

Fast Read Summary of Key ECB Publications in the C&E Area since 2020 until present

December 2023





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Executive Summary

Path to next Climate Stress Test

Over the last few years the ECB have published a series of guidance and best practices publications in the Climate and Environmental area. The regulatory publications and best industry practices indicate that while banks have made progress in incorporating climate risks, there is a high level of inconsistency in certain practices and also areas for improvement. The ECB's supervisory reports aim to provide banks with examples and suggestions to improve their internal methodologies and processes.



The purpose of this publication is to provide an executive summary of all the key ECB publications that provide guidance or discuss the best practices observed within the industry.

Executive Summary

Guide on climate-related and environmental risks

Nov 2020

In November of 2020 the ECB introduced 13 expectations for banking institutions outlining the requirements of how banks should approach Climate & Environmental Risk Management. These expectations put emphasis on the strategic approach for C&E risk management including risk assessment, quantification and stress testing across Credit, Market, Operational and Liquidity Risk.

ECB Climate Stress Test Methodology and Results

Oct 21 & Jul 22

On July 8th, 2022, the European Central Bank (ECB) published the results of the Biennial Thematic Stress Test 2022 related to climate change. The exercise was defined in October 2021 and focused on climate-related risks, both transitional and physical. The aim was to make a comprehensive assessment relevant to the way banks incorporated climate risks into their strategy, governance, and risk management frameworks and processes.

ECB SSM Thematic Review on C&E Risks

Feb 2022

The report, published in February 2022 reviews climate-related and environmental risks considering them as priority for the ECB for 2022-2024. Not only does it describe the supervisory requirements to be met by banks, but it also presents the methodology to be followed by the Joint Supervisory Teams (JTS) and how future assessments will take place.

Supervisory Assessment of C&E disclosures

Mar 2022

The report shows that while progress has been made in some areas, most institutions still need to make significant efforts to transparently disclose their exposures to climate-related and environmental risks, and improve their disclosure practices. The ECB's objective is to address key gaps in their disclosures and accelerate their preparation for upcoming technical requirements. This is in line with the European Commission's objectives for sustainable finance.

Good practices for climate related and environmental risk

Nov 2022

This supervisory publication displays examples of good practices, and observations from significant institutions to align their actions with expectations set in the C&E Guide published in November 2021. The ECB intends to meet the industry's demand for practical knowledge through this compilation, and it should be read in conjunction with the ECB's report on good practices in the climate-related stress test.

Banks gearing up to manage risks from climate change and environmental degradation

Nov 2022

Banks acknowledge the significance of physical and transitional risks in their current business planning horizon and have developed institutional frameworks to address climate-related risks. However, many institutions still need to improve their coverage of risk drivers. The ECB requires them to fully align with expectations by the end of 2024. The ECB has also observed good practices in addressing broader environmental risks.

Executive Summary

ECB report on good practices for climate stress testing

Dec 2022

The 2022 ECB climate stress test has helped banks to develop their climate risk-related stress testing capabilities, but the ECB acknowledges the challenges in sourcing relevant data for analyzing climate-related risks. The report highlights inconsistencies and diversity across banks' practices and scope for improvement, based on information collected during the exercise. Good practices have been identified, but the ECB expects banks to further develop their frameworks, data, and analytical capabilities to progress beyond these examples.

Climate change-related indicators

Jan 2023

The European Central Bank (ECB) recognizes the dangers that climate change presents to both the economy and the financial sector. As part of its responsibilities, the ECB is dedicated to addressing these issues by managing the impact of climate change on monetary policy and the financial system, promoting the shift to a net-zero economy, and improving transparency regarding climate-related matters. To achieve this effectively, there is a need for accurate data and comprehensive indicators.

The importance of being transparent

Apr 2023

The ECB publishes its third review of climate and environment (C&E) risk disclosures among significant institutions (SIs) and a selected number of less significant institutions (LSIs). The assessment of C&E risk management and disclosure was highlighted as one of the supervisory priorities for 2023-25 and it is based on the expectations set by the ECB in their Guide on climate and environment-related risks.

The road to Paris: stress testing the transition towards a net-zero economy

Sep 2023

The ECB conducts a comprehensive analysis of the impact of transition risk on the euro area private sector and the financial system. It assesses the impact of three possible transition paths, which differ in the timing and level of ambition of emission reductions, and quantifies the associated investment needs, economic costs and financial risks for businesses, households and financial institutions in the euro area.

On the role on environmental and social risks in the prudential framework

Oct 2023

The European Banking Authority (EBA) published a paper that discusses how environmental risks can be incorporated into the prudential framework for financial institutions. The paper emphasises the need for reliable information on these risks and their impact on financial losses. It also discusses how these risks are already reflected in Pillar 1 capital requirements.



Publication Details

ECB Guidance on the integration of C&E risks

November 2020

The 13 expectations, and 43 sub-expectations impact all parts of a financial institution's operating model. Over the course of the last two years, the ECB have made clear the importance

they attach to climate and environment-related risk, and their intention to increase their supervisory activities in this area.



Institutions are expected to:

- Understand the impact of C&E risks on the business environment in which they operate, in the short, medium and long term, in order to be able to make an informed strategic decision.
- Determine which climate-related and environmental risks impact their business strategy in the short, medium, and long term, for example by using (stress) scenario analyses.
- Explicitly allocate roles and responsibilities to management body members and/or its sub-committees for climate-related and environmental risks.
- Explicitly include C&E risks in their risk appetite framework.
- Assign environmental risks within the organisational structure in accordance with the three lines of defense model.
- Report aggregated risk data that reflects their exposures to C&E risks with a view to enabling the management body and relevant sub-committees to make informed decisions.
- Identify and quantify C&E risks within their overall process of ensuring capital adequacy and include them into ICAAP.
- C&E risks are expected to be included in all relevant stages of the credit-granting process and credit processing. Specifically, institutions are expected to form an opinion on how climate-related and environmental risks affect the borrower's default risk and collateral valuations.
- Material C&E risks should be included in stress testing - baseline and adverse scenarios.
- Publish meaningful information and key metrics on C&E risks that they deem to be material, with due regard to the European Commission's Guidelines on non-financial reporting.

