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# REPORT ON DATA AVAILABILITY AND FEASIBILITY OF COMMON METHODOLOGY FOR ESG EXPOSURES

EBA/REP/2025/06

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# Abbreviations

<b>2DII</b>	2° Investing Initiative	<b>ESA</b>	European Supervisory Authority
<b>ACPR</b>	Autorité de Contrôle Prudentiel et de Résolution	<b>ESAP</b>	European Single Access Point
<b>APRA</b>	Australian Prudential Regulation Authority	<b>ESG</b>	Environmental, social, governance
<b>BCBS</b>	Basel Committee on Banking Supervision	<b>ESMA</b>	European Securities and Markets Authority
<b>BdE</b>	Banco de España	<b>ESRB</b>	European Systemic Risk Board
<b>BdP</b>	Banco de Portugal	<b>ESRS</b>	European Sustainability Reporting Standards
<b>BMPE</b>	Broad Macroeconomic Projections Exercise	<b>EU</b>	European Union
<b>BoC</b>	Bank of Canada	<b>EUROSTAT</b>	European Statistics
<b>BoE</b>	Bank of England	<b>FINREP</b>	Financial Reporting
<b>CDP</b>	Carbon Disclosure Project	<b>GHG</b>	Greenhouse Gas
<b>CRA</b>	Credit Rating Agency	<b>GID</b>	Global Impact Database
<b>CRD</b>	Capital Requirements Directive	<b>GPS</b>	Global Positioning System
<b>CRR</b>	Capital Requirements Regulation	<b>GRI</b>	Global Reporting Initiative
<b>CSA</b>	Climate Scenario Analysis	<b>G-SII</b>	Global Systemically Important Institutions
<b>CSDDD</b>	Corporate Sustainability Due Diligence Directive	<b>HH</b>	Households
<b>CSRD</b>	Corporate Sustainability Reporting Directive	<b>HKMA</b>	Hong Kong Monetary Authority
<b>CST</b>	Climate Stress Testing	<b>IBAT</b>	Integrated Biodiversity Assessment Tool
<b>DARA</b>	Development Assistance Research Associates	<b>ICAAP</b>	Internal Capital Adequacy Assessment Process
<b>DNB</b>	De Nederlandsche Bank	<b>IEA</b>	International Energy Agency
<b>DRMKC</b>	Disaster Risk Management Knowledge Centre	<b>IFC</b>	International Finance Corporation
<b>EBA</b>	European Banking Authority	<b>IFRS</b>	International Financial Reporting Standards
<b>ECAI</b>	External Credit Assessment Institution	<b>ILO</b>	International Labour Organisation
<b>ECB</b>	European Central Bank	<b>IPCC</b>	Intergovernmental Panel on Climate Change
<b>EEA</b>	European Economic Area	<b>IRB</b>	Internal Ratings Based
<b>EIOPA</b>	European Insurance and Occupational Pensions Authority	<b>ISSB</b>	International Sustainability Standards Board
<b>ENCORE</b>	Exploring Natural Capital Opportunities, Risks and Exposure	<b>KPI</b>	Key Performance Indicator
<b>EP</b>	Equator Principles	<b>LGD</b>	Loss Given Default
<b>EPBD</b>	Energy Performance of Buildings Directive	<b>LTV</b>	Loan to Value
<b>EPC</b>	Energy Performance Certificate	<b>NACE</b>	The Statistical Classification of Economic Activities in the European Community



<b>NGFS</b>	Network for Greening the Financial System
<b>NFCs</b>	Non-Financial Corporates
<b>NFRD</b>	Non-Financial Reporting Directive
<b>NUTS</b>	Nomenclature of territorial units for statistics
<b>OECD</b>	Organisation for Economic Co-operation and Development
<b>OeNB</b>	Austrian National Bank
<b>OFSI</b>	Office of the Superintendent of Financial Institutions
<b>O-SII</b>	Other Systemically Important Institutions
<b>PACTA</b>	Paris Agreement Capital Transition Assessment
<b>PCAF</b>	Partnership for Carbon Accounting Financials
<b>PD</b>	Probability of Default
<b>RCP</b>	Representative Concentration Pathways
<b>RWA</b>	Risk-Weighted Assets
<b>SA</b>	Standardised Approach
<b>SASB</b>	Sustainability Accounting Standards Board
<b>SBTN</b>	Science Based Target Network
<b>SME</b>	Small and Medium Enterprises
<b>SSM</b>	Single Supervisory Mechanism
<b>TCFD</b>	Task Force on Climate-Related Financial Disclosures
<b>TNFD</b>	Task Force on Nature-Related Financial Disclosures
<b>UNEP FI</b>	United Nations Environment Programme Finance Initiative
<b>US FED</b>	Federal Reserve of the United States

# Executive Summary

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In accordance with the mandate under points (a) and (b) of Article 501c(1) of Regulation (EU) No 575/2013, this report aims to assess the availability and accessibility of data related to environmental, social and governance (ESG) risks, as well as the feasibility of introducing a standardised methodology for identifying and qualifying banking book credit exposures to ESG risks.

The potential standardised methodology as explored in this report could inform further policy considerations about the structure and calibration of the Pillar 1 prudential framework. The purpose of this analysis is therefore not to discuss principles of effective ESG risk management by institutions, but to consider the possibility of a methodology that would be common across all institutions and inform the standardised categorisation of exposures to ESG risks. Accordingly, the report builds on the European Banking Authority's (EBA) previous efforts to assess the role of environmental and social risks in the prudential framework and seeks to pave the way for future work to investigate the effective riskiness of exposures to environmental and social factors, and the potential effects of an adjusted dedicated prudential treatment. Consequently, this report does not include any recommendations on the prudential treatment of exposures to ESG risks.

The report explores institutions' existing practices and identifies the current challenges in standardising the identification and classification of exposures to ESG risks, building on observations related to data quality and collection, assessment methodologies, and available regulatory guidance. The overview of current practices is complemented by an analysis of specific elements covered by the mandate, including sustainability disclosure reporting frameworks, supervisory stress testing and ESG scores in the credit risk ratings of external credit assessment institutions (ECAI). The analysis is focused on the effects of ESG risks on credit risk and the ability to use the above-mentioned elements to support a potential common methodology.

Current practices were assessed based on a dedicated industry survey, which gathered input from a limited sample of 36 institutions across 14 countries of the European Economic Area (EEA), representing 27% of the European Union's (EU) exposures. The survey focused on selected exposure classes identified as most relevant from the perspective of ESG risks, including non-financial corporates (NFC), small and medium enterprises (SMEs) and mortgage exposures to households (HH).

The most advanced methodologies observed are the ones implemented to identify and qualify NFC exposures subject to ESG risks. These practices are usually based on information collected from counterparties or external providers, feeding internal scores, stress testing or scenario analysis, and at times leads to shifts in credit risk measurement. Issues with data availability, quality and granularity remain a major challenge as well as its lack of comparability and transparency. Institutions tend to treat their non-retail SME exposures similar to their corporate portfolio. As a

result, findings for non-retail SME exposures are similar, but show more severe data-related challenges.

The treatment of retail SME exposures faces significant challenges especially due to the high costs and burden of data collection, insufficient capacity of SMEs to provide the relevant data, and the lacking disclosure requirements. For this reason, practices for assessing ESG risks for exposures to retail SMEs remain nascent.

Many institutions have developed methodologies to incorporate climate-related transition and physical risks in the assessment of exposures secured by immovable properties for their mortgage exposures to households. However, data challenges remain, especially in assessing the stock of existing exposures. For newly originated exposures, institutions tend to collect information on the location and energy efficiency of the immovable property collateral, which are the main elements in assessing climate-related physical and transition risks. More progress with further data availability is expected in the next years.

Within the spectrum of ESG risks, methodologies for assessing environmental risks, and especially climate risks, are the most advanced. Where institutions assess social and governance risks, their methodologies remain mostly qualitative. Assessing materiality of ESG risks is an important feature of the methodologies and a potential source of significant variability of results, as different approaches are applied for that purpose.

ESG scores, either developed internally or by external providers are the most commonly used methodologies. However, significant challenges in using them as a potential basis for a standardised methodology include the complexity and variability in ESG scores due to differing approaches, data sources and differences among rating providers. Furthermore, the practices attempting to link ESG risk to credit risk remain nascent.

Further analysis focuses on the three specific elements highlighted in the mandate:

- Regarding the sustainability disclosure reporting frameworks, the most relevant is the implementation of Corporate Sustainability Reporting Directive (CSRD) and further development of related European Sustainability Reporting Standards (ESRS). If fully implemented, these are expected to significantly improve the ESG-related data landscape for the corporate sector<sup>1</sup>. Nevertheless, granular data for other exposure classes remains limited, therefore further development and support for implementation of voluntary standards for SMEs is strongly supported.
- The supervisory stress testing and scenario analysis targeting climate-related financial risks have so far had a mostly exploratory character. The stress-test methodologies differ in terms of scope, assumptions and methodologies. Nevertheless, stress-test exercises provided standardised methodologies for institutions to categorise exposures to risks,

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<sup>1</sup> The analysis presented in the report is based on the CSRD currently in force, while it is also acknowledged that there are political considerations currently underway for potential amendments to this Directive.

allowing them to deliver the requested information, at times with varying quality. Considering their exploratory nature, such methodologies may only be considered as a potential starting point for the development of standardised methodologies.

- With regard to ESG scores within credit ratings by nominated ECAIs, there seem to be differences in the applied methodologies and scope of ESG risks covered. It seems that governance risks are reflected to a larger extent within the credit ratings by nominated ECAIs compared to environmental and social risks. More transparency is expected in the future on the role of E, S and G factors in ECAI credit ratings, based on the work carried out by the European Securities and Markets Authority (ESMA) on proposed revisions to the Commission Delegated Regulation (EU) No 447/2012 and Annex I of Credit Rating Agencies Regulation.

Regarding the availability and accessibility of data, the EBA concludes that at the current stage the data landscape remains incomplete in some parts. Relevant data are available primarily for large corporates and mortgage exposures, and mostly for climate risk, in the case of corporates predominantly for transition risk, while more significant challenges are faced for other exposure classes. Overall, significant data gaps remain for social and governance risks.

The EBA is of the view that the potential building blocks are not yet sufficiently developed to be a basis for developing a robust, standardised methodology for the identification and qualification of ESG risks at this stage, especially in the context of their impact on credit risk. All three elements for which analysis was requested in the mandate are still in the development stage, with ongoing work on key aspects, which is expected to continue in the coming years.

However, the situation significantly differs depending on the type of exposures and risks considered. In this context, introducing a standardised methodology to identify and qualify exposures seems to be the most feasible for the climate-related transition risk for NFCs, as well as, to a lesser extent, climate-related transition and physical risks for mortgage exposures to households.

While progress has been made in assessing ESG risks, there is still insufficient understanding and evidence on the impact of ESG factors on credit risk. Granular and comparable data that will become available based on fully implemented CSRD is expected to allow significant advancements for corporate exposures in the coming years.

The feasibility of introducing a standardised methodology for the identification and qualification of ESG risks is expected to increase after the full implementation of the elements mentioned in the mandate. In any case, however, should these efforts be pursued, a sequenced approach would most likely be necessary, starting with climate risks related to exposure classes for which the practices are most advanced, such as large corporates, before potentially extending such a methodology to other exposure classes and other dimensions of ESG risks.

The EBA stresses that it is important that the prudential framework continues following a risk-based and evidence-based approach, allowing recognition of ESG risks in an integrated manner, while preserving the

integrity and purpose of the prudential framework. Therefore, any standardised methodology if used for a prudential framework should be grounded on robust analysis of risks and evidence. The EBA will continue its work based on further mandates included in points (c) and (d) of Article 501c(1) of Regulation (EU) No 575/2013. In particular, the EBA will further explore the ability to assess effective riskiness of exposures subject to ESG risks and will consider potential effects of an adjusted dedicated prudential treatment of such exposures.

# 1. Introduction

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## 1.1 Background

1. The potential for negative financial impacts of ESG factors on institutions' counterparties or invested assets, materialising through the traditional categories of financial risk, is now widely recognised and enshrined in applicable regulation<sup>2</sup>. This is especially true for climate-related financial risks, but also increasingly for other nature-related risks, such as biodiversity loss and other environmental degradation or pollution. Similarly, social factors related to human rights, well-being and the interests of people and communities can translate into financial losses, for example when they tarnish the reputation of the counterparties. Further, governance factors can be related to counterparties' management practices such as independence of the board in decision-making, corporate behaviour including gender equality and remuneration practices. In short, ESG factors can be a source of financial losses, and institutions are expected to identify and assess them accurately.
2. In October 2023, the EBA published its Report on the role of environmental and social risks in the prudential framework for institutions and investment firms<sup>3</sup>, in accordance with the mandate under Article 501c(1)(e) of Regulation (EU) No 575/2013 (Capital Requirements Regulation, hereinafter CRR) and Article 34 of Regulation (EU) 2019/2033. The report investigated how and to what extent the prudential framework allows the identification and inclusion of environmental and social risks as drivers of financial risk. As a result, it recommended targeted enhancements to the Pillar 1 framework to capture environmental and social risks and provided foundations for further legal mandates under the revised CRR.
3. This report addresses points (a) and (b) of the mandate under Article 501c(1) of the CRR, requesting the EBA to assess the availability and accessibility of ESG data, and the feasibility of methodological standardisation for the identification and qualification of credit risk exposures to ESG risks in the banking book. For that purpose, the report investigates institutions' current practices and methodologies, based on the outcome of a qualitative industry survey and complementary desk-based analysis.
4. This report will be complemented by further work with a view to addressing letters (c) and (d) of Article 501c(1) of the CRR, which mandates the EBA to assess the effective riskiness of exposures to environmental and social risks and the potential effects of an adjusted prudential treatment of such exposures.

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<sup>2</sup> See, for instance, the definitions in CRR, Article 4(1), points 52d to 52i ([link](#)).

<sup>3</sup> See EBA (2023), *Report on the role of environmental and social risks in the prudential framework of institutions and investment firms* ([link](#)).

## 1.2 Mandate and rationale

5. Article 501c(1) of the CRR requires the EBA to assess whether the dedicated prudential treatment of exposures related to assets or liabilities, subject to the impact of environmental or social factors is to be adjusted. In particular, the EBA shall assess:
  - (a) the availability and accessibility of reliable and consistent ESG data for each exposure class determined in accordance with Part Three, Title II;
  - (b) in consultation with EIOPA, the feasibility of introducing a standardised methodology to identify and qualify the exposures, for each exposure class determined in accordance with Part Three, Title II, based on a common set of principles to ESG risk classification, using the information on transition and physical risk indicators made available by sustainability disclosure reporting frameworks adopted in the Union and where available internationally, the guidance and conclusions coming from the supervisory stress-testing or scenario analysis of climate-related financial risks conducted by the EBA or the competent authorities and if appropriately reflecting the ESG risks, the relevant ESG score of the credit risk rating by a nominated ECAI.
6. The European Insurance and Occupational Pensions Authority (EIOPA) conducted an assessment under Article 304a of the Solvency II Directive of the potential need for a dedicated prudential treatment of risks associated with environmental and social factors. In its report published on 7 November 2024<sup>4</sup>, EIOPA, while acknowledging certain limitations of the conducted analysis<sup>5</sup>, states that introducing additional capital requirements for fossil fuel assets on European insurers' balance sheets could be the preferred option to reflect the risks associated with these assets<sup>6</sup>. However, EIOPA does not recommend changes in the regulatory framework to introduce a dedicated Pillar 1 treatment of social objectives and risks and impacts at this stage, due to the lack of corresponding data and risk models.
7. In line with its mandate, the EBA's report aims to i) assess the data availability and accessibility of ESG data for identifying and qualifying banking book credit exposures to ESG risks; ii) identify potential common patterns across institutions' current or planned practices; iii) identify potential common principles for the identification and qualification of exposures to ESG risks; iv) discuss the feasibility of a standardised methodology on that basis; v) pave the way for delivering on letters (c) and (d) of the mandate under Article 501c of the CRR.
8. Regarding point (a) of the mandate, the availability and accessibility of reliable and consistent ESG data are a crucial element for the design of methodologies. The report investigates the existence of

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<sup>4</sup> See EIOPA (2024), *Report on the prudential treatment of sustainability risks* ([link](#)).

