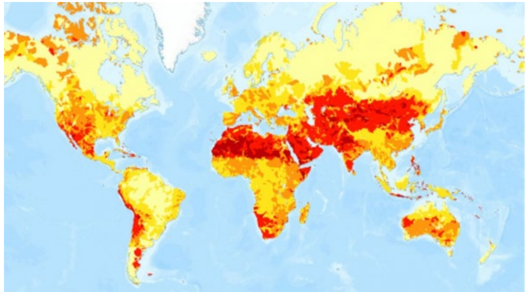
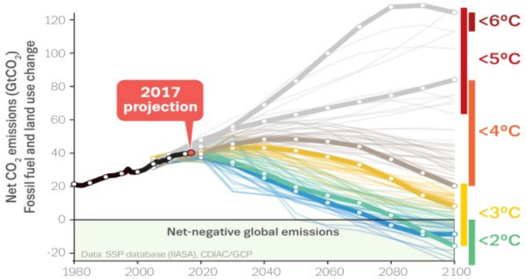
Characteristics of climate-related and environmental risks

1. Far-reaching impact



2. Extended time horizon



3. Short-term action

The ECB is of the view that institutions should take a forward-looking, comprehensive and strategic approach to considering climate-related and environmental risks.

Objectives of the 2022 SSM climate risk stress test exercise

- **Joint learning exercise** with pioneering characteristics.
  - Enhance both banks' and supervisors' capacity in assessing climate risk.
  - **Create awareness of climate risk** and **identify banks' vulnerabilities**.
  - Provide guidance to banks and **enhance data availability.**
  - Understand **banks' climate risk stress testing frameworks** and their **level of preparedness**.
  - Identify **best practices** and limitations banks are facing.
- **Disclosure limited to aggregate results** with main conclusions from analysis.
- **SREP integration focussing on qualitative** aspects with no direct quantitative impact; i.e., it is not a capital risk exercise.

Common methodology to address both physical and transition risk; different time horizons

x Details in Annex

	Expo-sures	Scenario	Projections[1]	Horizon	Credit risk	Market risk	Operational risk
Transition risk	Global	1 Short term stress	Baseline	3 years (2022-2024)	**Corporate loans** (incl. SME, CRE) **+ mortgages**	**Bonds + stocks issued by NFCs[2]** (incl. accounting and economic hedges)	5 **Operational** and **reputational risks** to be assessed via a **qualitative questionnaire**
			Stress				
		2 Long term paths	Orderly	30 years (2030, 2040, 2050)	**Corporate loans** (incl. SME, CRE) **+ mortgages**		
			Disorderly				
			Hot house				
Physical risk	EU coun-tries	3 Drought & heat risk	Baseline	1 year (2022)	**Corporate loans** (incl. SME)		
			Stress				
		4 Flood risk	Baseline	1 year (2022)	**Mortgages + CRE loans**		
			Stress				

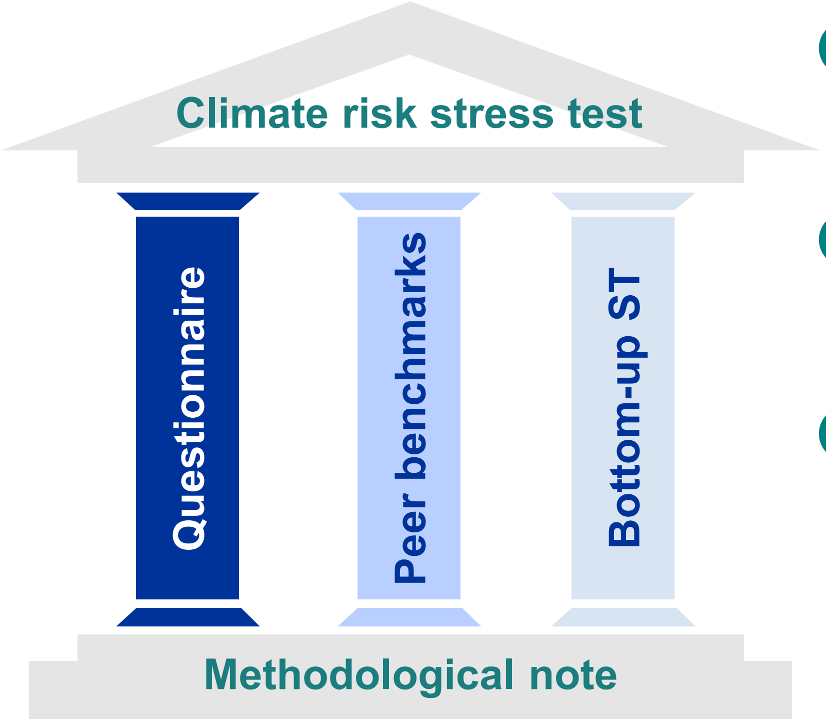
1. All projections with the exception of the long-term paths will be based on a static balance sheet.
2. The parent company needs to be an NFC, e.g. bonds issued by car financing company X are in scope.