Good practices for climate related and environmental risk

November 2022

This supervisory publication displays examples of good practices, and observations from significant institutions to align their actions with expectations set in the C&E Guide published in November 2021. The ECB intends to meet the industry's

demand for practical knowledge through this compilation, and it should be read in conjunction with the ECB's report on good practices in the climate-related stress test.

Key Areas of Focus



Materiality

- Identifying Risk Drivers
- Identifying Exposures



Business Strategy

- Strategic targets and Risk appetite
- Risk Management Tools
- Product Offering



Governance & Risk Appetite

- Data Collection
- Client Questionnaires
- Third Party Providers



Risk Management

- Stand-alone Scorecard
- Integration into PD-rating systems

“Good Practices” Highlights

Bottom-up risk identification process to identify relevant risk drivers.

Scorecard usually consists of two weighted components:

- Client awareness metric.
- Carbon transition metric.

Qualitative and Quantitative approaches are used to assess materiality of risk drivers.

Institutions have started to develop granular and forward-looking key risk indicators (KRIs)

Institutions have developed tools to track the status of the data gaps.

Good practices for climate related and environmental risk

Assessment of Materiality

- Identification of risk drivers: To determine the materiality of C&E risks, institutions have developed a bottom-up risk identification process to identify relevant risk drivers. This procedure relies on internal and external sources of knowledge.
- Identification of exposures: Depending on the type of exposure, different qualitative and quantitative approaches are used to assess the materiality of the risks.
- Determination of materiality: To determine materiality, institutions have developed thresholds regarding Capital Impact, Liquidity Impact, Qualitative assessment, and Concentrations.

Business Strategy - Good Practice for transition planning

- Materiality Assessment: institutions typically assess the materiality of their exposure to transition risks.
- Strategic Targets and Risk appetite: Institutions strengthen their goals through the use of monitoring systems and taking actions that affect the allocation of assets in their portfolio.
- Risk management tools: Institutions incorporate targets and attention limits into their monitoring and escalation processes, which require corrective measures in case of violations. One institution specifically takes actions specific to its counterparties for clients that do not align with the institution's portfolio direction.
- Product offering: Institutions also adjust the product offering for clients subject to elevated transition risks.

Governance and Risk Appetite

Good Practice Data Governance:

- Data collection: To overcome data gaps, as a first step, institutions develop tools to track the status of the data gaps.

- Client Questionnaires: Institutions typically use dedicated C&E risk questionnaires to collect client or asset-level data.
- Third Party Providers: Institutions tend to rely on a combination of internal and external data. External data is often procured from third-party providers.

Good Practice Risk Appetite:

- KRIs - Institutions have started to develop granular and forward-looking key risk indicators (KRIs). These KRI's continuously monitor whether the institution's exposures are inconsistent with the transition path depicted by the scenario the institution has adopted. Moreover, Institutions determine whether Key Risk Indicators only include on-balance-sheet or also include off-balance-sheet exposures.

Risk Management

Institutions are developing a variety of ways to reflect C&E risks in the risk classification of clients. The most common ways are stand-alone client scorecards on C&E risks or dedicated questionnaires to gather C&E related risks.

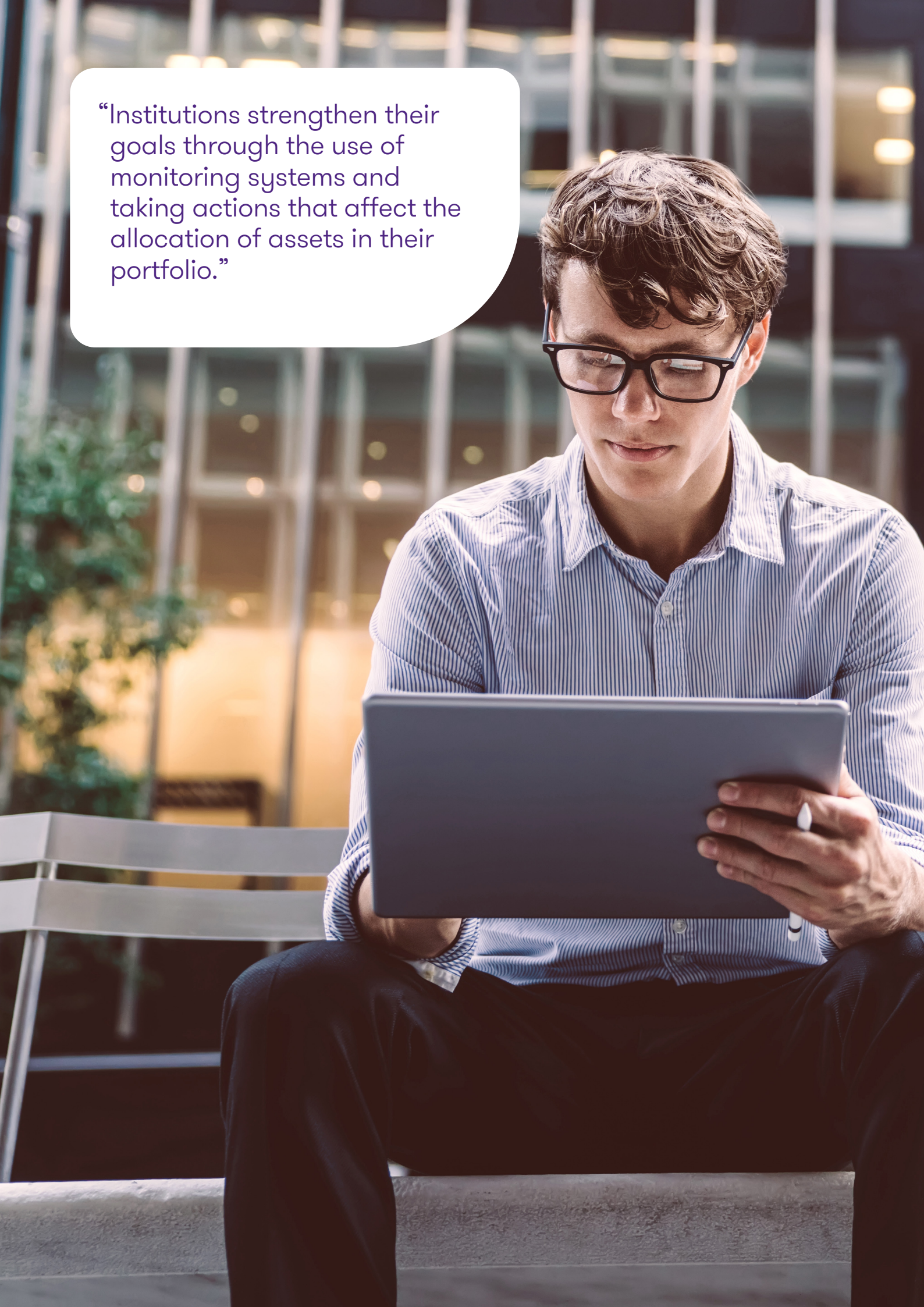
Credit Risk

The ECB is mentioning two main approaches for climate risk quantification, either classifying debtors via a stand-alone scorecard and/or integration of C&E into PD-rating systems.