<sup>5</sup> These limitations include: i) the sample size due to general data constraints; ii) the lacking availability of reliable transition plans and the difficulty to obtain reliable, firm-specific characteristics affecting the long-term transition risk exposures of firms; iii) technical challenges in isolating transition risks from other risk drivers; iv) the unclear extent to which credit ratings reflect transition risks, making it challenging for the prudential treatment of spread risk in the Standard Formula.

<sup>6</sup> More specifically EIOPA proposes: i) for stocks, raising capital requirements by up to 17% in additive terms on top of the current capital charge, leading to a moderate increase in insurers' capital requirements; ii) for bonds, a capital charge of up to 40% in multiplicative terms in addition to existing capital requirements, instead of introducing no change at all or applying rating downgrades to fossil fuel-related bonds.

ESG data for effective risk management decision-making and the relative ease or difficulty for institutions to access, collect, store, exploit or use these data in their approaches.

9. Considering point (b) of the mandate, the identification of exposures to ESG risks is understood as a specific mapping of exposures to ESG risks, that is the extent to which exposures may be affected by ESG risks. Such identification may be based on institutions' internal ESG risk scores or other ESG-related information and indicators, e.g. financed emissions associated with these exposures. The qualification of exposures to ESG risks entails institutions' approaches to classifying exposures according to potential buckets of differing ESG risks. These potential ESG risk buckets may not necessarily reflect corresponding changes in prudential risk parameters such as the probability of default (PD) or loss-given default (LGD). It should be noted however that not all institutions clearly distinguish between these stages and some processes and tools may involve both identification and qualification of exposures. Overall, a significant challenge is the translation of ESG risk into assessing credit risk or creditworthiness of individual counterparties. Finally, the characteristics and methodologies may vary among exposure classes, leading to potentially different conclusions regarding the feasibility of a standardised methodology.
10. The mandate requires investigating three core elements:
  - **The information on transition and physical risk indicators made available by sustainability disclosure reporting frameworks:** in Europe, Directive (EU) 2022/2464, i.e. the CSRD and the related ESRS constitute an important framework for that purpose, while the International Financial Reporting Standards (IFRS) Sustainability Standards developed by the International Sustainability Standards Board (ISSB) provide an important international reference. By design, the implementation of these frameworks substantially affects the universe of available and accessible ESG data.
  - **The guidance and conclusions coming from the supervisory stress-testing or scenario analysis of climate-related financial risks:** such supervisory exercises include in particular: i) the 2024 Fit-for-55 climate risk scenario analysis, conducted by the European Supervisory Authorities (ESAs), the European Central Bank (ECB) and the European Systemic Risk Board; ii) the ECB 2022 climate risk stress test; iii) the EBA's 2021 EU-wide pilot exercise on climate risk; iv) the pilot exercises conducted by national competent authorities, including Autorité de Contrôle Prudentiel et de Résolution (ACPR) (2020) and De Nederlandsche Bank (DNB) (2018). One important consideration from the perspective of this mandate is the extent to which these exercises have fostered internal capabilities of participating institutions in their ESG risk identification processes and methodologies.
  - **The ESG score of the credit risk rating by a nominated ECAI:** most ECAIs incorporate ESG risks in their credit rating methodologies. However, credit ratings and ESG scores differ both in purpose and in many methodological aspects. Credit ratings cover a wide range of factors affecting credit risk to assess the creditworthiness of a counterparty, whereas ESG scores concentrate on specific non-financial factors like environmental impacts, social aspects, governance and ethics, which do not necessarily reflect the level



of financial risk of the counterparty. The interaction between these two perspectives is taken into account in the analysis.

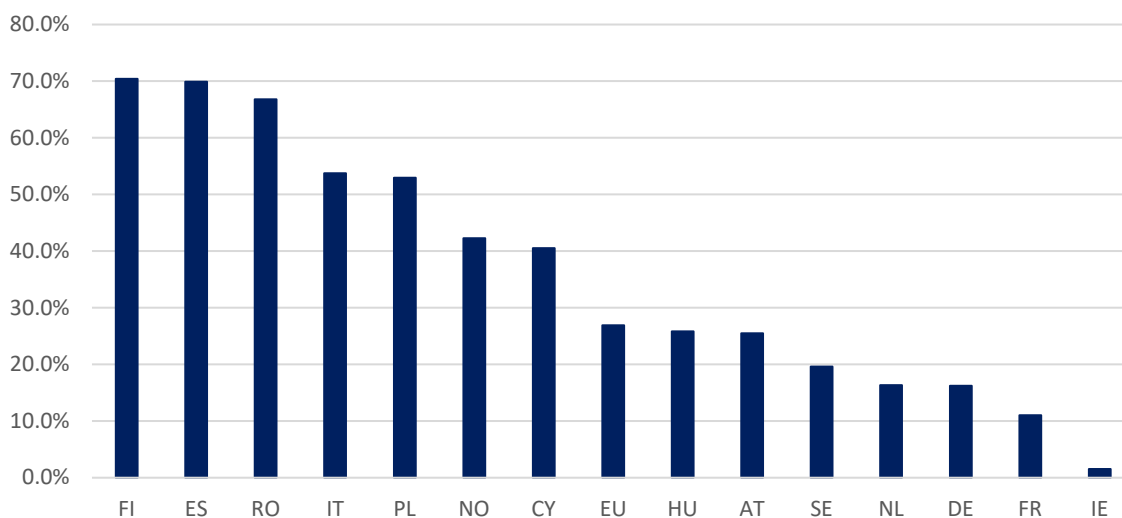
11. Finally, it is important to note that the mandate explicitly targets the exposure classes of Part Three, Title II of CRR, that is the credit risk exposures in the banking book. Consequently, the report investigates credit exposures of institutions, categorised into specific exposure classes in accordance with Article 112 (Standardised Approach (SA)) and Article 147 (Internal Ratings Based (IRB) Approach) of that Regulation. The report does not address ESG risks related to the exposures in the trading books of the institutions. This report is also expected to pave the way for delivering on letters (c) and (d) of the mandate under paragraph 1 of Article 501c of the CRR.

### 1.3 Methodology and approach

12. The EBA conducted a qualitative survey among institutions, which participated on a voluntary basis. The survey aimed to collect qualitative input from institutions on their current and planned<sup>7</sup> practices for the identification and qualification of exposures to ESG risks, including information on the availability and accessibility of the relevant data.

13. In total, 36 institutions<sup>8</sup> from 14 EEA countries participated in the survey, representing 27% of EU exposures in the banking sector (see Figure 1 for the asset coverage by country).

Figure 1: Coverage by country



14. The survey covered the following exposure classes: i) corporate exposures; ii) retail exposures; iii) exposures secured by mortgages on immovable property. The selected exposure classes are investigated via assets to NFCs, SMEs (retail and non-retail), and households, as defined and

<sup>7</sup> In the context of this report, 'Planned practices' should be understood as practices that are currently under development and will be implemented by the end of 2025.

<sup>8</sup> These are mostly local universal institutions (58% of the sample) and cross-border universal institutions (28%). The sample covers 12 globally systemically important institutions, of which three participated at the individual consolidated level, with an overall close-to-70% share of other systemically important institutions.

reported by institutions in Financial Reporting (FINREP)<sup>9</sup>. The selection of exposure classes reflects the sources of information targeted in point (b) of the mandate. In addition, the selection considers the observed differences in the maturity of methodological developments for different exposure types, the prevalence of known practices, the salience of policy discussions, as well as availability of other relevant materials allowing for meaningful conclusions.

15. The results of the survey should be considered bearing in mind the intrinsic limitations of the exercise. In particular, the survey did not specifically seek geographical representativeness but aimed to focus on current and planned practices across the EEA on a sample of institutions that voluntarily took part in the survey. By design, due to the limited size of the sample and the exposure coverage, results and observations necessarily remain selective and do not claim to provide an exhaustive picture of practices in the EEA. Further, replies to the survey are declarative; the exercise did not involve the submission and review of substantiating documents. Finally, the survey focused only on current practices and expected short-term developments in the industry.
16. Together with the survey, further desk-based research was conducted to assess in more depth the feasibility of introducing a standardised methodology. For that purpose, the work aimed to i) put observed practices into their broader theoretical and methodological context; ii) accordingly draw realistic perspectives considering observed challenges and foreseeable regulatory developments; iii) provide the basis for further considerations about the potential methods for the identification and qualification of exposures to ESG risks.

## 1.4 Consultation with EIOPA

17. Point (b) of the mandate, requires that the EBA consult the work with EIOPA. As part of this requirement, EBA and EIOPA considered the possibility to provide a similar analysis as conducted by EIOPA under expected Article 304a of the Solvency II Directive on the prudential treatment of sustainability risks. It was concluded that the direct applicability of such analysis for the mandate addressed in this report is limited.
18. Firstly, the analysis carried out by EIOPA focuses on market risk, whereas the EBA's mandate focuses on credit risk exposures. While the analysis by EIOPA was based on the available market data, such data are not necessarily applicable to the loan portfolios of institutions. Although equity and bond market prices can contain useful information on the market pricing of credit risk, the most relevant information that could allow an equivalent analysis for assessing credit is not available without dedicated data collection.

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<sup>9</sup> NFCs, as per the definition presented in the table of Part 3 of Annex II to the ECB BSI Regulation. This definition is based on point (e) of paragraph 42 in Annex V of Commission Implementing Regulation (EU) 2021/451 (FINREP).

SMEs as defined in Commission Recommendation C (2003)/1422. This definition is based on point (i) of paragraph 5 in Annex V of Commission Implementing Regulation (EU) 2021/451 (FINREP). For the identification of retail SMEs, institutions could refer to the relevant eligibility criteria stated in Article 147(5) (a)(ii) CRR.

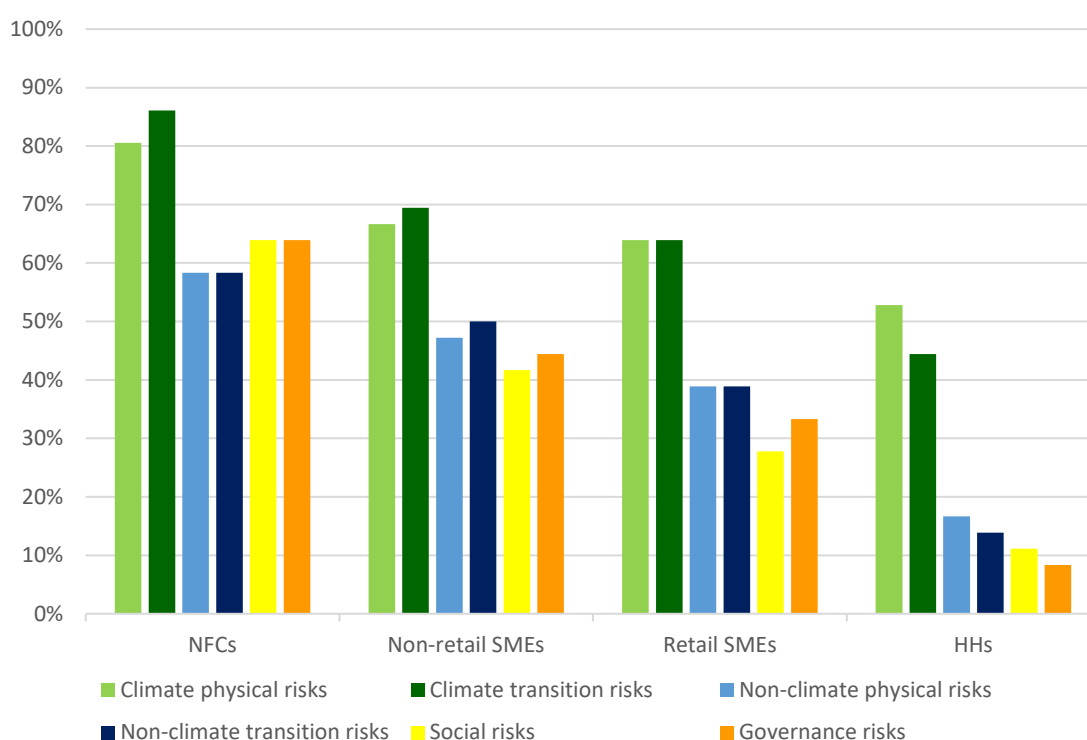
Households (HHs), as per the definition presented in point (f) of paragraph 42 in Annex V of Commission implementing Regulation (EU) 2021/451 (FINREP).

19. Secondly, point (b) of the mandate is more limited in scope as it does not imply conclusions on prudential treatment. It requests only assessing the possible methodologies to assess exposures to ESG risks, while not requiring quantitative assessments of the impact of ESG factors on credit risk.
20. However, for exploring the effective riskiness of exposures to ESG risks, as per Article 501c(1)(c) of the CRR, the EBA will consider, to the extent possible, the effective riskiness of exposures to fossil fuel entities, as compared to other exposures, to further explore the prudential treatment of these exposures, also taking into consideration the developments agreed internationally by the Basel Committee on Banking Supervision (BCBS).

## 2. Analysis of the survey results

21. This section presents the outcome of the analysis carried out on the institutions' input to the survey. The results are presented by specific exposure classes (NFCs, retail and non-retail SMEs, households). For each exposure class, findings are presented on the following aspects: i) availability and accessibility of data; ii) identification of exposures to ESG risks; and iii) qualification of these exposures. Examples of observed practices are provided in descriptive boxes.
22. Most institutions report having a methodology to identify ESG risks and to possibly qualify exposures subject to them (see Figure 2). Large corporates concentrate on the most advanced practices, which at times tend to extend to non-retail SMEs (although the latter present more severe data-related challenges and limitations). This is particularly the case for climate risk. The most severe challenges are observed for SMEs, while noteworthy practices are reported for households<sup>10</sup>. Common patterns are particularly noticeable for large corporates.

Figure 2: Institutions having a methodology to identify ESG risks and to possibly qualify exposures subject to them<sup>11 12</sup>



<sup>10</sup> Though inquired by the survey in an exploratory manner, it is acknowledged that governance risk may intrinsically bear only limited relevance for exposures to households.

<sup>11</sup> Please take note that 11% of the institutions did not provide any reply (neither 'Yes', 'Planned' or 'No') in the exposure class HHS for non-climate physical risks, non-climate transition risks and social risks, and 14% for governance risks.

<sup>12</sup> For simplicity, 'Environmental risks other than climate risks' are labelled as 'Non-climate risks' in this report's graphs.

## 2.1 Non-financial corporates

### 2.1.1 Availability and accessibility of ESG data

#### a. Data sources

23. Institutions may have different data needs, depending on how they are performing their ESG risk assessments. While some institutions build the tools and methodologies needed for the identification and qualification of exposures subject to ESG risks internally, other institutions outsource those models and/or rely on client risk assessments from external providers<sup>13</sup>. Hence, institutions deciding to build their own internal tools<sup>14</sup> might have a higher demand for data, depending on the level of sophistication and granularity of their internal assessments (e.g. client or portfolio level). At the same time, those institutions which rely on externally developed tools, or ‘ready-to-use’ client assessments may have less data demand, as these tools often come with some data points already pre-filled or with pre-defined scenarios.
24. Institutions largely rely on external data sources for at least some of the data they need for the identification and qualification of exposures subject to ESG risks. For example, about 50% of respondents in the survey reportedly use or plan to use external data providers (such as ECAIs, rating agencies or other specialised firms), over 40% use or plan to use national or international environmental databases. For ESG risk assessment at client level, institutions either choose to source raw data or unprocessed data points which they feed into their own assessment tools, or source processed data, which often already includes an assessment of the clients (like ESG scores, ratings or indicators that reflect the clients’ level of ESG risk and/or ESG-related impact). Another purpose of external data use is the development of the tools or assessment models. Institutions that decide to build their own internal ESG risk-assessment tools and methodologies use external data sources to develop and feed their models, for instance by obtaining climate decarbonisation scenarios, macroeconomic or statistical data or supporting scientific research.
25. The external information used by institutions that participated in the survey stems from both public data sources and external data providers. The following table shows a non-exhaustive list of the most common external data sources stated by the institutions.

*Table 1: Examples of external data sources*

Type of data provider	Examples mentioned by institutions <sup>15</sup>
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<sup>13</sup> While the survey does not specifically allow for differentiation, the institutions may i) have used external models or algorithms based on their own data; ii) have used a ‘pooled’ model (that is: combined across institutions) with pooled data.

<sup>14</sup> To be noted: the survey questions referred to ‘ESG score of internal scoring model’. This does not necessarily refer to internal regulatory models, although it could be assumed that the outcome of internal scoring models could technically feed the internal regulatory model.