Discussion points

- Key reasons for scenario choices
  - Substantial uncertainty related to climate outcomes and prospective policy actions
  - Different dimensions of climate risk (transition vs physical risk)
  - Multiplicity of scenarios, different time horizons
  - …incl. very long-term scenarios with dynamic balance sheets to explore banks' strategic thinking
- Challenges faced
  - Sectoral dimension is key
  - What are relevant near-term scenarios?
  - Lack of history / lack of probabilistic perspective (in contrast to regular ST scenarios)
  - What is appropriate level of severity? Will climate risks and banks' ability to deal with them change with the business cycle?
- Desirable developments for future exercises
  - Developing models that can produce scenarios encapsulating both transition and physical risks.
  - Designing near term scenarios
  - Decision theory, dynamic programming accounting for revealed information (see e.g. Hansen, 2021)

Annex

Climate risk stress test covers three modules to test the banks' capabilities to assess climate risk



1. **Questionnaire:** Uniform and standardised assessment of banks' climate risk stress testing framework.
2. **Peer benchmarks:** Uniform methodology for benchmarking banks across a common set of climate risk metrics.
3. **Bottom-up stress test:** Uniform methodology for banks' bottom-up stress test projections.

Proportionality applied: all banks submit starting points but only a subset of banks submit bottom-up projections

Putting the 2022 SSM climate risk stress test into context

- The 2022 climate stress test exercise is **part of a broader set of activities** that the ECB undertakes to assess supervised institutions' level of preparedness to properly manage climate risk.

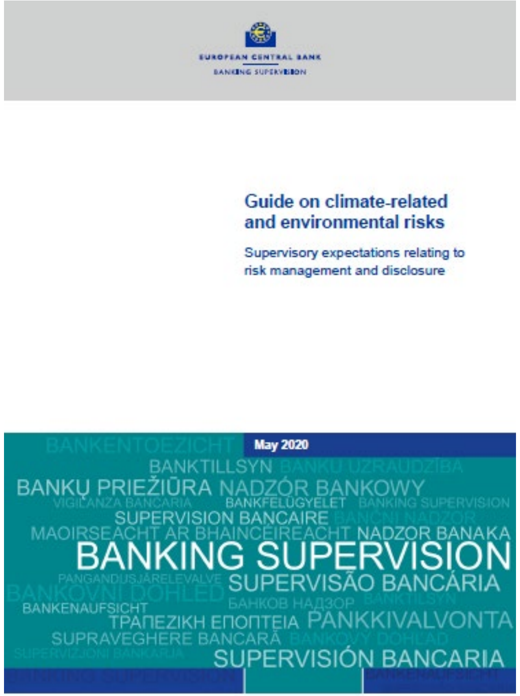
- The climate risk stress test is complemented by an **ongoing full supervisory review** of banks' climate-related and environmental risk management practices, which will seek to comprehensively assess how banks have incorporated these risks into their **strategy**, **governance** and **risk management frameworks and processes**.

  - **Guide on climate-related and environmental risks**: https://www.bankingsupervision.europa.eu/ecb/pub/pdf/ssm.202011finalguideonclimate-relatedandenvironmentalrisks~58213f6564.en.pdf

  - **Report on supervisory review** of banks' approaches to manage climate and environmental risks: https://www.bankingsupervision.europa.eu/ecb/pub/pdf/ssm.202111guideonclimate-relatedandenvironmentalrisks~4b25454055.en.pdf

- The 2022 supervisory climate stress test will help develop the response to a critically important issue. Our ambition is that it can **act as a catalyst to improve data quality and stress testing capabilities**.

ECB Supervisory expectations



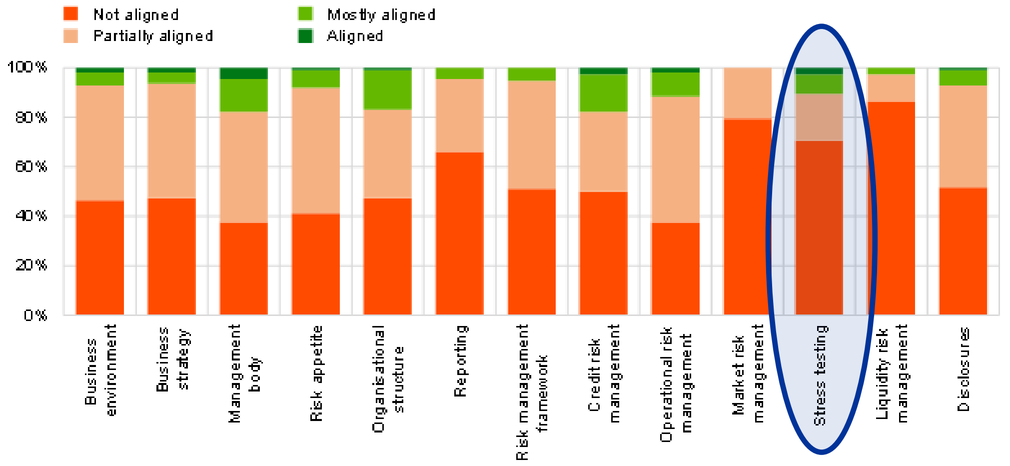
- The ECB Guide sets out supervisory expectations on climate-related and environmental risks
- Supervisory expectations:
  i. Provide transparency about the ECB's understanding of a prudent approach to managing climate-related and environmental risks.
  ii. Enhance the industry's awareness and preparedness for managing them
  iii. Contribute to a level-playing field in the euro area, while ensuring consistency with existing and forthcoming guidance from NCAs
- Supervisory expectations exclusively deal with the management and disclosure of prudential risks under the current framework.
- The ECB Guide is consistent with EBA, NGFS and NCA publications