A - Stand Alone Scorecard - Two Weighted Components:

1. Client Awareness Metric: To what extent is the client aware of C&E Risks.
2. Carbon Transition Metric: The threat of climate change to clients' business model & profit-generating capacity.
 - Converted into 10-point scale bundles in 4 categories.
 - Predefined follow-up actions.

“Institutions strengthen their goals through the use of monitoring systems and taking actions that affect the allocation of assets in their portfolio.”



Good practices for climate related and environmental risk

B – Integration in PD Rating Systems:

- Assessment of any reputational risks, liability risks, and negative environmental impacts on the client.
- Environmental risk questionnaire on clients' risks. Also on external providers, where possible.
- Classified into low, medium, high, or very high risk of financial loss.
- Formalised guidelines based on results.

Market Risk

Within market risk, ECB observations are mainly around the classification of exposures to transition risk in the trading portfolio by applying the following principles;

- 1. Develop risk classification of C&E risks at the sector level.**
- 2. Aggregate activities & positions at the sector level.**
- 3. Quantify transition risk in terms of mark-to-market exposure for each position, based on its sector classification.**

The main sources of risk are:

- The institution calibrates the above by leveraging C&E risk scores and information from external data providers.
- Based on each sector's sensitivity, the institution derives the sensitivity to transition risk for each position/activity, and quantifies mark-to-market exposure.
- Results of the classification are used to set a transition risk indicator, which is employed as a tool to make portfolio decisions.

Operational Risk

The ECB is primarily focusing on assessing the impact of physical risks to the business continuity of operations.

- **Using forward-looking scenario analysis to quantify the risks from weather hazards.**
- **Used to build a tool for the identification and classification of high-risk exposure to business continuity.**

1. Hazard

Identifies the main material physical risk events affecting its operations.

2. Exposure

Assesses what buildings may be exposed to those risk events and map these onto hazard maps.

3. Vulnerability

Classification system: low, moderate, or high risk. Identifies medium/high risks and may then decide to relocate or implement actions to mitigate the risks.

Climate Stress Test Methodology and Results

October 2021/July 2022

On July 8th, 2022, the European Central Bank (ECB) published the results of the Biennial Thematic Stress Test 2022 related to climate change. The exercise was defined in October 2021 and focused on climate-related risks, both transitional and physical.

The aim was to make a comprehensive assessment relevant to the way banks incorporated climate risks into their strategy, governance, and risk management frameworks and processes.

The Climate Stress Test Methodology



Scope & Methodology

- Module 1: Qualitative Assessment of the climate risk Stress Testing Framework
- Module 2: Sustainability of Banks' income and financed GHG emissions
- Module 3: Bottom-up stress test loss projections



Climate Risk Scenarios

- Transition Risks: Based on NGFS
- scenarios (short-term tail risks, long-term transition paths)
- Physical Risks: flood, drought, and heat risk



Output Report

- Climate risk stress test capabilities
- Peer Benchmark
- Impact on Credit, Market, and Operational/Reputational Risks
- Benchmark Vulnerabilities

ECB Recommendations to banks

- Integration of climate risk stress tests into ICAAP.
- Enhancement of climate risk stress-testing frameworks to account for various transmission channels and asset classes covering both physical and transition risks.
- Establishment of a robust governance structure for climate risk stress-testing frameworks and integrate climate risk stress test outputs into banking activities/planning.
- Incorporation of climate risk scenarios into stress-testing models, reflecting both physical and transition risks, as well as long-and short-term horizons.
- Enhancement of climate risk management, understanding of client transition plans and the strengthening of strategic plans to exploit the opportunities of the green transition.
- Investment in more climate-relevant data collection by engaging with customers and improving proxy assumptions.

“Good Practices” Highlights

Incorporation of various transmission channels and asset classes using robust Stress Testing framework included in ICAAP.

Development of climate - sensitive credit risk models (e.g., relevant sensitivity to risk parameters at sectoral level)

Significant amount of reported income based on internal counterparty/transactional level data.

Significant level of actual data for Scope 3 emissions, controlling for consideration of relevant GHG protocols.

Incorporation of actual emissions data in significant proportion of the cases and adequate waterfall approaches for proxy methodologies for the remaining part.

Good Practices for climate Stress Testing (CST)

December 2022

The 2022 ECB climate stress test has helped banks to develop their climate risk-related stress testing capabilities, but the ECB acknowledges the challenges in sourcing relevant data for analyzing climate-related risks. The report highlights inconsistencies and diversity across banks' practices and

scope for improvement, based on information collected during the exercise. Good practices have been identified, but the ECB expects banks to further develop their frameworks, data, and analytical capabilities to progress beyond these examples.

Key Areas of Focus



CST Frameworks

- Scope of CTS Frameworks
- Climate Risk Scenarios
- Balance Sheet Approaches



Data Requirements for CST

- Internal Data Needs
- Emissions Data
- Energy performance certificates (EPC)



Integration of climate-related risks into stress test credit risk models

- Climate-related risk transmission to credit risk parameter
- Modelling approaches identified
- Modelling risk mitigation
- Third Party Providers

“Good Practices” Highlights

Use of IPCC-aligned scenarios for Climate Stress Testing

Consider more climate-specific variables in order to measure the impact of climate-related risk.

Assess climate-related risks in their materiality assessment and use the results to define the scope of their CST framework.

Obtaining emissions data from external providers as it can be time-consuming to obtain it directly from clients.