<sup>15</sup> Please note that the categories in which the different data providers are listed do not necessarily reflect their only business purpose, i.e. data provider listed in one category may also provide services in one of the other categories. However, data providers have been allocated to the categories depending on the use case most commonly mentioned by the survey participants.

<p><b>Provider of ESG ratings</b></p>	<ul style="list-style-type: none"> <li>• Bloomberg</li> <li>• ISS Oekom</li> <li>• MSCI ESG Ratings</li> <li>• RepRisk (with a focus on controversies related to a company or project)</li> <li>• Standard &amp; Poor’s (S&amp;P)</li> <li>• Sustainalytics</li> </ul>
	<p><b>Provider of ESG relevant data or ESG assessment tools</b></p>
<p><b>Non-Governmental Organisations (NGOs)</b></p> <ul style="list-style-type: none"> <li>• Integrated Biodiversity Assessment Tool (IBAT)</li> <li>• World Resources Institute</li> </ul>	
<p><b>Private sector companies</b></p> <ul style="list-style-type: none"> <li>• Canopee Group</li> <li>• Climanomics</li> <li>• Climcycle</li> <li>• Iceberg Data Lab</li> <li>• Legatum</li> <li>• Munich RE</li> <li>• Prometeia</li> <li>• S&amp;P TruCost</li> </ul>	
<p><b>Industry groups and associations</b></p> <ul style="list-style-type: none"> <li>• 2DII (e.g. Paris Agreement Capital Transition Assessment (PACTA) tool)</li> <li>• Carbon Disclosure Project (CDP)</li> <li>• Encore</li> <li>• PCAF (Partnership for Carbon Accounting Financials)</li> <li>• Science Based Targets Network (SBTN)</li> <li>• Sustainability Accounting Standards Board (SASB)</li> </ul>	

	<b>Academic and research institutions</b>	<ul style="list-style-type: none"> <li>• DARA/Climate Vulnerable Forum (as developer of the 'Climate Vulnerability Monitor')</li> <li>• Global Impact Database (GID) – Impact Institute</li> </ul>
	<b>Scenario provider</b>	<ul style="list-style-type: none"> <li>• Intergovernmental Panel on Climate Change (IPCC)</li> <li>• International Energy Agency (IEA)</li> <li>• Network for Greening the Financial System (NGFS)</li> </ul>

26. Institutions also collect data directly from their clients. In this context, institutions most commonly mentioned the data collection through sustainability reports published voluntarily by their clients, dedicated ESG questionnaires, direct interviews and clients' transition plans. Some institutions also mentioned scientific literature research conducted by own experts as a potential source within their data collection process.

27. Some institutions collecting data to assess specific counterparties mentioned that they complement the externally collected data with insights from internal risk assessments of the client or run it through expert judgement. This is done both for new clients during the loan origination process and for existing clients as part of credit review in monitoring.

28. Some of the most mentioned metrics that institutions are collecting (both from external providers and directly from their counterparties) are greenhouse gas (GHG) emissions and Energy Performance Certificate (EPC) labels, among others.

29. Where client-specific data are not available, institutions use proxies or sectoral estimations as a fallback solution, which are obtained through external data providers.

30. Institutions collecting data to assess social and governance risks that did not explicitly refer to data providers, mentioned standards or frameworks. Some of the most frequently mentioned standards include the International Finance Corporation Performance Standards, Equator Principles (EP), Core Labour Standards of the International Labour Organisation (ILO) and UCG commitments.

#### b. Data gaps

31. Data quality and granularity is a major concern for institutions, especially considering expected development of quantitative metrics and approaches. Environmental risks other than climate, social and governance risks are deemed particularly complex, given their dynamic nature and the interconnectedness, which makes it more difficult to clearly identify them.

32. Overall, institutions reported the following data gaps and challenges:

- **Lack of comparability, reliability and standardisation of data across jurisdictions and sources:** definitions or methodologies and level of granularity differ across external data sources. Standardised and high-quality climate and environmental data needs to become more available through corporate reporting. A positive effect is expected from the implementation of binding reporting frameworks such as CSRD. Nevertheless, these effects might be more limited for institutions with a large share of corporate clients that are not reporting under CSRD.
  - **Lack of historical data on defaults and losses of the counterparties that can be linked to ESG factors:** institutions state that historical data series may not yet include sufficient or comparable information about defaults and losses that can be linked to environmental physical events, transition trends and other characteristics. The empirical evidence is currently insufficient for the full quantification of financial risks stemming from specific ESG risks, especially as climate risks are by nature forward-looking. Given the low number of documented ESG-related default or loss events, institutions argue that it will take some years before sufficiently meaningful historical data are available to allow for the modelling of credit risk in the prudential framework. Overall, historical data alone, is perceived as insufficient to capture the effects of the ESG performance on the level of credit risk of the counterparty.
  - **Geographical differences in data availability:** some of the data gaps and challenges are more prominent in certain countries or regions, reflecting for instance imbalanced ESG awareness in certain regions, e.g. Eastern European markets.
  - **Limited availability and quality of quantitative metrics reported by clients:** good quality quantitative metrics require both company-specific data as well as meaningful sectoral benchmarks. It is still challenging to find the basis for assessing acceptable levels for the metrics and their appropriate development over time.
  - **Lack of granular data of clients' activities and supply chain:** some institutions emphasised that especially for large multinational corporates, the entire supply chain may contain a large volume of data points, which could at times overwhelm internal systems and involve inconsistencies in the collected data.
  - **Low awareness of ESG risks:** some clients are not willing or not able to provide information requested by the institutions. For instance, not all real estate owners are willing to obtain the EPC or to renew it after its expiry.
33. Institutions also report specific challenges related to different risk dimensions. Starting with **climate and other environmental risks**, institutions deem it particularly difficult to obtain structured information on the use of risk mitigants, for example the use of insurance, transition plans, operational downtime and other regional or local specificities. Indeed, currently there is no established methodology or practice on whether and how to consider such mitigants in assessing ESG risks and their materiality. Challenges are observed regarding assessing direct



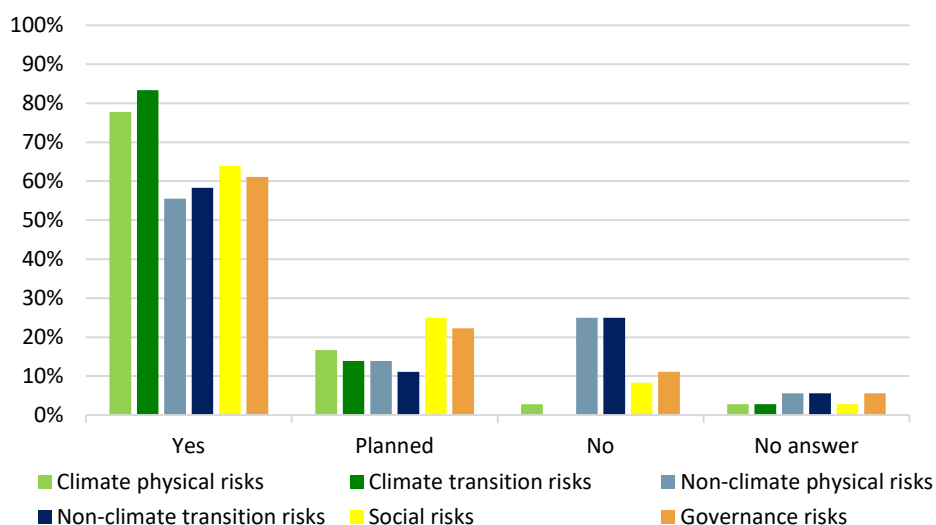
transition and physical risk impacts on counterparties and are even more pronounced when assessing indirect impact over the value chain.

34. For **physical risk**, institutions stressed that better access to geolocation data of companies' assets and economic activities will be crucial to improve the risk assessment. Geolocation data are currently mostly available for immovable property collaterals, while data on the location of the companies' economic activities, either directly or indirectly through its value chain, is stated to be limited. Furthermore, institutions consider that more granular information is needed about adaptation measures implemented such as insurance coverage, resilience and contingency plans.
35. For **transition risk** in particular, institutions stated that it will be crucial to obtain better access to reported and audited GHG emissions, as well as to detailed transition plans, preferably verified by a certified third party.
36. For **environmental risks other than climate**, institutions emphasised that a better understanding of how these risks are affected by and affect specific economic activities is needed to be able to translate environmental impacts into financial risks. In this regard, institutions mentioned for instance the lack of granular information of biomes and state of nature, i.e. ecosystem intactness and the lack of environmental dependency metrics (water, land use, etc.) at counterparty level.
37. For **social risks**, it will be important to improve transparency and reporting on company value chains, both upstream and downstream. Institutions are using mostly non-standardised information on social risk. Institutions consider it challenging that there is no specific and commonly agreed definition of social risks, and that the information about social metrics such as health and safety, community involvement, supply chain, etc., is not disclosed in certain geographies.
38. Since social and governance-related taxonomies are not available yet, institutions report facing difficulties in conducting quantitative analyses for those risk dimensions due to lack of data and benchmarks.

### 2.1.2 Identification of exposures to ESG risks

- a. General observations

Figure 3: Institutions identifying ESG risks to NFC exposures



39. Many institutions have methodologies for the identification of ESG risks to NFC exposures in place. The highest share is for the identification of climate-related transition risk, where all institutions have a methodology in place (>80%) or at least plan to implement such. This is directly followed by the number of institutions which state they have a methodology for the identification of climate-related physical risk (>75%). The share of institutions which are identifying environmental risks other than climate, social and governance risks is slightly lower, yet represents at least 50% of institutions for every risk dimension.

40. The identification process is carried out in relation to materiality assessment<sup>16</sup>. Institutions assess ESG risks based on a selection of specific risk drivers and transmission channels. The identification and materiality assessment are mostly performed per risk category.

41. As of now, many institutions focus on assessing ESG risks as a driver of credit risk, based on a broad variety of approaches, mostly developed for climate risks. In that regard, some institutions developed their own internal assessment tools, others rely on those provided by external providers or combine both approaches. In some cases, the level of detail for the internal risk assessment depends on certain thresholds, e.g. whether the loan exceeds a certain amount. In particular, many institutions assess the clients' level of ESG risk in the loan origination or monitoring process<sup>17</sup>.

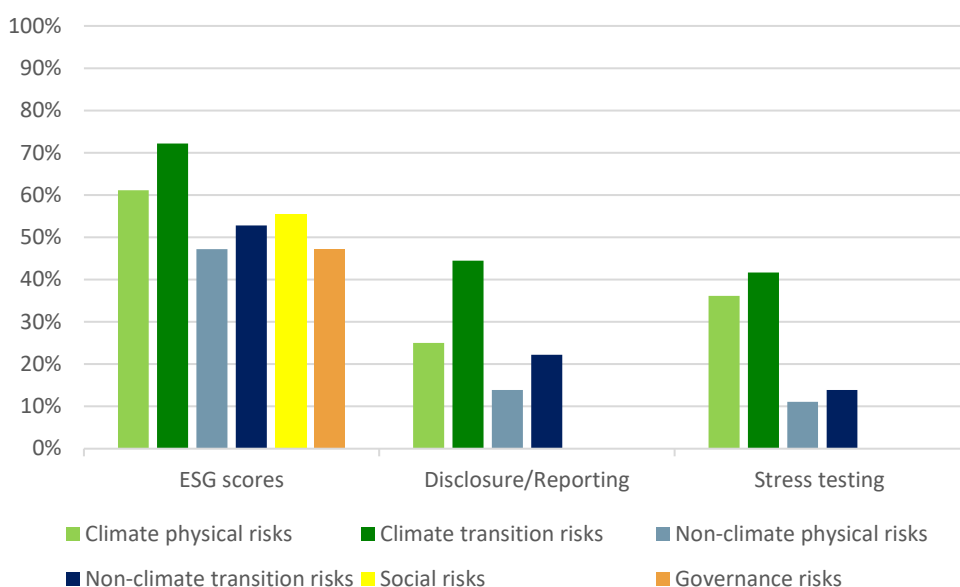
<sup>16</sup> While not explicitly covered in the survey questionnaire, institutions largely mention ESG risk identification practices in the context of their assessment of the materiality of risks. In its *Report on management and supervision of ESG risks for credit institutions and investment firms* published in June 2021, the EBA underlined that materiality assessment is primarily an institution-specific assessment considering the specificities of the business model, operating environment and risk profile. When conducting this assessment, institutions consider transmission channels and characteristics of ESG factors and ESG risks, including the breadth and scope of their potentially far-reaching impact, and their uncertain and multiple time horizons. Please refer also to Section 3.2. for more details on materiality assessment in the context of this report.

<sup>17</sup> This assessment is also required as part of the *EBA Guidelines on loan origination and monitoring* (EBA/GL/2020/06). Starting from 1 January 2025, CRR requires institutions to take into account ESG considerations for the valuation of collateral, including immovable property (Article 208(3)), other physical collateral (Article 210(g)) and financial collateral (Article 207(4)).

42. When identifying environmental risks other than climate, and social and governance risks, institutions' current practices seem to be less developed. Those institutions that are already trying to assess these risks depend largely on external data providers and external assessment tools to obtain relevant information. Especially for social and governance risks, the assessments are mostly qualitative, e.g. based on certain qualitative indicators or answers to questions which are sometimes aggregated to a client score.

b. ESG scores (external providers or internal)

Figure 4: Elements currently used to identify ESG risks to NFC exposures<sup>18 19</sup>



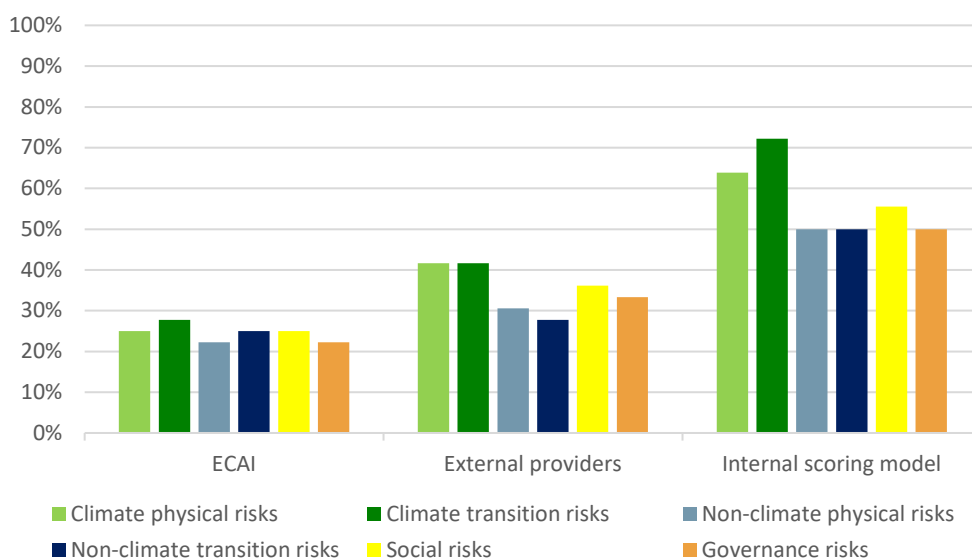
43. To identify NFC exposures subject to ESG risks, institutions largely use ESG scores, in particular for the identification of climate-related transition (>70%) and physical risks (60%). Around half of the institutions also make use of ESG scores for the identification of NFC exposures to environmental risks other than climate, and social and governance risks.

44. Across all ESG risk dimensions, most ESG scores are based on internal methodologies. However, a significant number of institutions gathers ESG scores from external providers. Only a few institutions declared that they use ESG scores from a nominated ECAI; however, in this regard, it must be noted that there is also a significant share of institutions that did not make any statements on the use of those scores from ECAIs.

<sup>18</sup> Please note that institutions were able to provide multiple responses as per survey questionnaire.

<sup>19</sup> Please note that 11% of the institutions did not provide any reply (neither 'Yes', 'Planned' or 'No') for social risks and governance risks under the category of stress testing.