Banks’ practices are not yet aligned with expectations

- **No SSM institution** is close to fully aligning practices to the expectations supervisory
- Most institutions consider C&E risks to have a **material impact** on their risk profile in 3 to 5 years
- Steps are taken to adapt policies and procedures, few institutions have practices with a **discernible impact** on their strategy and risk profile
- Less than half has taken first steps to **adjust their strategy**
- Most institutions have a **blind spot for physical and other environmental risk drivers**

Institutions’ alignment with the 13 supervisory expectations set out in the ECB’s Guide

(percentages)



Source: ECB’s supervisory assessment.

1 Short term transition risks focuses on banks' current vulnerability to a disorderly transition

Objective	• Assess the **vulnerability of the banks' current balance sheets** to a disorderly transition.
Credit risk	• Banks' **mortgage and corporate & SME exposures** in scope; Sectors to which exposures comprise less than 0.05% of total assets are not in scope. • Largest counterparty countries to be included to cover at least 80% of global exposures, but number of counterparty countries capped to five. • **Projections for 2022-2024** following closely EBA ST methodology, but **no Risk Exposure Amount projections.** • Disaggregation for (i) **industrial sectors** (NACE 2 digit) and (ii) **EPC labels.**
Market risk	• In scope are banks' **bond and equity positions including directly connected derivatives** in the HFT accounting framework. • Banks calculate **changes in the fair value on impact** based on sudden shocks. • **Distinguish between accounting and economic hedging**

2 Long-term view focuses on banks' strategic choices and potential losses under different paths

Objectives	• Assess **banks' long-term transition risks** and obtain insights in **banks' strategic choices** when for three different long-term transition risk scenarios. • Narratives based on **NGFS transition risk scenarios**.
Only credit risk in scope	• Banks **project credit losses on mortgage and corporate & SME exposures** with **dynamic** balance sheet. • Projections for **2030, 2040 and 2050.** • **Simpler set of credit risk parameters** (PD and LGD, no stage transitions).
Dynamic balance sheet	• Banks have **flexibility to change their balance sheet but** need to indicate changes due to (i) general balance sheet growth or (ii) reallocation between sectors / EPC label categories. • Banks need to **provide information on their assumptions** in the explanatory note, assumptions need to be consistent with public commitments banks made.

3 Drought & heat focuses on banks' credit risk vulnerabilities to corporate counterparties

Objective	• Assess banks' short-term vulnerabilities to a **severe heat wave**. • Production is affected **heterogeneously across countries and industries**. • For simplicity and ensuring a level playing field, **the heat wave is assumed to take place on 1 January 2022.**
Corporate & SME exposure in scope	• Corporate & SME exposures **disaggregated by industries at the NACE 2 digit level.** • Sectors to which exposures comprise less than 0.05% of total assets are not in scope. • Largest counterparty countries to be included to **cover at least 80% of EU exposures**, but number of counterparty countries capped to five.
Bank projections	• The **scope** of bank projections are restricted to the **short term** to focus on the direct effects of extreme weather events and contain the regulatory burden. • Banks **project credit risk parameters for 2022,** long-term parameters assume unchanged effects from 2023 onwards. • **No second-round effects should be taken into account**, only the direct impact.

4 Flood risk projections focus on within country heterogeneity of collateral vulnerabilities

Objective	• Assess banks' short-term vulnerabilities to **flood risk**. • Impact of the flood differs within countries using **disaggregation at NUTS 3 level.** • Similar to the heat wave, for simplicity and ensuring a level playing field **the flood is assumed to take place on 1 January 2022** and **the ECB provides a flood risk map.**
Mortgage and CRE[1] exposure in scope	• Largest counterparty countries to be included to **cover at least 80% of EU exposures**, but number of counterparty countries capped to five. • **Banks need to split their exposures by flood risk region within each country.**
Bank projections	• The **scope** of bank projections are restricted to the **short term** to focus on the direct effects of extreme weather events and contain the regulatory burden. • Banks **project credit risk parameters for 2022,** long-term parameters assume unchanged effects from 2023 onwards. • **No second-round effects should be taken into account**, only the direct impact.

1) Commercial real estate