ECB expected banks to use private insurance and national compensation schemes as ways to reduce climate-related risks

Good Practices for climate Stress Testing (CST)

Climate Risk Stress Testing Frameworks

Scope of CTS frameworks:

Banks are required to assess climate-related risks in their materiality assessment and use the results to define the scope of their Climate Stress Testing (CST) framework. The CST framework should consider the bank's business model, operating environment, and risk profile. The good practices report from the 2022 thematic review provides guidance on the assessment of materiality for climate-related risks

Climate Risk Scenarios:

The ECB recommends using IPCC-aligned scenarios for Climate Stress Testing. The most common source for these scenarios is the NGFS, but others include the IPCC, Banque de France, the Bank of England, and private providers. Institutions may also use a combination of publicly available scenarios and internally developed ones that are tailored to their specific vulnerabilities and focus on sectors or areas where their clients operate.

Balance Sheet approaches:

Banks with advanced approaches may use both static and dynamic balance sheet approaches in their CST framework, depending on their objective. The static approach evaluates short to medium-term resilience to shocks, while the dynamic approach assesses the impact of strategic choices on vulnerabilities over longer horizons. The quality of the dynamic results depends on the integration of climate risk factors, counterparties' transition plans, and the approach to dynamic exposure allocation.

Data requirements for climate stress testing

Internal data needs:

Most banks gather information on the main activities of each counterparty at the local level with the involvement of staff who have direct contact with clients. Codes are assigned by the front office, risk management, or relationship managers, or retrieved during onboarding.

Emissions Data:

Many institutions obtain emissions data from external providers as it can be time-consuming to obtain it directly from clients. The availability and accuracy of emissions data varies between countries and sectors, making it difficult to access. Future regulatory developments, such as European sustainability reporting standards, will provide transparency and set minimum requirements.

Energy Performance Certificates (EPC) data:

Energy Performance Certificates (EPCs) are used to help improve the energy efficiency of buildings and can be obtained by banks in a variety of ways, such as directly from customers, public EPC registers, collateral valuations, or from external data providers. Although actual EPC data is preferred, banks often rely on estimated data. However, the amount of actual EPC data collected by banks is limited, with one in four banks not having any real EPC data in their systems.

Good Practices for climate Stress Testing (CST)

Integration of climate-related risks into stress test credit risk models

Climate-related risk transmission to credit risk parameter:

Banks need to consider more climate-specific variables in addition to sectoral GVA and traditional stress testing variables in order to accurately measure the impact of climate-related risk. Banks should include the carbon price in order to assess the impact of climate risks in credit risk parameters.

Modelling approaches identified:

The ECB has observed that banks tend to use a combination of existing stress test models and newly developed climate risk models to measure the impact of climate-related risks. Some banks already had advanced models in place, while others used a combination of internal models and tools from external providers.

Long-term modelling approaches:

The ECB found that there is a difference in the level of sophistication of good practices observed in climate stress testing. Some banks are still developing models while others have integrated physical and transition risk into their long-term models, or use a combination of internal models and external tools.

Modelling risk mitigation:

The ECB expected banks to use private insurance and national compensation schemes as ways to reduce climate-related risks, as stated in the ECB guide for good practices. However, most banks did not include these measures in their projections, mostly due to a lack of data, particularly for the drought and heat scenario. Banks should clearly state their assumptions about the role of private insurance and national compensation schemes and link the insurance coverage to the specific hazard outlined in the scenario.

“The amount of actual EPC data collected by banks is limited, with one in four banks not having any real EPC data in their systems.”



ECB Report on Climate related Indicators

January 2023

The European Central Bank (ECB) recognizes the dangers that climate change presents to both the economy and financial sector. As part of its responsibilities, the ECB has released a set of indicators through a report, in which a short description

of the indicators is provided with the methodology used. Furthermore, highlights of existing caveats are presented, and possible limitations and areas for further development are brought into scene.

Key Areas of Focus



Sustainable Finance Indicators

Issuances of sustainable debt securities
Holdings of sustainable debt securities

Challenges:

Indicators only cover debt classified as sustainable in the CSDB.



Carbon Emission Indicators of Financial Institutions

Indicators on financing carbonintensive activities:
Financed emissions (FE)
Carbon intensity (CI)

Indicators on exposures to transition risks:

Weighted average carbon intensity (WACI)
Carbon footprint (CFP)



Analytical Indicators on Physical Risk

Normalised exposure at risk (NEAR)
Potential exposure at risk (PEAR)
Risk scores (RS)

Challenges:

Potential overestimation of risk
Potential underestimation of risk

ECB Report on Climate related Indicators

Sustainable Finance Indicators

Indicators of sustainable finance offer time-based data on the amount outstanding and financial dealings connected to the **issuance and ownership of sustainable debt securities**.

By merging the ESG aspects with traditional macroeconomic dimensions, it becomes easier to incorporate these indicators into forecasting models and other analytical tools, thus allowing for their use along with existing macroeconomic data sources.

1. Issuances of sustainable debt securities:

Information about the issuance of sustainable debt securities is made public by the issuer at face value, nominal value, and market value. The distribution by sustainability categorization is only available for the Euro area and the European Union overall. A breakdown by issuer sector and individual countries within the Euro area is only accessible for green bonds. A security is considered to meet the sustainable criteria if it is labeled as such by the issuer.

2. Holdings of sustainable debt securities

The indicators for sustainable debt securities holdings provide a classification by sustainability for the overall euro area (at both face and market value), including a breakdown by issuing region (euro area, EU, rest of the world). Only green bonds have breakdowns by holding sector and euro area country, and the same is true for financial transactions, which are only available for the euro area. These indicators have a low level of assurance, consistent with the indicators for issuances.

As with other sustainable finance initiatives, the indicators provided here only have a minimal level of assurance and consider debt securities as sustainable, if they are self-labeled as such by the issuer. This approach covers all sustainable instruments classified as such in the CSDB, regardless of the level of assurance. When sufficient information becomes available, breakdowns of the level of assurance, including those with second-party opinions and certifications, will be provided.

Analytical Indicators on Carbon Emissions

Indicators analyzing the carbon emissions funded by the financial sector have a dual focus: they assess the total amount of emissions financed by the financial sector and the sector's exposure to counterparties with high emissions.