Figure 5: Type of ESG scores used / planned to be used to identify ESG risks to NFC exposures<sup>20</sup>



45. Of those institutions which use external ESG scores, most reported using publicly available ESG ratings, e.g. from Standard & Poor's, Sustainalytics, Refinitiv and MSCI, for benchmarking purposes in a given sector. Some institutions use ESG scores by external data providers and/or nominated ECAIs as a starting point for their own assessment. While other institutions use the ESG scores of external providers to supplement their own qualitative analysis and rating assignment.
46. In particular, many institutions rely on external data providers for scoring in the field of social and governance risks. As an example, data providers such as MSCI, Sustainalytics or RepRisk are used to collect information on controversies in the areas of social and governance. Some institutions substitute this information with internal assessments.
47. In terms of the scoring methodology for climate-related physical risks, some institutions explained differentiating between identification at counterparty level and at collateral level, hence, the methodological approaches differ between those two. For example, one institution stated that it based the counterparty physical risk score on the location of the productive sites and headquarters, while the physical risk score at collateral level is based on the geolocation of collateral. For social and governance risks, institutions often use qualitative internal assessment methods. For instance, one institution checks the extent to which its counterparties and projects comply with the EP. Another institution claims to analyse the respective sections in the clients' sustainability report. For governance risks, some institutions stated that they are assessing this risk type through their reputational risk management framework.

<sup>20</sup> Please note that institutions were able to provide multiple responses as per survey questionnaire.

**BOX 1 : OBSERVED PRACTICE: USE CASES OF ESG SCORES**

Some institutions use a combination of ESG scores obtained from external data providers and their internal scoring systems for the identification of exposures to ESG risks. The results feed subsequently into the qualification process. The following example shows the possible interplay of those different sources, and the evolution of the approach based on the practice of one of the participating institutions.

In terms of climate-related physical risks, the institution uses physical risk scores of external providers to identify exposures to counterparties with local production units or sites located in potentially climate-related high physical risk areas. Planned internal scores aim to consider other relevant information related to the counterparty, e.g. evidence of insurance covering acute risks or sound risk management.

To assess climate-related transition risks, transition risk scores of external providers are used to identify exposures to counterparties with estimated or identified high-level emissions. The institution plans to increasingly rely on internal scores to consider other relevant information related to counterparties, such as the existence of transition plans, targets of GHG emissions reductions and level of EU taxonomy alignment among counterparties.

The transition score is built on three dimensions: current emission intensity and technology mix (also relying on sectoral scenarios, for example for electric cars), activity and geography mix (involving capital expenditure considerations), and the ambition of the client's long-term targets (which may include the level of compliance with international frameworks such as the Task Force on Climate-related Financial Disclosures (TCFD)). These dimensions are weighted into an overall transition risk score.

The transition score is used for the following purposes:

- **Client classification:** risk and business teams collaborate to classify clients in terms of ESG risk, focusing on future transition risks and financial weaknesses, integrating ESG scores with traditional credit rating.
- **Sector policies:** ESG scores, including for example emissions criteria, are utilised alongside credit ratings in sectoral policies to define risk appetite, which influences client credit limits.
- **Annual review:** an annual review of clients is performed, assessing their compliance with TCFD framework and their potential future development based on long-term targets.

To assess social and governance risks, the institution uses expert judgement to complement external scores. This is considered in the governance module of the credit risk tool.

48. Institutions implementing an internal ESG scoring methodology take several criteria into account for the assessment, depending on the risk type, for instance:

- **For climate-related physical risks:** exposure of the economic activity to acute and/or chronic risks, e.g. drought risk, storms or flooding risk, and measures taken to mitigate or prevent the impact of those risks. Many institutions assess different types of hazards and assign to each of them a separate score, which are then either merged or considered independently.
- **For climate-related transition risks:** GHG emissions associated with the exposures including as part of net-zero commitments and transition plans, intensity metrics or carbon footprint, as well as assessing policy risks, reputational risk, legal and litigation risks, change in consumer preferences, technological risks and measures taken to mitigate or prevent the impact of those risks. Other sector-specific metrics, such as production metrics or industry inherent risk, have been considered as well.
- **For environmental physical risks other than climate-related:** the use of water (including underground), seismic risks, soil and air pollution levels, use and exploitation of natural resources (with particular emphasis on non-renewable ones), use of hazardous materials (production, operation, processing, storage of potentially hazardous materials or generation of hazardous waste), accidents impacting local fauna, other emissions (activity generating noise, vibrations, ionising radiation, intensified electromagnetic field), adoption of environmental policies and management programmes (e.g. waste and water management programmes, vendor management programmes), commitments to reduce impact on biodiversity, reporting on environmental impacts and incidents.
- **For environmental transition risks other than climate-related:** the metrics used for assessing environmental risks mentioned by the institutions in the survey are quite similar to the ones already mentioned in the context of climate-related transition risks. Some examples include the main activity of the counterparty (level of environmental impact and the measures taken to mitigate or prevent the impact), Nomenclature of Economic Activities (NACE) code (in terms of the sector's impact and dependencies), environment-related risk management actions and targets of the counterparty, scope 1, 2 and 3 emissions, energy performance.
- **For social risks:** at the counterparty level, existence of policies or code of conducts (and whether they are approved by the board) related to diversity, adherence to human rights, gender equality (such as percentage of women in management), worker rights, compliance with the national laws, anti-discrimination procedures in place, risk and number of work accidents, e.g. rate of workplace injuries, personnel reduction, forced labour, occupational, safety and health aspects.
- **For governance risks:** existence and implementation of policies or mechanisms and/or alignment of counterparties to standards pertaining to anti-corruption policy, business

ethics, level of independence and expertise of the Board of Directors, the existence and responsibilities of the audit committee, the level of transparency and public disclosure, the efficacy of the internal control measures established, the implementation of a whistleblowing mechanism, evidence on Minimum Safeguards Violations or litigations.

49. Institutions report using ESG scores for various internal purposes:

- building internal metrics based on the ESG scores to identify ESG risks at portfolio level;
- supporting credit decisions in the loan origination process;
- providing input to monitoring and reporting processes;
- identifying counterparties with higher ESG risk profiles for enhanced due diligence process or to define risk appetite at counterparty level.

c. Information from sustainability disclosures

50. Compared to the relatively high share of institutions using ESG scores for the identification of ESG risks, the use of information on transition and physical risk indicators made available by sustainability disclosure reporting frameworks is less developed, in particular for environmental risks other than climate<sup>21</sup>. While the cumulated share of institutions that are already using or are planning<sup>22</sup> to use that information for the identification of NFC exposures to ESG risks is relatively high with over 70% of institutions for climate-related transition risk and over 50% of institutions for climate-related physical risk, this is not the case for other environmental risks. For both the physical and transition risks related to environmental risks other than climate, around half of the institutions responded that they do not consider related information from sustainability disclosure reporting frameworks in their methodology for the identification of NFC exposures subject to ESG risks and are not planning to do so soon.

51. The sustainability reporting frameworks that were most frequently mentioned by the institutions in the survey include: Non-Financial Reporting Directive (NFRD)/CSRD, EU Taxonomy, ISSB, TCFD, PCAF (for example considering the Global GHG Accounting and Reporting Standard) and CDP. Going forward, most institutions plan to use the information from ISSB and the ESRS reporting once available<sup>23</sup>.

52. Apart from those EU and international disclosure/reporting frameworks, some institutions collect information from voluntary sustainability reports of their clients, which might not follow any specific standard or framework.

53. Only about 25% of institutions that participated in the survey stated to build specific indicators or metrics based on the information from sustainability reporting to enhance the identification and

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<sup>21</sup> Social risks and governance risks have not been investigated in this section.

<sup>22</sup> 'Planned practices' in the survey questions should be understood as practices that are currently under development and will be implemented by 31 December 2025.

<sup>23</sup> The sections dedicated to presenting the complementary work conducted address in more detail the ESRS and progressive rollout until 2029 for the different ESG risk dimensions.

qualification of exposures subject to ESG risks. However, one third of institutions plan to do that in the future.

54. Institutions that already build indicators based on the sustainability reporting frameworks, provided some examples presented in Table 2.

Table 2: Examples of risk indicators

Risk type	Examples of indicators <sup>24</sup>
<b>Climate-related risk</b>  <b>(physical risk)</b>	<ul style="list-style-type: none"> <li>• Presence or operations in areas likely to be affected by physical risk events</li> <li>• Mitigating actions taken</li> <li>• Vulnerability towards physical risks (risk costs/provisioning) under different transition paths and time horizons</li> <li>• Dependence on natural capital assets impacted by climate change</li> <li>• Adoption of physical climate risk programmes, setting relevant targets and metrics</li> </ul>
<b>Climate-related risk</b>  <b>(transition risk)</b>	<ul style="list-style-type: none"> <li>• Financed emission: Scope 1, 2 and 3 GHG emissions of the counterparty (current state and development over time)</li> <li>• Energy mix</li> <li>• Taxonomy alignment</li> <li>• Presence of or alignment with net-zero commitments, information about counterparties' transition pathway aligned to &lt;2°C</li> <li>• Adoption of climate policies</li> <li>• Adoption of transition plan</li> <li>• Activities that do no significant harm to the environmental objectives</li> <li>• Vulnerability towards transition risks (risk costs/provisioning) under different transition paths and time horizons</li> </ul>
<b>Environmental risks other than climate risk</b>	<ul style="list-style-type: none"> <li>• Adoption of environmental policies and management programmes</li> <li>• Policies / commitments on the impact on biodiversity</li> </ul>

<sup>24</sup> Please note that the examples of the risk indicators refer to the assessment of the counterparties, not the institution itself.



<b>(both physical and transition risks)</b>	<ul style="list-style-type: none"> <li>• Policies / commitments on waste management</li> <li>• Policies / commitments on water consumption</li> <li>• Presence or operations in high water-stress areas</li> <li>• Investments related to the reduction of water consumption intensity</li> <li>• Reporting on environmental impacts and incidents</li> <li>• Sector's biodiversity impact through air pollution, water pollution</li> <li>• Sector's dependence on ecosystem services (for own operations and those of the supply chain)</li> </ul>
<b>Social risks</b>	<ul style="list-style-type: none"> <li>• Human-rights-related indicators (e.g. incidents on the violation of human rights)</li> <li>• Number of incidents or violations on labour rights</li> <li>• Diversity and equal opportunities (non-discrimination)</li> <li>• Training and development opportunities for employees</li> <li>• Adoption of social commitments (e.g. commitment to the United Nations Universal Declaration on Human Rights) and social standards (e.g. ISO 26000 on social responsibility; ISO 45001 on occupational health and safety)</li> <li>• Equal remuneration (e.g. gender-specific remuneration levels)</li> <li>• Employee relation (e.g. employee well-being level)</li> <li>• Adoption of supplier code of conduct, supplier due diligence</li> <li>• Social impact by sector and country</li> </ul>
<b>Governance risks</b>	<ul style="list-style-type: none"> <li>• Adoption of certain values and business ethics</li> <li>• Existence of code of conduct</li> <li>• Internal controls</li> <li>• Adoption of litigation policies</li> <li>• Adoption of anti-corruption / anti-bribery policies</li> <li>• Indicators related to the management board (e.g. independency of the board of directors, diversity, controversies, responsibilities)</li> <li>• ESG performance-linked payment scheme</li> <li>• Adoption of whistleblowing programme</li> </ul>

55. Institutions use the indicators that they build based on the sustainability reporting frameworks to develop various types of methodologies to identify ESG risks, including ESG scores, heatmaps and portfolio alignment methodologies. They also use these indicators in ESG risk materiality assessment as part of annual Internal Capital Adequacy Assessment Process (ICAAP).

d. Guidance and conclusions from supervisory stress testing

56. The guidance and conclusions from supervisory stress testing and scenario analysis of climate-related financial risks, is used by less than half of institutions for identifying NFC exposures subject to ESG risks with approximately 40% for climate-related transition risk and 35% for climate-related physical risk. Most institutions do not consider them for other environmental risks, since supervisory exercises so far mostly focus on climate risk. The number of institutions leveraging the identification of exposures subject to ESG risks on internal stress testing and scenario analysis exercises for both climate-related physical and transition risks is relatively low with just one third of the institutions that participated in the survey and even lower (less than 10%) for other environmental risks.

57. As reported by those institutions that make use of supervisory stress-testing exercises, many explained that the main purpose is assessing the impact of climate risk on certain portfolios and assessing the materiality of ESG risks within the ICAAP framework. Further observed use cases include:

- providing inputs for developing heatmaps;
- providing a starting point for internal assessment;
- defining risk cost overlays for risks not incorporated directly in an internal model;
- adjusting the PD calibration;
- improving risk management practices including through informing due diligence process, supporting development of credit strategy and setting risk appetite and targets;
- providing initial guidance and best practice for institutions' own internal stress testing.

**BOX 2: OBSERVED PRACTICES: CLIMATE STRESS TEST AND SCENARIO ANALYSIS FOR CALCULATION OF 'SHADOW' PROBABILITY OF DEFAULT**

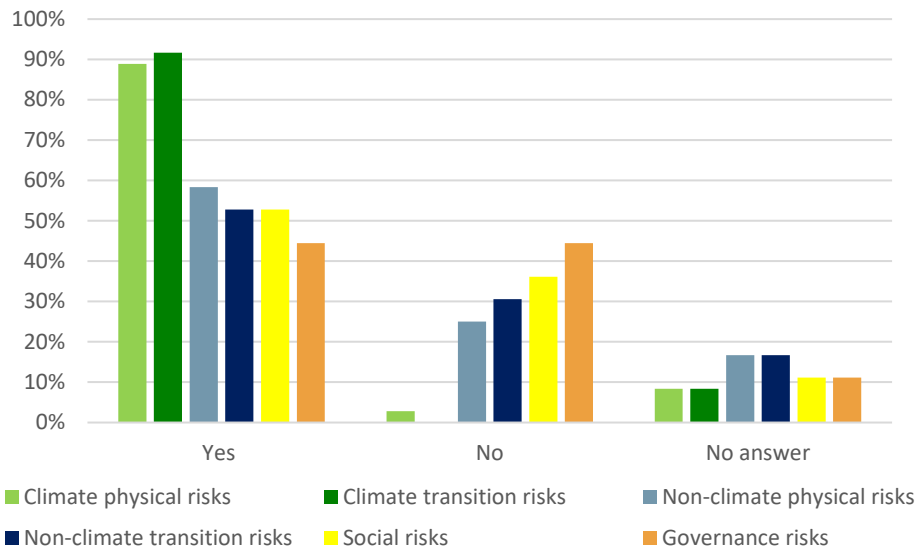
One institution conducts internal stress tests on climate risks leveraging the methodology used for the regulatory ECB climate stress-testing exercise to nurture its risk identification and qualification process. In that regard, the institution uses both transition and physical risk scenarios.

- For assessing **transition risks** for non-retail exposures, the institution makes use of a 3-year disorderly transition scenario following a two-step modelling approach. First, it uses sector-level equilibrium models to assess how climate transition policies affect production and costs at the sector level. In a second step, these sector impacts are applied to individual companies' balance sheets, resulting in stressed financial statements that reflect both direct effects, like carbon taxes and indirect macroeconomic impacts. Finally, the institution uses its corporate rating model to convert these stressed balance sheets into 1-year PD projections, i.e. 'shadow' PDs, integrating its internal rating logic. The shadow PDs are used for risk management purposes only and not for regulatory capital computation. The results are compared with an orderly transition scenario, and then with a baseline scenario that assumes no climate stress.
- For assessing **physical risk**, the institution stressed its retail collateral portfolio with an acute physical risk stress scenario relating to flood risk. The scenario is based on internal risk research and NGFS scenarios. More specifically, the institution computes the additional non-performing loan amounts arising from physical risk compared to non-flood scenarios, typically over a 1-year period.

Results obtained from those stress tests are used by the institution within its ICAAP to compute a deduction item for its internal capital calculation in the economic perspective to account for climate risks. Looking ahead, the institution also reports it is developing forward-looking indicators, leveraging the outcome of the above-mentioned stress-testing exercises. The institution reportedly investigates to what extent the approach could be extended to social and governance risks, otherwise relying on expert judgement for potential downgrading of individual clients.