1. Indicators on financing carbon-intensive activities:

The first two indicators on carbon emissions financed by financial institutions aim to provide information on how the financial sector contributes to the financing of high-emitting economic activities.

- A. **Financed emissions (FE):** Total greenhouse gas (GHG) emissions of a debtor/issuer weighted by the investment as a share of the company's total value. Environmental risk questionnaire on clients' risks. Also on external providers, where possible.
- B. **Carbon intensity (CI):** FE divided by the production value of the company weighted by the investment in the company's activities as a share of the company's total value.

2. Indicators on exposures to transition risks:

The assessment of exposure is determined by measuring the proportion of financial support for economic activities that could be impacted by the shift towards a net-zero emissions target. Unlike metrics related to funding for activities with high carbon emissions, these indicators use the value of the lender's portfolio as a basis for standardization.

- A. **Weighted average carbon intensity (WACI):** Total GHG emissions of a debtor/issuer standardised by a measure of the company's production value, weighted by the investment in these activities as a share of the total investment portfolio value.
- B. **Carbon footprint (CFP):** FE standardised by the total investment portfolio value.

ECB Report on Climate related Indicators

Analytical Indicators on Physical Risk

Physical risk arises from the combination of three factors: physical dangers, the presence of assets, and the susceptibility of those assets to the hazards. Accordingly, the information and evaluation were structured into three tiers.

1. Normalised exposure at risk (NEAR):

The percentage of the portfolio at risk where each debtor/ issuer's exposure is weighted by a financial risk ratio. This relates the expected annual losses (EAL) to measures of financial performance (revenue) or company size (total assets).

2. Potential exposure at risk (PEAR):

The percentage of the portfolio that is exposed to physical hazards, is based on the total financial exposure for all entities that have a risk score above zero. PEAR offers a potential ("maximum") value to complement the specific value provided by NEAR

3. Risk scores (RS):

These complement PEAR by splitting exposures into risk level categories and indicate the percentage of the portfolio that is associated with a specific risk class from 0 (no risk) to 3 (high risk). The scores at the group head level are calculated using simple averages.

The European Central Bank presents a diverse set of hazards, from flooding and landslides to wildfires, each of which demands a specific method of modeling and the application of various scientific techniques. Consequently, the dimensions of these hazards are expressed in different units (e.g. water depth for flooding, soil content for subsidence) often accompanied by a reassessment of hazard strengths and frequencies in the form of scores. However, due to their varying nature and origins, these scores are not directly comparable across different hazards.

Analytical indicators are subject to more serious limitations than experimental indicators on sustainable finance. ECB presents some guidelines to follow such as working on consolidated corporate emissions data and balance sheet information, identifying the nature of physical hazards and their intensity, or handling both overestimation of risk and underestimation of risk.

The importance of being transparent

April 2023

Transparency in the disclosure of climate and environment-related risks has become a critical issue for financial institutions today. In this context, the European Central Bank (ECB) has played a key role by publishing its third report on the disclosure of climate and environment-related risks among

significant institutions and a selected number of less significant institutions. This report is part of the framework for monitoring the management of climate and environment-related risks, and builds on the expectations set by the ECB in its 'Guidance on climate and environment-related risks'.

Key Areas of Focus

Materiality

Assessment of how financial institutions identify and communicate material climate-related risks.

Business Strategy

Assessment of how financial institutions integrate environmental and social risks into their business model and strategy.

Governance

Focus on the governance structure of institutions and how it addresses environmental and social risks.

Risk Management

Assessment of how financial institutions manage environmental and social risks throughout their operations. It includes the implementation of policies and practices to mitigate and adapt to these risks.

Metrics and Targets

Analysis of the disclosure of climate and environment-related metrics and targets. It includes how financial institutions quantify and monitor their performance in these areas.

“Good Practices” Highlights

Improved disclosure practices for transparency in environmental and social risk management.

Compliance with mandatory disclosure standards. It notes that the ECB will closely monitor compliance in 2023.

Disclosure of basic information in key areas such as materiality, governance and business strategy.

It highlights the importance for banks to focus on disclosing metrics and strategic objectives related to environmental and social risks.

Comparison of European banks' disclosures with those of globally important banks operating outside the EU.

The importance of being transparent

State of institutions' climate and other environmental risk disclosures

Overall, the assessment shows that banks have made clear progress in various areas compared to 2021, at least in terms of the existence of disclosures. Most banks have now improved their public disclosures to address C&E risks, having clearly built up their capabilities in 2022. This broadly reflects the observations made in the 2022 thematic review on C&E risks, which found that most institutions have devised an institutional architecture to address C&E risks.

1. Materiality assessment:

86% of banks consider their environmental and social risks to be material, a significant increase compared to previous reports. However, it is noted that the quality of materiality disclosures is often poor, with one third of banks conducting internal assessments that are either not disclosed or only partially disclosed.

2. Business model:

Most institutions do not adequately describe the strategic impact of environmental risks and do not make a clear connection to the sustainability of their business model, suggesting a lack of preparedness to address these risks.

3. Governance:

About one third of the banks in the sample are considered to have adequate governance structures with adequate board oversight and senior management involvement in managing these risks. While overall progress has been made, the lack of detail on monitoring and reporting mechanisms is still a challenge and more detailed disclosure is needed to provide a more complete understanding.

4. Risk management:

It is observed that 85% of the institutions disclose minimal information on these processes, but only 17% do so in a comprehensive manner. Despite continued progress in describing these processes, no significant progress has been made in specifying the technical details in public reports.

5. Other environmental risks:

Most banks still do not comprehensively address these risks beyond climate change. Only a small group discloses quantitative information and future targets in relation to these risks.

6. Metrics and targets:

Institutions are expected to disclose KPIs and KRIs used for their climate-related strategy and risk management. However, most banks fail to provide detailed and well-founded information on their metrics and targets.