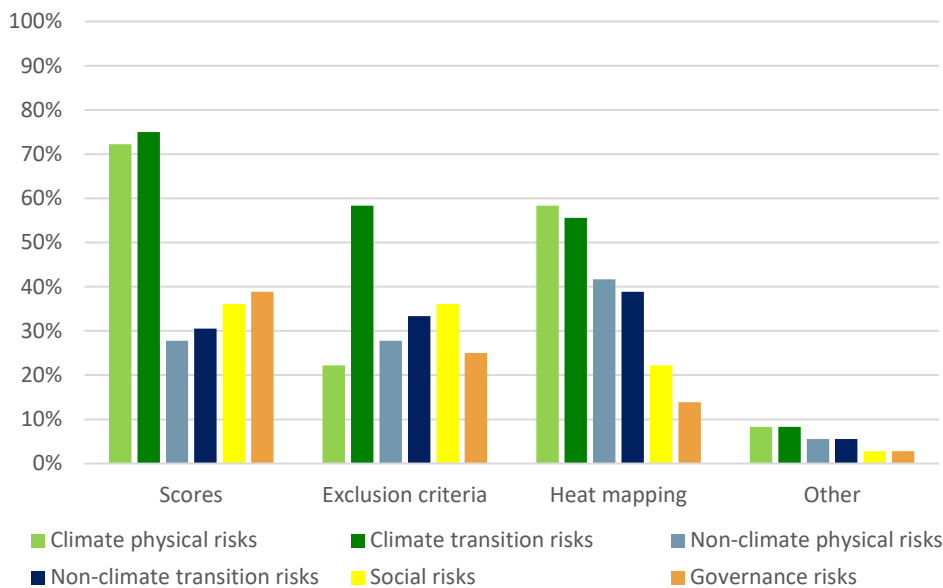
### 2.1.3 Qualification of exposures to ESG risks

Figure 6: Institutions qualifying NFC exposures subject to ESG risks



58. Most institutions have a methodology for qualifying NFC exposures to ESG risks, at least for the climate risks (approximately 90%). For other environmental risks, social risk and governance risk, on average, half of the institutions qualify their NFC exposures subject to ESG risks.

Figure 7: Methodology used to define buckets / pools / levels of NFC exposures to ESG risks<sup>25</sup>



59. Qualification translates into ESG risk buckets, pools or levels<sup>26</sup>. The classification then predominantly occurs based on scores, exclusion criteria and heatmapping, while those methodologies are not mutually exclusive, and institutions might use more than one of those for qualifying exposures to ESG risks. Other practices have been reported only in rare instances. To qualify exposures subject to

<sup>25</sup> Please note that institutions were able to provide multiple responses as per survey questionnaire.

<sup>26</sup> These terms are used as synonyms in the survey questionnaire as means of not constraining replies on qualification methodologies.

climate-related transition risk, institutions seem to evenly use all investigated instruments. To qualify exposures to physical risk, scoring systems and heatmap approaches are the most commonly used instruments by the survey participants. Also social risk and governance risk scores seem to have the highest relevance within institutions' classification process. In addition, for social risk, many institutions also rely on exclusion criteria.

**BOX 3: OBSERVED PRACTICES: RELIANCE ON SCORING METHODOLOGIES FOR EXPOSURE QUALIFICATION****Example of transition risk assessment:**

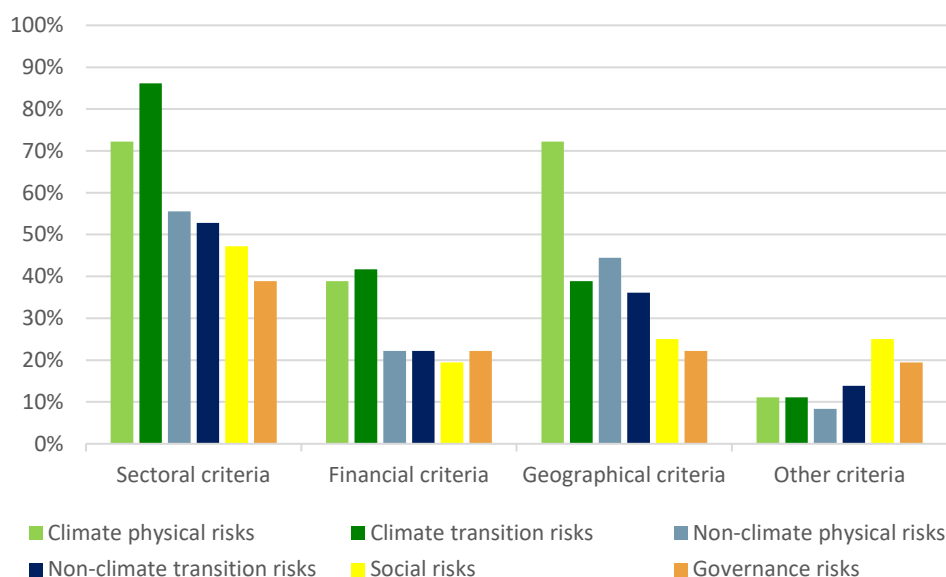
One institution uses an 'Internal Transition Risk Scorecard' which assesses clients' carbon intensity, ambition of decarbonisation targets, sustainability-related governance arrangements and technology/production mixes relative to peers in the same industry sector. This scorecard is informed, among others, by quantitative approaches, i.e. modelling financed GHG emissions as well as translation of net-zero alignment pathways into sector-specific emissions metrics, with risk appetite, targets and limits set for the most carbon-intensive sectors.

**Example of physical risk assessment:**

One institution uses an approach based on the following steps:

- In the first step, selected locations corresponding to assets in scope are identified. For physical collaterals, the address of the real estate is used to identify the location that is relevant to the physical risk assessment. For NFCs lacking more representative data (address of the main operating facilities), the registration or headquarters address of counterparties is used as a proxy for the location at which hazard sensitivity is assessed.
- In the second step, the physical risk sensitivity of each location is defined by a hazard-specific 'synthetic physical risk indicator'. This indicator is allocated on a scale of 1 to 4, with 4 representing the highest risk.
- In the next step, the results are adjusted by applying a vulnerability matrix, a tool developed by an external provider that reflects the vulnerability of different economic activities or assets to the same weather and climate conditions.
- In the final step of the assessment, the resilience of each region or country (or lack thereof) is considered.

Figure 8: Criteria used for classification of NFC exposures<sup>27</sup>



60. The criteria that the institutions are using within their classification process can be separated into sectoral, geographical and financial criteria. Geographical and sectoral criteria play a major role for the classification of physical risk (both climate and environmental risks). For the other dimensions of ESG risks (transition risk, social risk and governance risk), institutions use sectoral criteria predominantly. Financial criteria are mentioned less often in the responses to the survey.
61. While ESG scores or heatmaps help identify and provide insight on the level of ESG risks, they do not assess how the ESG factors drive credit risk of the counterparties. Although measuring the effect of ESG risks on credit risk is not included in the scope of the survey, some institutions stated they first made attempts to integrate climate and environmental risks into their PD models and their credit ratings. Other institutions currently do not make any direct link between the ESG score and the credit rating or PD of the client. In those cases, the ESG scores are used to support engagement with counterparties.
62. Among institutions that are more advanced in adjusting their PD models, one stated that its modelling team currently assesses the impact of 50 environmental attributes on the credit rating. Another institution is in the process of developing a corporate shadow PD model. This model will allow the institution to define a level of impact that climate and other environmental risks have on their clients' creditworthiness by comparing clients' credit ratings with and without climate and environmental risk considerations. Regarding more specific environmental risks other than climate, another institution reported using a biodiversity impact indicator to feed its materiality assessment. The indicator is determined based on sector-specific contributions by country to water pollution, air pollution and land use, which are retrieved from the GID<sup>28</sup>.

<sup>27</sup> Please note that institutions were able to provide multiple responses as per survey questionnaire.

<sup>28</sup> The GID biodiversity model is a quantitative biodiversity impact database which aims to support organisations in understanding, reporting and acting on the impact of their portfolios. It specialises in integrating insights from a variety

63. The approaches used by institutions for social and governance risks seem to be more qualitative in nature. Some institutions use solutions based on the screening of ‘bad news’ or reputational issues related to the single customer, either by doing their own media screening or by relying on external databases like RepRisk and ISS ESG. Other approaches include reviewing the application of certain sector policies and principles in the loan origination process, e.g. EP, human right commitments and core labour standards of the ILO.

**BOX 4: OBSERVED PRACTICES: QUALIFYING EXPOSURES TO CLIMATE-RELATED RISKS WITH AN INTERNAL PD TOOL**

One institution describes the use of an internal PD tool for NFCs to account for ESG risk and quantify the climate risk impact. Focusing on leveraged loans and the investment portfolio, the institution’s PD tool enables adjustments to account for ESG considerations via the application of ESG warning signals.

To account for climate risks, key financial metrics used in the credit risk model are adjusted to reflect the impact that climate risks may have on a company’s financials. The institution assumes that gross value added shocks, as described in the 2022 ECB climate risk stress test, impact the net income of the associated corporates proportionally. This leads to a recalculation of the PD to derive a climate-adjusted PD and associated credit rating.

64. Differences between the single dimensions of ESG risks can be observed in the internal processes in which institutions use their ESG risk qualification methodology. The most frequently described use cases concern climate risk, mainly for risk monitoring, risk assessment – also in the context of materiality assessment, predominantly focusing on credit risk – and the loan origination process. Around one quarter of the institutions have also started to integrate the qualification of exposures to climate risks into their considerations on regulatory capital (via their ICAAP). As of now, the share of institutions that integrate other environmental risks, social risk and governance risk into the internal processes remains much lower.

**BOX 5: OBSERVED PRACTICES: INTERNAL ASSESSMENT TOOL FOR TRANSITION RISK TO NFC EXPOSURES**

One institution described using a specific tool for internal assessments of large corporates, including internal questionnaires, considering a range of factors such as transition plans, and ensuring that these are consistent with net-zero targets. A mandatory questionnaire is required for several large clients for each credit decision, with managers obligated to comply. There is a sample control to check the quality of the information provided. Penalties in scoring are applied when data are missing or not included in the questionnaire.

The evaluation encompasses both the current climate impact, including an overall assessment of how the corporate manages risks and potential future impacts. This current and forward-looking information is then placed on a metrics system to derive a final position, with the weighting adjusted between the current situation and projections for the future. For current situations,

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of data sources, geographic and sector granularity, including emerging economies and the agricultural sector. For more information, see GID website ([link](#)).

GHG emissions are deemed highly relevant, while assessing future situations, rating, targets, transition plans (like net-zero consistency) and capital expenditure are underscored as crucial.

Although back testing is challenging, the institution aims to frame the process as quantitatively as possible to support credit decisions and provide an overall evaluation of its clients. This scoring can be the basis for recommending specific actions, or it may trigger overrides of the PD, especially in strongly positive or negative situations.

#### 2.1.4 Conclusions on NFCs

65. The following common patterns are observed in institutions' practices for identifying and qualifying NFC exposures to ESG risks:

- Materiality assessment, as further described in Section 3.2., is a crucial process to identify and qualify exposures to ESG risks. Institutions use a combination of qualitative and quantitative methodologies to assess the materiality of ESG risks for different risk factors and levels of granularity. Climate risks are widely addressed as part of credit risk assessment, with a broad variety of qualitative and quantitative methods, including ESG scores, macroeconomic and sector-specific factors, projection, scenario analysis and expert judgement. Nevertheless, even for climate risk, only a few institutions started integrating them into their internal capital considerations, including PD models.
- Institutions that have already participated in a supervisory stress testing or scenario - analysis exercise for climate-related financial risks tend to use the underlying methodologies and assumptions to feed into their internal frameworks.
- There is a strong reliance on ESG scores for identifying and qualifying environmental risks. Also, the survey confirms that institutions rely on information from sustainability disclosure reporting frameworks (such as CSRD, ISSB, TCFD, CDP), while other sources of data frequently include information collected bilaterally from counterparties, public databases, and, to a lesser extent, scientific literature.
- Most institutions have a methodology to identify and qualify climate-related physical and transition risks. A variety of tools, stand-alone or in combination, are used for this purpose, including scores, exclusion criteria, heatmaps and expert judgement.
- Regarding social and governance risks, which concentrate on the most significant data availability and standardisation challenges, only qualitative approaches are observed at this stage, both for identification and qualification, with significant reliance on expert judgement.

66. Overall, the tools and methodologies available for NFC exposures to identify and qualify related ESG risks seem the most advanced across the institutions. This seems to reflect the higher maturity of the data landscape, for instance, under the NFRD some NFCs already reported sustainability information on a voluntary basis, as well as the perceived relevance of these portfolios from the perspective of ESG risks.



67. Nevertheless, ESG data quality and granularity remain among the main concerns for institutions. As institutions largely rely on external data providers for both raw and processed data, such as ESG scores, ratings, or indicators, corresponding challenges include the lack of comparability, standardisation, and transparency of data sources and methodologies. Improvements to mitigate these challenges related to data gaps, sources and methodologies are expected with the implementation of sustainability reporting frameworks, such as the CSRD<sup>29</sup>.
68. Methodological challenges mentioned include determining in historical credit risk reference data ESG factors as drivers of creditworthiness, and default and loss rates. This is due to insufficiently comparable data to effectively identify defaults and losses due to ESG-related historical events or trends. Institutions face difficulties in quantifying and disentangling direct and indirect effects, specifically the financial impact. Some institutions also emphasise the risk of double counting risk factors, e.g. governance, already included in existing risk management models.
69. The solutions proposed by institutions to overcome some of the challenges include fostering more convergence in applicable standards and regulations, targeted awareness campaigns towards clients regarding the importance of ESG data, and the creation of centralised data access points for financial market participants. In this regard, one institution highlighted that the European Single Access Point (ESAP)<sup>30</sup> providing access to public financial and sustainability-related information about EU companies and investment products will facilitate access to sustainability data for institutions. On the methodological aspects, some institutions suggest gradual integration of quantitative information into internal risk classification systems. Shifting towards more robust PD estimation and forward-looking assessments should be possible over time, while in the short term, qualitative methodologies may remain in use, possibly complemented by shadow PD models.

## 2.2 Non-retail SMEs

70. This chapter presents key observations related to non-retail SMEs<sup>31</sup>, while Chapter 2.3 will further dive into retail SME exposures.
71. Overall, observations pertaining to the identification and qualification of exposures to ESG risks for non-retail SMEs resemble those presented for NFCs. Institutions tend to apply methodologies and practices primarily designed to cover large corporates to the larger SMEs also, although with

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<sup>29</sup> The application will follow a staggered approach. The first disclosures by the largest companies are expected in 2025 for the reference year 2024. The scope of application for EU firms will be gradually extended in 2026 and 2027. As of 2029 the standards will also become applicable to non-EU firms with subsidiaries or branches in the EU if they exceed a certain revenue.

While the analysis is based on the current CSRD as adopted, it is also acknowledged that based on current political discussions, some amendments may be introduced into the CSRD in the future, which may impact the scope of data that will be available as well as the timelines.

<sup>30</sup> See Regulation (EU) 2023/2859 of 13 December 2023 establishing a European Single Access Point providing centralised access to publicly available information of relevance to financial services, capital markets and sustainability.

<sup>31</sup> The EBA did not set criteria for the distinction between non-retail and retail SMEs. Institutions replied to the survey based on their own practices and in relation to the capital requirements under Article 147(5)(a)(ii) CRR.

increased emphasis on data-related challenges, they are sometimes flagged along with less granular and less standardised reporting obligations. Due to limited differentiation in approach and practices, this section focuses on selected observed practices that reflect the observed tendency of institutions to extend the approaches designed for NFCs to non-retail SMEs also. Nevertheless, key statistics can be reviewed in Annex 1.

72. The selected example of practices provides insights on the use of physical risk scenarios linked to the ICAAP to identify non-retail SME exposures subject to ESG risks.

**BOX 6: OBSERVED PRACTICE: PHYSICAL RISK SCENARIOS LINKED TO ICAAP**

One institution reported it recently conducted a stress-testing exercise leading to the consideration of climate-related risk events in scenarios for capital adequacy.

Regarding physical risk, the institution considered physical risk data for three administrative regions in a given country which had been affected by flood events, the impact of which was considered as an idiosyncratic factor within operational risk. The scope of analysis was not limited to large corporates, but also included SMEs, for which impacts on production sites were considered, also in terms of financial results. The institution further complemented its approach by considering annual average losses related to chronic physical risk for these regions. Finally, the scope of the exercise also included real estate, relying on key performance indicators (KPI) tied to the commercial value of collateral.

The institution also covered transition risks for large corporates and SMEs active in economic sectors deemed particularly climate sensitive. Using NGFS scenarios, the institution aimed to assess the impact of transition risks in terms of costs, investments and revenues. However, the institution identified no capital impact, a result it explains by referring to the long-term horizon of the scenarios.

73. Selected observed practices for qualifying non-retail SME exposures subject to ESG risks include assessing the impact on risk-weighted assets (RWA). The presented methodologies primarily focus on large corporates, but are also extended to non-retail SMEs.

**BOX 7: OBSERVED PRACTICE: CONSIDERATION OF CLIMATE-RELATED RISK IN MATERIALITY ASSESSMENT AND RWA CALCULATION**

One institution carries out a materiality analysis for climate risk as a subcategory of credit risk. In that context, the institution relies on adverse assumption to determine the impact on RWA. The approach primarily targets large corporates, but the institution also states it extends the approach to other exposure classes, including smaller corporates.

The institution defines the scope of its analysis by including all exposures of counterparties classified as 'high risk' on a scale of 1 to 4, based on counterparty-level scores sourced from external providers and aiming to cover both transition and physical risks. After that, the

institution calculates its RWA relying on adverse assumptions in climate stress-test scenarios. The institution considers the previously determined climate risk levels in their stressed RWA.

For exposures under the IRB approach, the institution proceeds to adjust RWA based on the outcome of that stress. For corporate exposures, the institution reports it adjusts the corresponding RWA based on the PD resulting from the IFRS9 framework. According to the institution, this approach enables the comparison of climate risk adjusted and non-adjusted PDs. For retail counterparties, a downgrade is applied by assuming one notch down in the creditworthiness grading.

For exposures under SA, the institution considers the average increase in RWA as previously determined for exposures under the IRB approach and applies that average to the part of the portfolio under SA. On that basis, the institution then also proceeds to compare the new RWA estimate with the non-adjusted one.

## 2.3 Retail SMEs

### 2.3.1 Availability and accessibility of ESG data

#### a. Data sources

74. For exposures to retail SMEs, institutions face several challenges in obtaining, processing, and disclosing reliable and comparable data on the environmental performance of their counterparties and exposures. At present, most retail SMEs are not legally required to disclose sustainability-related data, as under the CSRD, applying ESRS is voluntary for them.

75. The most common data sources used by institutions are external data providers, public registers and the counterparties themselves. Among external data sources institutions named welfare indices, heatmaps and databases allowing estimation of the probability of natural hazards such as droughts, wildfires and hurricanes. The public registers used include national databases providing information on temperature, precipitation, forests, pollution, floods, landslides, as well as CO<sub>2</sub> emissions for vehicles and houses. Among the European tools used, there are Eurostat (providing among other data emissions for carbon footprints), disclosures in line with Regulation (EU) 2020/852 (or the Taxonomy Regulation) Technical Annex or spatial data like Copernicus database. One institution even refers to international registers such as NASA to monitor sea level change. Information retrieved from counterparties is mainly qualitative, gathered via questionnaires or, in one case, based on onsite visits. The information obtained relates to the location of the activity, the type of industry and types of activities.

#### b. Data gaps

76. Main data challenges reported by institutions include the availability of environmental data and metrics at the counterparty level, as well as the reliability and robustness of environmental scores. Institutions recall the lack of regulatory guidance on identifying exposures subject to environmental risk, as well as lack of technical expertise and costs associated with developing environmental scoring models and comprehensive internal data collection or research processes.

77. Accordingly, proxies are extensively used, in particular for emissions and energy-efficiency data, as they are deemed more cost effective and simpler to implement, especially given that centralised and organised datasets on SMEs are typically not available.

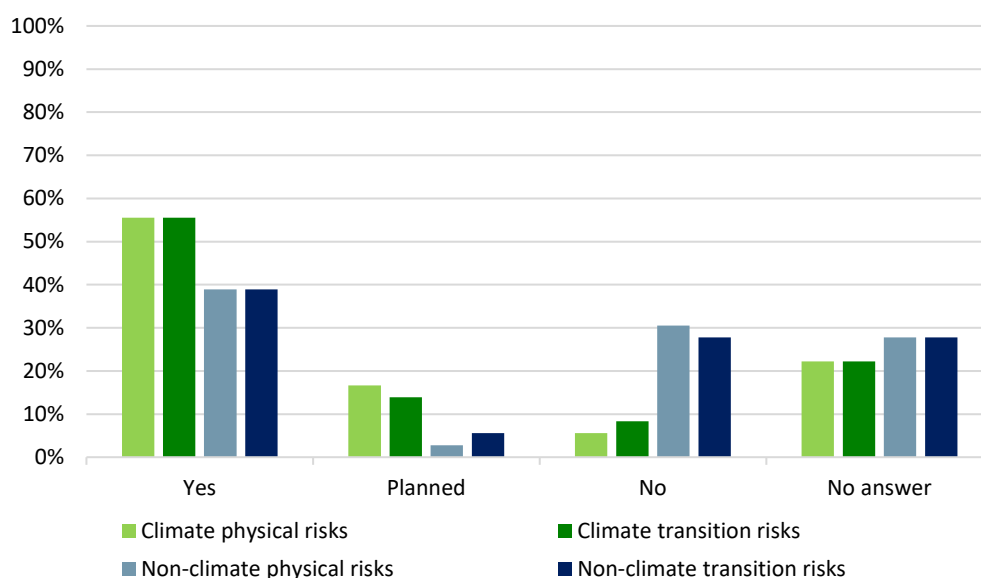
78. Institutions mention several solutions or approaches which could improve the availability and quality of data regarding the SME exposures:

- harmonised definitions, methodologies and sustainability reporting frameworks across the EU;
- standardised templates for data collection during loan origination, linked to the taxonomy criteria and to the sustainability disclosure requirements;
- digital tools and platforms to facilitate data exchange and verification between lenders, borrowers, third-party providers and regulators.

### 2.3.2 Identification of exposures to ESG risks

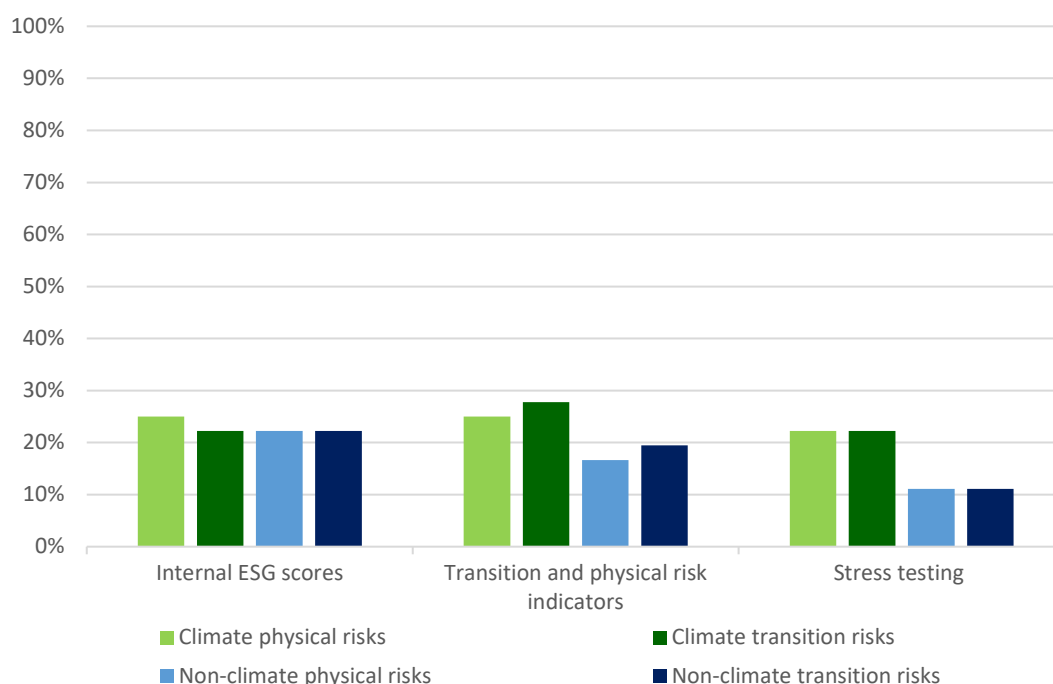
#### a. General observations

Figure 9: Institutions identifying ESG risks to retail SME exposures



79. Among the institutions that participated in the survey more than 50% declare they identify transition and physical climate risk, while around 40% declare they also identify non-climate environmental risk. The survey did not enquire about social and governance risks.

Figure 10: Elements currently used to identify environmental risks to retail SME exposures<sup>32</sup>



80. Internal ESG scores are applied almost equally to transition and physical risks for both climate and other environmental risks by around 20% of institutions. Approximately 25% of institutions utilise transition and physical risk indicators, particularly for climate-related physical and transition risks. Among the tools to identify ESG risks for retail SMEs, guidance and conclusions from supervisory stress testing and scenario analysis of climate-related financial risks are the least utilised.

#### b. ESG scores (external providers or internal)

81. There is a variety of internal scoring methodologies used by institutions to identify ESG risks. They are commonly based on:

- information such as CO<sub>2</sub> intensity metrics, emission factors, EPCs, NACE code, location, tenor of exposures, exclusions list;
- client questionnaires including criteria such as GHG emissions, energy efficiency, environmental impact, social and governance factors;
- external data sources and frameworks, such as ENCORE, Climcycle or national authorities, analysing sectors, activities and locations;

<sup>32</sup> Please take note that for internal ESG scores, 28% of the institutions did not provide any reply (neither 'Yes', 'Planned' or 'No') for climate physical and transition risks, and 31% for non-climate physical and transition risks. For transition and physical risk indicators, 28% of the institutions did not provide any reply (neither 'Yes', 'Planned' or 'No') for climate physical and transition risk, 31% for non-climate physical risk and 36% for non-climate transition risk. For stress testing, 31% of the institutions did not provide any reply (neither 'Yes', 'Planned' or 'No') for climate physical risk, 36% for climate and non-climate transition risk, 39% for non-climate physical risk.

- external providers' metrics, such as vulnerability to physical risks according to the activity and location of the client or GHG emissions intensity using the PCAF methodology.
82. Some institutions use scoring methodologies on portfolio level, leveraging portfolio-level analyses to aggregate and benchmark the ESG risks of similar exposures, and to monitor the ESG performance of the portfolio over time.
83. Just as commonly as internal scoring systems, institutions use ESG scores from external providers. In some cases, external scores appear to be used for benchmarking, adjusting or confirming internal ones.

#### BOX 8: OBSERVED PRACTICE: IDENTIFYING AND QUALIFYING PHYSICAL RISKS

**One institution identifies natural hazards** first gathering location data from external data providers and then using statistical models to estimate the probability of natural hazards such as droughts, wildfires, and hurricanes. It also gathers counterparty information from customer surveys, government protection schemes for natural catastrophes and external data providers. All this data are included in Climcycle, its ESG scoring module. This module assigns a score between 0 and 1 to each type of identified risk. The physical risks in Climcycle are differentiated into physical sector-specific risks and physical region-specific risks.

**Another institution evaluates the physical risk of its clients by considering three factors:**

- **Vulnerability measures:** how susceptible a sector is to the impacts of climate change, such as extreme weather events, water scarcity or sea level rise.
- **Hazard measures:** how exposed a location is to these physical risks, based on historical and projected data.
- **Insurance measures:** how well a sector can cope with the potential losses or damages caused by physical risks.

The client's level of physical risk score is determined as a function of vulnerability, hazard and insurance.

#### c. Information on transition and physical risk indicators

84. The most common environmental risk indicators used by institutions are geographical location data and observed natural hazards (around 75% of the institutions analysed use them), statistical models to estimate the probability of occurrence of natural hazards (around half of the institutions), insurance schemes and government protection schemes (around a quarter of the institutions interviewed).

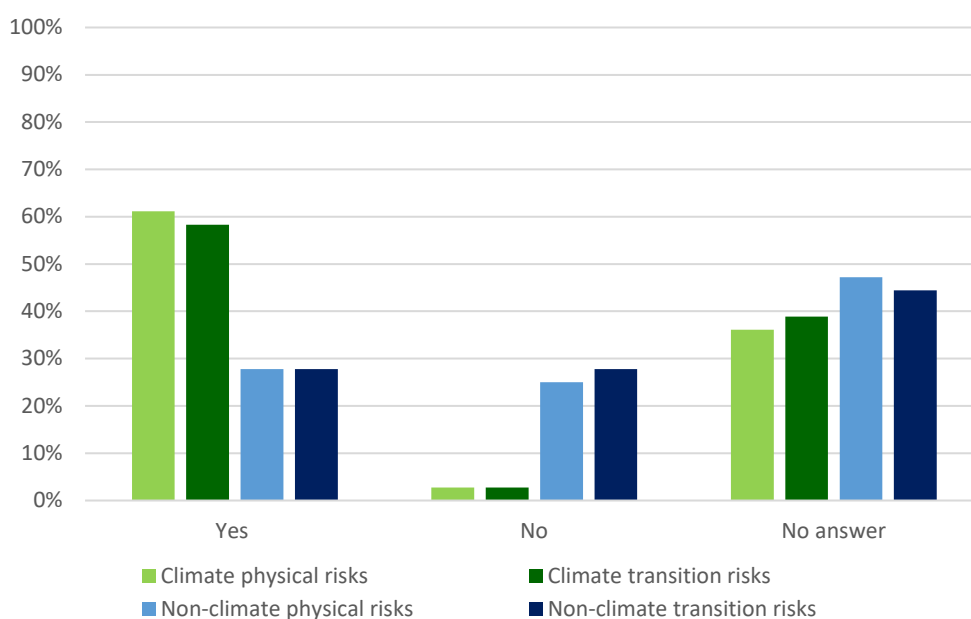
#### d. Guidance and conclusions from supervisory stress testing

85. While the supervisory stress-testing exercises are used only by a few institutions for the identification of retail SMEs subject to ESG risks, one institution has incorporated the conclusions from the 2022 ECB Climate Stress Test in their methodology, which applies to NFCs and non-retail SMEs and retail SMEs. The rationale for this choice was that the ECB Climate Stress Test provides a consistent and transparent methodology to measure the physical and transition risks associated with different climate scenarios and time horizons.

86. In addition, some institutions use the methodology provided by an external provider, which is based on the 2022 ECB Climate Stress Test, to identify ESG risk. Some institutions integrated the climate risk indicators and scenarios into their ICAAP.

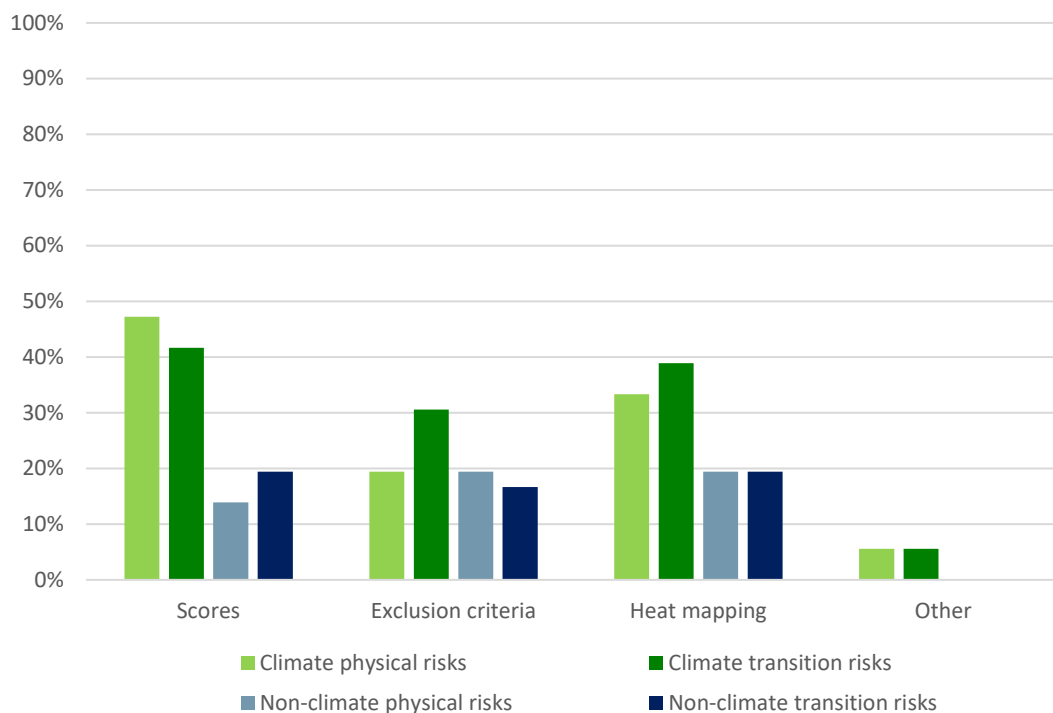
### 2.3.3 Qualification of exposures to ESG risks

Figure 11: Institutions qualifying SME retail exposures subject to ESG risks



87. Around 60% of institutions have already established methodologies to qualify SME retail exposures to climate environmental risks, while slightly less than 30% have done so for non-climate risks. This information may be biased by the fact that many institutions did not provide an answer to this question.