Examples of observed practices

1. Materiality assessment:

- Development and dissemination of heatmaps

2. Business model:

- Disclosure of Impact of C&E risks on institutions' business environment, strategies and objectives
- Disclosure of how C&E risks are integrated with the development of new products and services

The importance of being transparent

3. Governance

- Disclosure of details of a core set of sustainable targets embedded in the CEO's performance scorecard
- Publication of information on the management body
- Disclosure of responsibilities for climate risk in market risk, credit risk, underwriting risk and liquidity risk.
- Creation of ad hoc positions, such as Chief Sustainability Officer
- Provide information on the competencies needed by the board of directors in relation to C&E risks

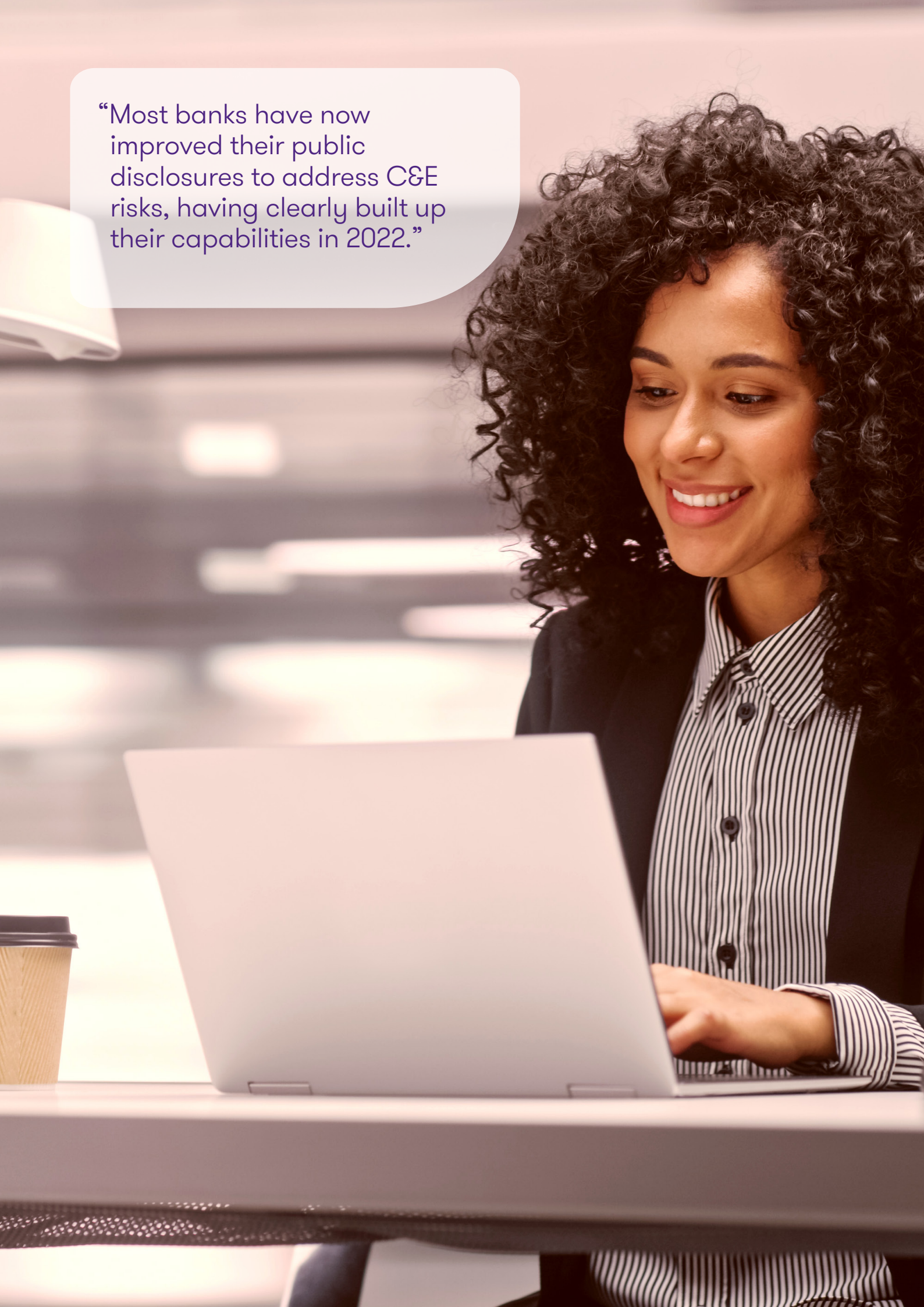
4. Risk management:

- Inclusion of analysis results in visual format
- Risk mitigation
- Climate-related risks should be integrated into traditional banking risk management and disclosed as such.
- Inclusion of climate risk considerations in their lending processes
- Description of scenario analyses and stress testing
- Assessments of disclosures pertaining to financial reporting and sustainability reporting for each environmental risk
- Exposure to sectors sensitive to C&E risks

5. Metrics and targets:

- PACTA analysis methodology and scenarios used to measure portfolio alignment
- Increased data collection on multiple portfolios

“Most banks have now improved their public disclosures to address C&E risks, having clearly built up their capabilities in 2022.”



The Road to Paris: stress testing the transition towards a net-zero economy

September 2023

The paper highlights the urgency of addressing climate change and achieving carbon neutrality by 2050. The study assesses three possible transition scenarios in the short and medium term, highlighting that an immediate and decisive transition

would provide significant benefits by keeping the economy on a net-zero emissions pathway and reducing financial risks. While a delayed transition would have negative economic impacts and increased losses in the financial system.

Key Areas of Focus

The first scenario is that of an accelerated transition (S1)

It starts from the premise of the energy crisis.

High fossil fuel prices at the beginning of the period would act as an incentive for a rapid transition.

Financing flows would be significant

Carbon emissions would fall by 67% by 2030 compared to 1990 levels.

Business Strategy

Measures to alleviate the energy crisis would lead to reductions in the carbon intensity of the energy systems in the next three years.

The actual transition would be delayed, starting around 2026.

The transition would be sufficiently intense to achieve emission reductions by 2030, but would require strong action.

Governance

The transition starts with a delay of about three years, after current macroeconomic projections indicate a recovery of the economy after the shock of 2022.

It is assumed that a delayed transition would not be sufficiently intense to meet the NGFS targets.

Fossil fuel prices would remain high at the start of the transition and increase more slowly.

The financial flows required to implement an effective transition would be slightly lower.