Figure 12: Methodology used to define buckets / pools / levels of retail SME exposures to ESG risks



88. Over 45% of institutions use scores as methodology to define buckets, pools or levels for climate-related physical risks, while around 40% rely on them for climate-related transition risk. Exclusion criteria are reportedly used by around 30% of the institutions in the survey for climate-related transition risk, around 20% for both climate-related and other physical risks. Heat mapping appears particularly used for climate risks overall and concentrates (relatively) most use cases for other environmental risks.
89. Heatmaps or materiality assessments, based on frameworks like TCFD, United Nations Environment Programme Finance Initiative (UNEP FI), SBTN or ENCORE, assess the potential impact of ESG factors on entities or transactions through risk pathways or scenarios, such as transition risks for carbon-intensive sectors or physical risks from climate hazards. Some of these methodologies provide proxies which serve as an interim solution while aiming to reduce reliance on them as ESG data improves.



**BOX 9: OBSERVED PRACTICE: METHODOLOGIES AND PRACTICES IN ASSESSING ESG RISKS FOR RETAIL SME EXPOSURES**

One institution uses a heatmapping approach for assessing climate physical and transition risks, leveraging concentration metrics included in its risk appetite framework.

For physical risks, the institution specifies the percentage of exposures affected by such risks in the country where most of its activities are located. The underlying assessment relies on an expert-based sectoral assessment to allocate one out of four risk levels to a set of physical hazards, including forest fires, river and coastal floods, droughts and heatwaves. The allocation considers geographical probabilities of occurrences of these hazards, with geographies often defined by postal codes. For SMEs in particular, the institution reports and also considers historical information by geographic location to project potential future vulnerabilities.

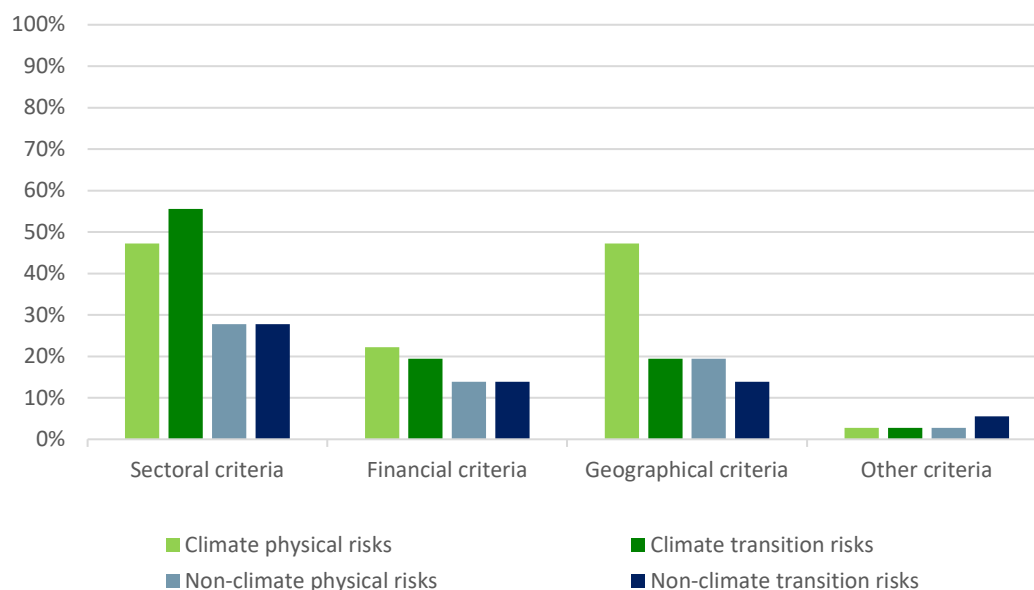
For transition risk, the institution considers the concentration of its portfolio in carbon-intensive sectors with a high impact according to NACE code allocation, excluding corporate segments that follow an environmentally sustainable purpose as per the institution's internal definition. The assessment relies largely on expert judgement. The allocation of NACE code by expert judgement involves segmentation of the value chain and the construction of heatmap. The heatmap is combined with four sectoral pathways to identify risks.

90. One example of a methodology used specifically for physical risk is geographical climate risk maps. These are linked to collateral locations and include forward-looking climate scenarios, both for acute and chronic physical risk events.
91. For transition risk, one example is a qualitative assessment of energy efficiency for real estate collaterals, assessed against the revised EU Energy Performance of Buildings Directive (EPBD)<sup>33</sup>. Another institution verifies the distribution of EPC and portfolio materiality scores, which may indicate the vulnerabilities of industries and geographies to ESG factors.
92. Other methodologies include specific KPIs for each sector, exclusion criteria for controversial activities, and internal ESG scoring based on qualitative information or expert analysis. These approaches aim to capture ESG risks not reflected by external scores or heatmaps.

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<sup>33</sup> Directive (EU) 2024/1275 of the European Parliament and of the Council of 24 April 2024 on the energy performance of buildings ([link](#)).

Figure 13: Criteria used for classification of retail SME exposures



93. Based on the results of the survey, institutions use both sectoral and geographical criteria to assess physical risk, while transition risk is assessed mostly based on sectoral criteria. Financial criteria are used to a lesser extent<sup>34</sup>.

94. For sectoral criteria, institutions use different frameworks and sources to define and score the ESG risks of sectors, such as the Global Reporting Initiative (GRI) Standards<sup>35</sup>, the TCFD recommendations<sup>36</sup>, the SASB standards<sup>37</sup> and external ESG rating providers.

95. For geographical criteria, institutions evaluate the vulnerability and resilience of different regions or countries to ESG risks, such as climate change, natural hazards, political instability, social conflicts and governance quality. Institutions use different tools and sources to map and score the ESG risks of regions, such as the Notre Dame Global Adaptation Initiative (ND-GAIN) Index, the World Institution

<sup>34</sup> It should be noted however that around half of the institutions did not reply to the question.

<sup>35</sup> The GRI Standards are a modular system comprising three series of Standards: the GRI Universal Standards, the GRI Sector Standards and the GRI Topic Standards. Each Standard begins with a detailed explanation of how to use it. The Standards contain disclosures, which aim to provide a structured means for an organisation to report information about itself and its impacts. According to the KPMG Survey of Sustainability Reporting 2022, 78% of the world's biggest companies (G250) adopted the GRI Standards. Established in 1997, the GRI defines itself as an 'independent international organisation' headquartered in Amsterdam. For more information, see GRI website ([link](#)).

<sup>36</sup> Created by the Financial Stability Board in 2015 to improve and increase reporting of climate-related financial information, the TCFD has developed a set of recommendations on climate-related financial disclosures, structured around four key thematic areas governance, strategy, risk management, and metrics and targets. Concurrent with the release of its 2023 status report on 12 October 2023, the TCFD considered its remit fulfilled and was consequently disbanded. For more information, see the TCFD website ([link](#)).

<sup>37</sup> Part of the IFRS Foundation, SASB standards refer to 77 industry-based standards aiming to provide industry-based disclosures about sustainability-related risks and opportunities that could affect the entity's cash flows, access to finance or cost of capital over the short, medium or long term. As of August 2022, the ISSB of the IFRS Foundation assumed responsibility for the SASB Standards and has committed to maintaining, enhancing and developing them. The SASB Standards provide important guidance in fulfilling the requirements of IFRS Sustainability Disclosure Standards, and the ISSB encourages their continued use. For more information, see SASB website ([link](#)).

Climate Change Knowledge Portal, the World Risk Report, the Transparency International Corruption Perceptions Index and the World Credit Institution Worldwide Governance Indicators.

96. Institutions analyse the ESG risks of their clients and exposures for financial criteria based on their financial performance and sustainability, such as their profitability, solvency, liquidity, creditworthiness and ESG integration. Institutions use different models and sources to calculate and score the ESG risks of clients and exposures, such as their internal ESG scoring methodologies, external credit rating agencies, external ESG rating providers, and ESG reporting and disclosure practices.
97. Almost all institutions use the described methodologies and criteria for risk assessment and risk monitoring.

#### **2.3.4 Conclusions on retail SMEs**

98. The collection of reliable and comparable data remains the biggest challenge for assessing ESG risks of retail SME exposures. By the perception of the institutions, this is mainly driven by the lack of disclosure requirements to certain counterparties (notably non-listed SME), lack of awareness in smaller companies, resulting in a lack of cooperation from stakeholders, and costs for them in gathering relevant ESG data. In particular for environmental data and metrics at the counterparty level, institutions often struggle to obtain comprehensive and accurate data from their retail counterparties and generally need to gather it from various sources, including external data providers, ad hoc or bilateral collection directly from counterparties and public registers. This fragmented approach raises comparability issues.
99. Similarly, as for other exposure classes, understanding the indirect effects of ESG risks on value chains and the overall economic impact still poses a significant challenge. This is especially crucial for physical risks, as direct impacts are primarily confined to collaterals with potentially limited effect on the businesses themselves. In contrast, indirect effects mainly influence companies' operations, highlighting the need to consider various transmission channels in ESG risk assessment.
100. In conclusion, while institutions face several challenges in the availability and accessibility of data for assessing ESG risks and in developing assessment tools and models, addressing these issues through improved data management, regulatory guidance and technical expertise will be crucial for further progress in the future. At this stage, methodologies to identify and qualify retail SME exposures subject to ESG risks are not yet mature and are mainly based on models already developed for NFCs and non-retail SMEs.
101. However, the development of methodologies to assess ESG risks are expected to improve in the future as more data becomes available and awareness in this segment of the industry increases. Some of the key areas of potential improvement proposed by the institutions are:
  - creating sector-specific tools: institutions are developing tools that can capture ESG data from SME clients in different sectors;

- improving access and quality of ESG scores: institutions are working with nominated ECAI to make ESG scores more affordable and reliable for SMEs;
- receiving more regulatory guidance: institutions are seeking more clarity and consistency on the use of key risk indicators for ESG risk assessment, and they request greater standardisation of ESG-related regulatory guidance and reporting frameworks;
- increasing cooperation between regulators and data providers, making data digitally available and accessible at a counterparty level for retail SMEs;
- raising awareness among retail SMEs about sustainability and its impact, enhancing their ability to provide relevant data.

## 2.4 Households

### 2.4.1 Availability and accessibility of ESG data

#### a. Data sources

102. Different institutions evaluate the potential impact of climate change on households' exposure class in many ways. For that purpose, they rely on various data sources that capture different aspects of climate risk, such as external data providers that offer climate risk analytics, energy-efficiency data that indicate the carbon footprint of buildings, natural hazard data that identify the exposure to extreme weather events, geographical data that map the location of properties, government schemes that support green financing, and counterparty information that reflect the creditworthiness of borrowers.
103. An important source of information are the counterparties themselves, from which institutions gather information such as EPCs and geolocation data. Among other sources of information, institutions mentioned scientific literature, external data providers or industry partnerships, such as the PCAF information for real estate carbon emissions.
104. Institutions use several other data sources to assess physical risk. Among these, external data providers like HORA, ThinkHazard!, Copernicus and S&P are frequently utilised. Additionally, data obtained from surveys among clients and from public registers play a significant role. Government protection schemes and insurance schemes also provide data, along with loan files of clients, valuation report providers and insurance brokers.

#### **BOX 10: OBSERVED PRACTICE: PHYSICAL RISK FOR HOUSEHOLDS DATA**

One institution implemented a centralised system for collecting data for physical risk assessment, making geolocation information such as address, postal code, building year, surface area available internally to all the teams of the institution. The institution also reports being in the process of integrating specific information on the floor of apartments in buildings. Deeming that information significant for a thorough assessment of flood risk, the institution plans on

embedding it in the collateral valuation, especially for exposures secured by commercial real estate.

In addition, the institution has developed a framework in collaboration with a reinsurance company to map the risk for the collaterals. For example, an adjusted loan-to-value ratio can be considered for a collateral prone to flooding. This is used for regulatory reporting and internal reporting, as well as for KPI in the risk appetite framework, including indicators covering physical risk.

## b. Data gaps

105. Some institutions face difficulties in accessing and obtaining reliable, robust, comparable and granular data on environmental metrics at the counterparty level, such as energy consumption, emissions, EPC ratings or exposure to natural hazards. Obtaining data that covers a sufficiently long-term horizon and is granular enough to capture the dynamics and heterogeneity of climate risks remains challenging.
106. In addition, institutions that participated in the survey stated that it is challenging for them to compare and aggregate comparable data on environment-related metrics across different jurisdictions, data providers, and data sources, due to the lack of common standards and definitions. Some institutions mentioned lack of technical expertise and regulatory guidance leading to difficulties in developing and applying consistent and transparent methodologies and frameworks to assess the physical and transition risks of different sectors and regions.
107. Challenges mentioned by institutions specifically for transition risk are the following:
- Limited availability of EPCs: EPCs are not available for transactions before 2013, necessitating reliance on estimations for the loan stock. Moreover, EPCs have an expiration date that can affect their relevance. In some jurisdictions, during a sale, the buyer can exempt the seller from the obligation to submit an EPC.
  - Lack of standardised and comparable proxies.
  - Lack of clarity on how to adjust past data, taking into consideration updates in data collections methodologies.
  - Lack of centralised and public databases.
108. For physical risk the main challenges reported by institutions include:
- Availability and accessibility of environmental data and metrics at the counterparty level.
  - Comparability of environmental data at the counterparty level across jurisdictions and/or data providers. At times, institutions underline the existence and use of differing definitions of physical risk hazards depending on the underlying references or internal

taxonomy, periods and scenarios, making comparative analysis across data sources more difficult.

- Databases used by institutions can include too large areas in the same physical risk assessment, that could lead to imprecise evaluations.
- Model uncertainty in long-term scenarios and consequent limited scope of stress test and scenario analysis exercises.
- Lack of access to insurance status data and lacking information on the coverage of public and private insurance on residential and commercial buildings.

109. Finally, some institutions face difficulties in covering the costs associated with the development and implementation of environmental scoring models, as well as the acquisition and maintenance of external data sources.

#### **BOX 11: OBSERVED PRACTICE: DATA AVAILABILITY FOR COLLATERALS – COPERNICUS DATA**

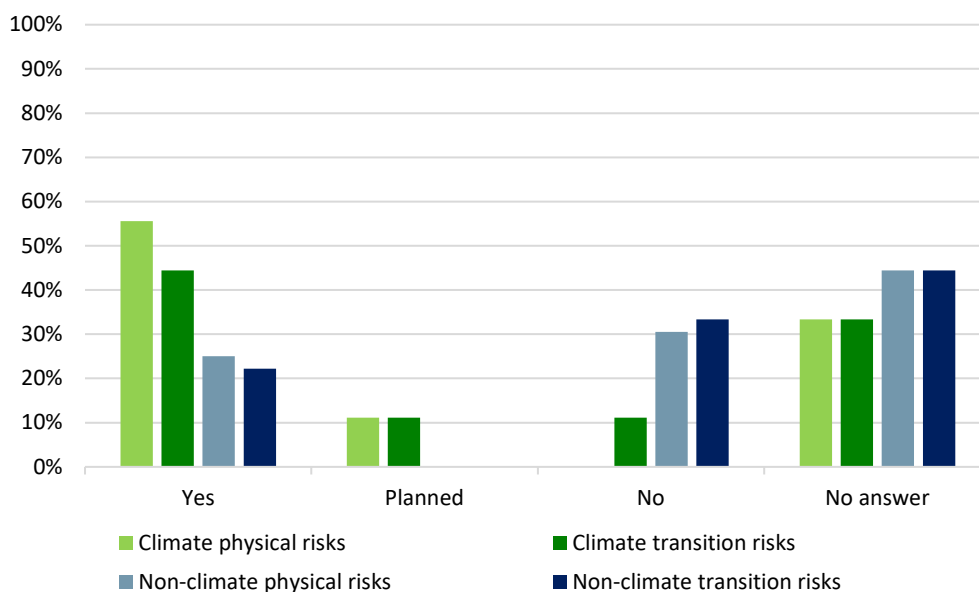
An institution attempted to use data from the Copernicus<sup>38</sup> pilot exercise for assessing collaterals exposures. Initially, the institution obtained the GPS coordinates of all collateral and then checked these coordinates against the three databases offered by Copernicus. The first database, 'Climate reanalyses', combines past observations with models to generate consistent time series for a set of climate variables. The second, 'Seasonal forecasts', combines outputs from different seasonal predictions systems in Europe. The last, 'Climate projections', gives possible projections of future climate change for different scenarios. During this process, the institution noted incomplete coverage of all risks, an issue that was partly solved by using national databases.