Carbon emissions
would fall by

67%

The Road to Paris: stress testing the transition towards a net-zero economy

Impact on corporates

It assesses how the three transition pathways affect companies' balance sheets and default probabilities. Improved models are used to analyse the impact of transition risks on companies' energy expenditures and green investments, as well as on energy sector revenues. Firm-level models are used and, finally, expected losses in financial institutions' portfolios are calculated.

1. Transmission channels:

- **Energy Expenses:** Higher energy prices during the green transition would increase companies' energy costs in the short term. Companies are expected to improve efficiency and switch to renewable energy sources in the medium to long term, thereby reducing their costs and carbon footprint.
- **Green investments:** Companies would invest in carbon technologies and green energy due to high energy costs during the transition. This would increase debt and financial costs, mainly affecting electricity and mining companies.
- **Winners and losers of the green energy transition:** Companies involved in green energy will see higher revenues and profits, while companies involved in brown energy will experience a decrease in demand for their products and, consequently, lower revenues.

2. Corporate credit risk:

Corporate credit risk will be affected by the green transition, as higher energy costs and higher debt due to green investments will increase the likelihood of default. Late transition scenarios present the highest credit risk for companies. This will affect different sectors heterogeneously, with the electricity, mining and manufacturing sectors experiencing the largest increases in credit risk.

Impact on households

It assesses how the three transition pathways affect companies' balance sheets and default probabilities. Improved models are used to analyse the impact of transition risks on companies' energy expenditures and green investments, as well as on energy sector revenues. Firm-level models are used and, finally, expected losses in financial institutions' portfolios are calculated.

1. Transmission channels:

The green transition impacts households through changes in energy efficiency and energy consumption. This can affect the value of homes and the creditworthiness of households, especially low-income households. The impact on the credit quality of mortgages and its effect on banks is also considered.

2. Household credit risk:

A rapid green transition would reduce households' energy costs and improve their creditworthiness, while a slower transition would result in higher costs and credit risk. Green investments would increase property values. The intensity of the transition would affect household credit risk, with more positive outcomes in more ambitious transitions. The model could consider income heterogeneity and data granularity in the future.

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Transmission to the financial system

The last module of this exercise assesses the transmission of transition risk to the financial system through credit risk and market risk channels, applying a static balance sheet assumption.

1. Banks:

It shows that risk is concentrated in a few banks and that the intensity of credit risk increases with transition, affecting more banks that are exposed to more vulnerable firms. An indicator called TCI is also used to assess transition risk as a function of credit risk. In addition, market risk is analysed in relation to banks' exposure to corporate bonds. It is concluded that losses on corporate bond portfolios are limited but higher in the longer transition scenario.

2. Non-bank financial institutions:

It is estimated that these institutions could face significant losses on their corporate bond portfolios in the euro area, ranging from EUR 10 to 18 billion for investment funds, EUR 6 to 16 billion for insurers and EUR 1 to 2 billion for pension funds in three different scenarios. The differences are explained by the relative exposure of these institutions to heavily affected sectors, such as electricity and gas. Furthermore, it highlights the importance of considering sovereign bonds in future analyses as more precise data become available.

On the role on environmental and social risks in the prudential framework

October 2023

The European Banking Authority (EBA) published a paper that discusses how environmental risks can be incorporated into the prudential framework for financial institutions. The paper

emphasises the need for reliable information on these risks and their impact on financial losses. It also discusses how these risks are already reflected in Pillar 1 capital requirements.

Key Areas of Focus

Credit Risk

It provides an overview of the framework and discusses the interaction between environmental and social (E&S) risks and the standardised approach, the internal ratings-based approach and the valuation of collateral.

Concentration risk

It discusses how environmental and social (E&S) risks interact with the concentration risk framework. This includes the development of a definition of E&S-related concentration risks and possible approaches to environment-related concentration risks.

Liquidity risk

An overview of the LCR and NSFR frameworks is provided and the interaction between environmental and social (E&S) risks and the LCR1 and NSFR1 frameworks is discussed.

Capital buffers and macroprudential framework

It discusses how environmental and social (E&S) risks interact with the capital buffers and macroprudential framework. This includes the Non-capital and capital based measures.

Market risk

It discusses how environmental and social (E&S) risks interact with the market risk framework. This includes a review of the literature, consideration of environmental risks as risk factors and risk drivers, and the interaction between these and the standardised and internal approaches.

Investment firms

It discusses the interplay between environmental risks and the prudential framework for investment firms, elaborating on Business models and risk categories, Risk to Client, Risk to Market and Risk to Firm.

Operational risk

It discusses how environmental and social (E&S) risks interact with the operational risk framework.

Disclosure of climate-related financial risks

November 2023

The Committee is evaluating how the implementation of a Pillar 3 disclosure framework focusing on climate-related financial risks aligns with its mission to fortify the regulation, supervision, and operational methods of banks globally. This initiative aims to improve financial stability and considers the potential structure of such a framework. To gather input and perspectives from stakeholders, the Committee is releasing this consultation paper. It outlines the Committee's initial proposal for qualitative and quantitative Pillar 3 disclosure requirements.

These requirements are intended to complement the efforts of other standard-setting bodies, including the International Sustainability Standards Board (ISSB), and establish a consistent baseline for disclosure across internationally active banks.

The Committee invites comments on the proposals, which should be sent by **29 February 2024**.

Key Areas of Focus

Qualitative disclosure requirements

The focus is on four key aspects: governance, strategy, risk management and concentration risk management. Disclosure of information on governance structure, strategy to reduce climate risks, risk management organisation and procedures, and material exposures to concentration risks is being considered.

Bank-specific metrics for quantitative climate disclosures

Bank-specific metrics are proposed in Pillar 3, seeking to assess the impact of climate-related financial risks. Feedback is sought on their relevance and consideration is given to the disclosure of exposures by credit quality and maturity, to provide information on the safety of banks based on sectors and geographic location.

Quantitative disclosure requirements subject to jurisdictional discretion

Three quantitative metrics are proposed to assess financial climate risks, subject to jurisdictional discretion. The first addresses energy efficiency in real estate exposures, the second focuses on emissions intensity per output, and the third addresses facilitated emissions. These metrics are optional and their application will depend on local relevance in each jurisdiction. Feedback is sought on their feasibility and relevance.

Quantitative disclosure requirements

The Basel Committee is assessing quantitative requirements for banks in relation to exposures by sector, funded issues and physical exposures by geography. They are considering disclosing exposures by sector for transparency, funded issues to assess transition risks, and physical exposures by region to understand a bank's climate change risk profile. They seek feedback on the feasibility and relevance of these metrics, as well as suggestions for other indicators.

Forecast

The Committee considers whether banks should disclose forecasts of their exposures to transitional activities in specific sectors. It is proposed that disclosure of forecasts should be optional and only required if banks have such estimates. The consultation includes the usefulness of forecasts related to funded issuance, issuance intensity and capital markets activities.

Qualitative disclosure requirements

Governance: They assess the disclosure of banks' governance structure, with a focus on climate risk oversight and the role of senior management. They seek feedback on the usefulness of this information in understanding how banks manage climate risks and their potential impacts on operations and finances.

Strategy: Feedback is sought on whether these disclosures, which would include forward-looking quantitative metrics, would provide sufficient information to understand and assess the bank's business model in the short, medium and long term in relation to climate risks.

Risk Management: The Committee is assessing whether banks should disclose information on their risk management organisation, processes and procedures. This could be supplemented with details on how they identify, assess and manage climate-related financial risks, including those arising from concentrations, that could affect their financial condition, including capital resources and liquidity positions.

Concentration risk: Concentration risk, linked to climatic factors, can lead to bank losses. The Principles highlight the potential for concentrations in industries and regions. The Committee suggests that banks disclose climate risk exposures, seeking views on how to complement this information with the bank's strategy.

Bank-specific metrics for quantitative climate disclosures

- The Committee seeks to introduce bank-specific metrics in the future Framework 3.
- Solicits feedback on the relevance of these metrics.
- It considers the increase in credit risk due to climate drivers.
- Inquires on disclosure of exposures by credit quality and maturity.
- Clarifies that disclosure will not influence lending strategies.

Quantitative disclosure requirements

Exposure by sector: The Committee discusses the possibility for banks to disclose exposures to standardised sectors, seeking transparency and assessment of sensitivity to the shift towards a low-carbon economy. A mandatory sector classification is considered to improve comparability across international banks.

Financed emissions: Banks' funded emissions, linked to loans and investments, are a key part of their greenhouse gas emissions. The Committee assesses their usefulness in indicating a bank's exposure to climate risks and seeks views on their calculation and possible alternative metrics.

Exposures subject to physical risk by geographical area: The Committee considers the disclosure of exposures by geographic region due to physical climate change risks to enhance the understanding of a bank's risk profile. In addition, it assesses whether allowing supervisors to define these areas could affect comparability across banks, seeking views on the appropriate approach.

Forecast

- Supervisors are recommended to assess banks' long-term approach to climate risks.
- Evaluates optional disclosure of forecasts for the market to assess bank exposure in sectoral transitions.
- Non-mandatory, forecast-based disclosure is proposed for sector-funded emissions, emissions intensity and emissions facilitated by financial market activities.

Quantitative disclosure requirements subject to jurisdictional discretion

Real estate exposures in the mortgage portfolio by energy efficiency level: Disclosing the energy efficiency of real estate exposures in the bank mortgage portfolio is assessed to understand the transition risk. The metric could provide information on the efficiency of collateral and its potential impact due to high emissions.

Emission intensity per physical output: The Committee explores the possibility of using metrics of issuance intensity funded by physical output as a reasonable proxy for the transition risk passed on to banks by their counterparties. These metrics could provide useful context on issuance intensity compared to absolute issuance, considering the nature and size of a bank's exposures.

Facilitated emissions: Disclosure of facilitated issues, which represent a counterparty's gross issues attributed to the bank for financial and advisory services, is proposed. The complexity is recognised and views are sought on the feasibility of such disclosure, given the difficulties in obtaining data

Conclusions

1. Credit Risk:

- The standard approach to credit risk management should be adapted to effectively consider environmental and social risks, maintaining simplicity and following international Basel standards E&S risks interact with the internal ratings-based approach.
- Environmental and social risks should be included in ratings and bank stress tests, with a balance between accuracy and variability.
- In the short term, it is recommended that institutions consider relevant environmental factors in the prudent valuation of real estate collateral.
- The EBA will continue to monitor how environmental and broader ESG factors are reflected in the value of collateral.

2. Market risk:

- Environmental risks are expected to increase in magnitude and affect market volatility.
- Long-term solutions are proposed for the standard approach, such as introducing environmental risk dimensions.
- In the internal models-based approach, it is suggested to consider environmental risks in stress tests.

3. Operational risk:

- The challenge is the lack of data to assess how environmental and social factors impact operational risk.
- It is suggested that institutions identify these factors as triggers of operational risk losses, to assess their significance and trend.
- The current standard approach does not include forward-looking elements, and a revision should be considered once robust data is available.

4. Liquidity risk:

- The LCR is already set up to capture environmental risks without challenging its primary objective, so no changes are required to the LCR regulatory framework in relation to environmental risks.
- The NSFR is already set up to capture environmental risks and promote sustainable activities, without requiring changes to its current regulatory framework.

5. Concentration risk:

- Work will be undertaken to define the concentration risk related to the environment and to develop exposure metrics to quantify this risk.
- Consideration will be given to their inclusion in the Pillar 1 framework in the longer term, taking into account international experience and agreements.

6. Capital buffers and macroprudential framework:

- Addressing environmental risks with macroprudential measures requires dialogue between micro- and macro-prudential authorities. The SyRB is the most appropriate buffer, but may need specific adjustments.

7. Investment firms:

- Similarities and differences between the IFR and the CRR should be considered when adjusting the IFR framework to maintain consistency and proportionality.
- Investment firms may face reputational and business model risks if the environmental profile of assets under management is not taken into account.

Contacts

Our team would be delighted to discuss your challenges and opportunities in any aspect of climate risk. Our services are flexible and efficient, designed to facilitate and support your business model.

Our highly qualified Quantitative Risk team provides support to financial institutions across the full spectrum of risk measurement and modelling strategies, including the development, deployment, and validation of key models and risk measurement methodologies in regulatory capital, stress testing and IRB, IFRS9, and bank risk modelling. The team has experience in implementing machine learning techniques in the context of credit risk modelling, as well as a keen interest in emerging trends within the machine learning space.

Contact us today to discuss.

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