## **2.4.2 Identification of exposures to ESG risks**

### **a. General observations**

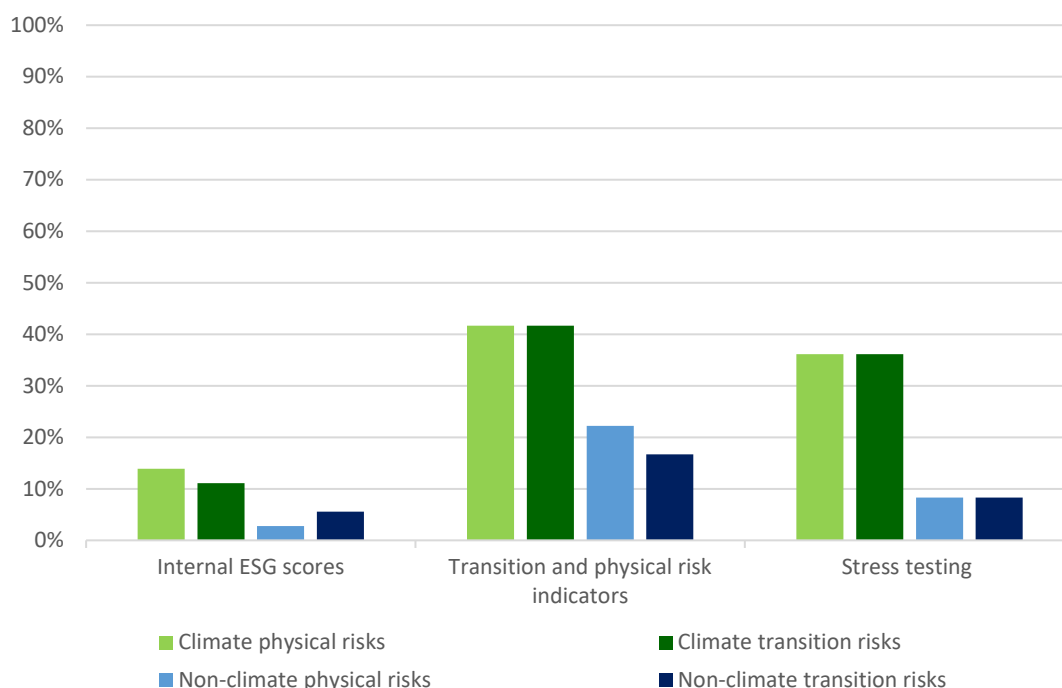
<sup>38</sup> The Copernicus Climate Change Service (C3S) is one of six thematic information services provided by the Copernicus Earth Observation Programme of the European Union. Copernicus is an operational programme building on existing research infrastructures and knowledge available in Europe and elsewhere. C3S relies on climate research carried out within the World Climate Research Programme and responds to user requirements defined by the Global Climate Observing System. C3S provides an important resource to the Global Framework for Climate Services. For more information, see Copernicus website ([link](#)).

Figure 14: Institutions identifying ESG risks to HH exposures



110. Differently from the other exposure classes, for household exposures the percentage of institutions in the survey that identify climate physical risk (55%) is higher than the share of institutions that identify climate transition risk (44%). This observation could be explained by the relevance of collaterals, in particular immovable properties for this asset class. Environmental non-climate risks, both for transition and physical risk, are identified only by around 20% of the institutions, while around 30% of the institutions in the survey stated they do not plan to extend the assessment to these dimensions of risk. It should however also be noted that almost 50% of the institutions did not respond to this question.

Figure 15: Elements currently used to identify environmental risks to HH exposures<sup>39</sup>



111. Concerning the different types of methods to identify ESG risks, only around 10% of institutions have internal scoring models, and only for climate risks. Transition and physical risk indicators are used to a larger extent, with around 40% of institutions using them for climate risks and 20% for other environmental risks. Finally, guidance and conclusions from stress-testing and scenario analysis are used by around 35% of institutions, in particular for climate risks.

112. Another observation notes that the institutions that participated in the survey focused on the exposures secured by mortgages on immovable property in their ESG risk identification process for households.

#### b. ESG scores (external providers or internal)

113. Scores to identify ESG risks are constructed using a variety of methods and metrics. Physical risk scores are often derived from external providers, and they indicate the likelihood and severity of climate-related physical risk hazards such as droughts, floods and wildfires. These scores are integrated into asset and collateral valuation models, helping to determine the potential impact of physical events on collateral values. For transition risks, scores are based on factors such as EPCs, reflecting how energy efficiency might affect the value of the property. Additionally, in some cases

<sup>39</sup> Please take note that for internal ESG scores, 33% of the institutions did not provide any reply (neither 'Yes', 'Planned' or 'No') for climate physical and transition risks, and 36% for non-climate physical and transition risks. For transition and physical risk indicators, 33% of the institutions did not provide any reply (neither 'Yes', 'Planned' or 'No') for climate physical and transition risk, 36% for non-climate physical risk and transition risk. For stress testing, 36% of the institutions did not provide any reply (neither 'Yes', 'Planned' or 'No') for climate physical risk and non-climate transition risk, 39% for climate transition risk and non-climate physical risk.



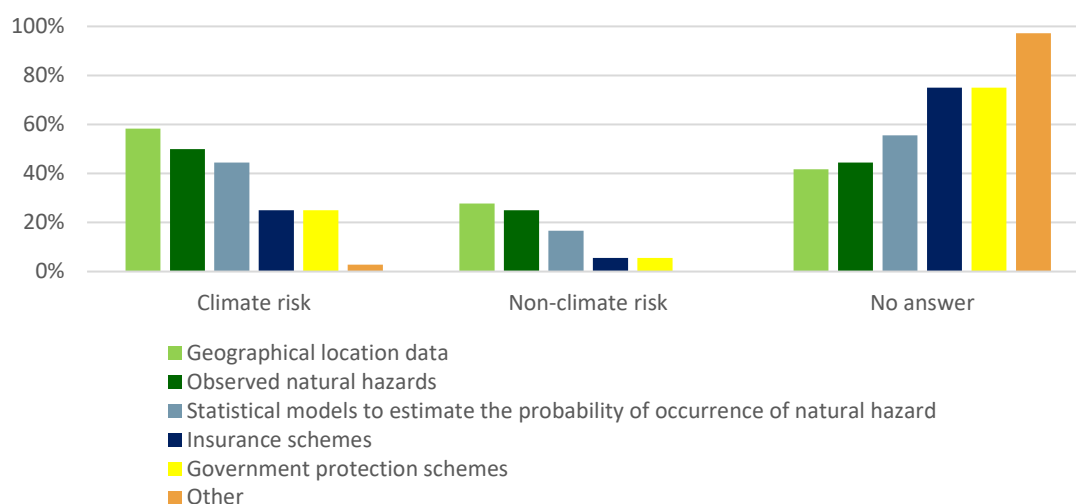
qualitative assessments are employed for other environmental risks, evaluating aspects like air quality and temperature effects on surface water.

114. Some institutions use a combination of internal and external data sources to calculate environmental scores for their exposures, such as internal loan data, external climate data, third-party environmental ratings or public databases. These data sources are used to enhance the coverage, accuracy and reliability of the environmental scores.
115. In terms of the purposes, the ESG scores are most applied in the loan origination process, in provisioning within IFRS9 for mortgage portfolios and LGD models, thereby enabling institutions to monitor exposures and make informed lending decisions.

### c. Information on transition and physical risk indicators

116. Most institutions use transition and physical risk indicators to derive environmental scores for their exposures. These indicators include the presence of physical risk on collaterals, the activity subject to transition risk and energy performance of buildings. These scores help assess the potential impact of climate change on the credit quality of borrowers and the value of collaterals.

Figure 16: Information used to identify physical risks to HH exposures



117. Geographical location data observed natural hazards and statistical models are the types of information that are most used in the identification of physical risk. Information on insurance schemes and government protection schemes is used less to the extent these schemes are available for certain portfolios<sup>40</sup>.
118. Methodologies to identify physical risk often involve a combination of qualitative and quantitative approaches. Most institutions declared they have in place methods that cross asset locations with physical risk estimations, that could both be provided by external data providers or internally modelled by the institutions. These methods include for example heatmaps or methodologies

<sup>40</sup> The results of this part of the survey may be biased by a large share of institutions not responding to these questions.

assigning different risk weights for each hazard and severity, then combined with the probability of the event.

**BOX 12: OBSERVED PRACTICES: METHODOLOGIES FOR ASSESSING PHYSICAL RISK**

Other examples of methodologies used by institutions to assess physical risk include asset-level hazard data included in asset/collateral valuation, location-based assessments based on coordinates and hazard maps from external providers. Among the data from external providers there are NASA's Sea Level Change Team data, Canadian Fire Weather Index System and MITECO's data from the Spanish Ministry of Ecological Transition. One institution employs a methodology to assess physical risk by defining a variable that determines the risk of violent physical events (ranging from 1 to 5) at the municipal level. A key component of this methodology is the utilisation of the KLIMADA 2.0 project, published by the Institute of Environmental Protection National Research Institute, to identify acute physical risks such as flooding and hurricanes with winds exceeding 30 m/s.

119. As well as for physical risk, methodologies to identify transition risk commonly also involve qualitative and quantitative approaches. Frequent methods include the use of the information on EPCs, expert estimates of energy performance ratios<sup>41</sup>, collateral valuation and statistical models estimating predicted portfolio energy labels.

120. Proxies are largely used due to the lack of very granular data. Some institutions use proxies for energy performance buckets when this information is not available. One institution is using internal models to evaluate proxies for EPCs, which in turn are at times used to classify assets.

**d. Guidance and conclusions from supervisory stress testing**

121. One of the common practices across institutions is to use the supervisory stress-testing guidance and scenarios as a reference point for assessing climate risks within their ICAAP and risk management. For example, the ECB Climate Stress Test 2022 provides a methodological framework and data sources for assessing the impact of climate change on institutions' balance sheets and profitability, under different transition and physical risk scenarios. The institutions that participated in the survey stated they use the guidance and conclusions from supervisory stress-test exercises as a starting point to incorporate climate risk elements into their own forecasting and stress-testing framework, allowing them to assess the sensitivity and robustness of the portfolio under different climate scenarios. Some institutions explained they use the guidance and conclusions from supervisory stress testing to conduct consistency checks regarding the outcome of their identification process of environmental risks in their portfolios.

122. However, it must be noted that the institutions' practices in the survey mainly focus on identifying climate risks. Only three institutions reported using the guidance and conclusions from supervisory stress testing to identify environmental risks other than climate risks for their household exposures. Two of them stated they assess biodiversity risks as part of their internal stress-testing exercises.

<sup>41</sup> For example, one institution referred to the level of energy efficiency (unit consumption of non-renewable primary energy in kWh/m<sup>2</sup> of real estate per year) for all types of real estate based on the year of construction.

123. Furthermore, institutions also reported some constraints regarding the use of guidance and conclusions from supervisory stress testing. In particular, previous supervisory stress-testing exercises tend to be perceived as too much of a one-size-fits-all and top-down approach, resulting in non-specific outcomes for their own portfolio, since it either overestimates or underestimates the institution's risk exposure and financial impact.

**BOX 13: OBSERVED PRACTICE: PILOT EXERCISE FOR THE DEVELOPMENT OF A CLIMATE-RELATED RISK MATERIALITY ASSESSMENT FRAMEWORK**

One institution reportedly carried out a pilot exercise included within its annual Risk Map. The exercise aimed to test the potential development of a climate-related risk materiality assessment framework, including an analysis of both transition and physical risk. This assessment covered different time horizons (short, medium and long term), and differentiated chronic and acute hazards.

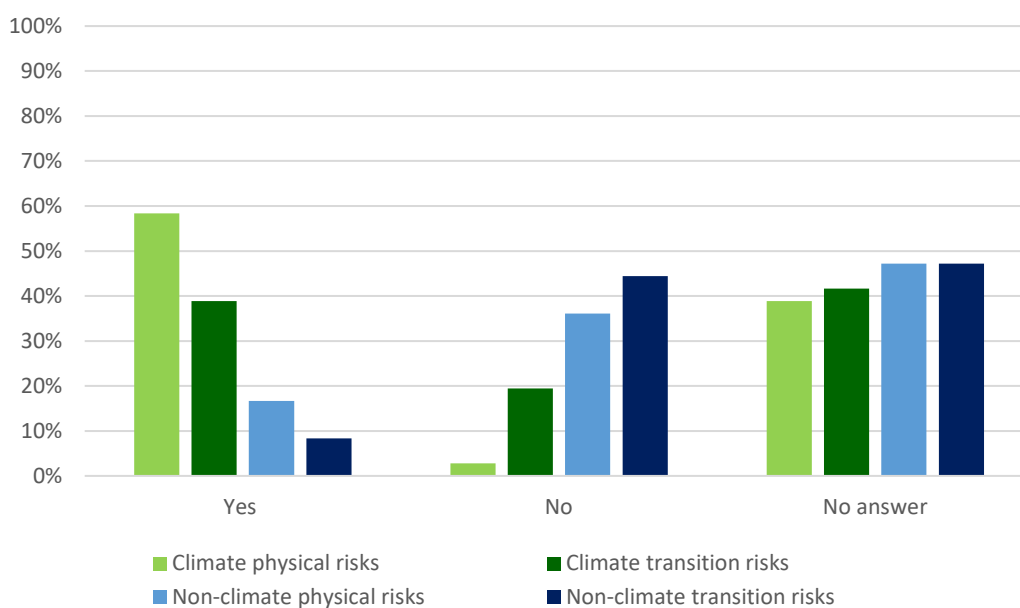
For the analysis, the institution adopted a scenario-dependent and bottom-up approach, using the granular climate risk information acquired through internal and external data sources. Climate risk elements have been included within the risk forecasting and stress-testing section of the ICAAP to provide a view of the impacts related to physical risk dynamics in the short and long term:

- **short term (2023-2027):** included specific impacts of climate risk events within the macroeconomic and financial adverse scenarios used for the group capital adequacy assessment;
- **long term (until 2050):** exercise aimed at assessing the potential impact of an 'ordinary transition scenario', as well as a 'hot house world' on the risk profile of the group.

According to the institution, the results of this exercise are used to inform its strategic and operational decisions, as well as to comply with applicable regulatory expectations.

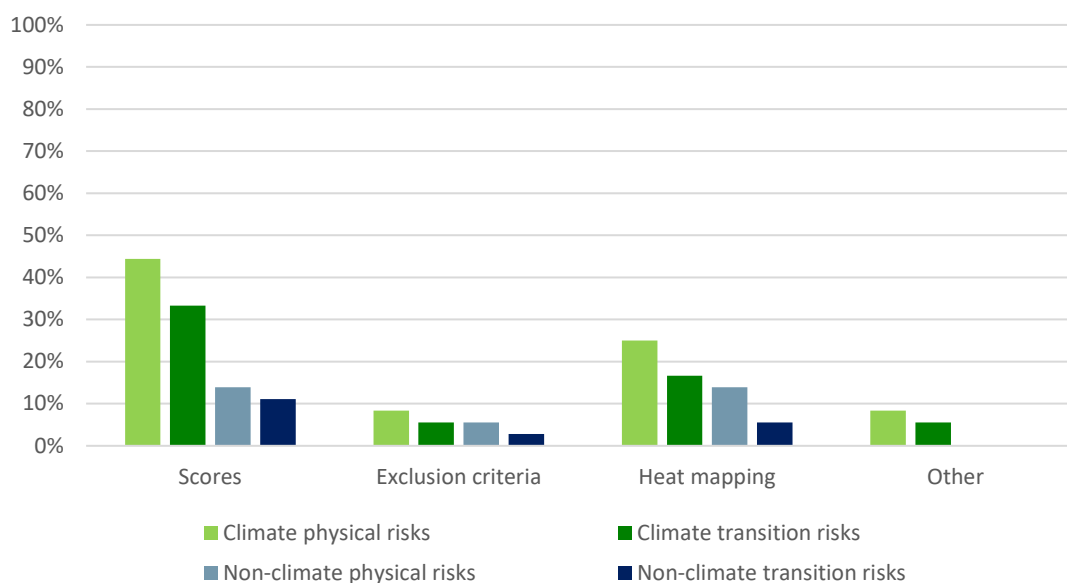
### 2.4.3 Qualification of exposures to ESG risks

Figure 17: Institutions qualifying HH exposures subject to ESG risks



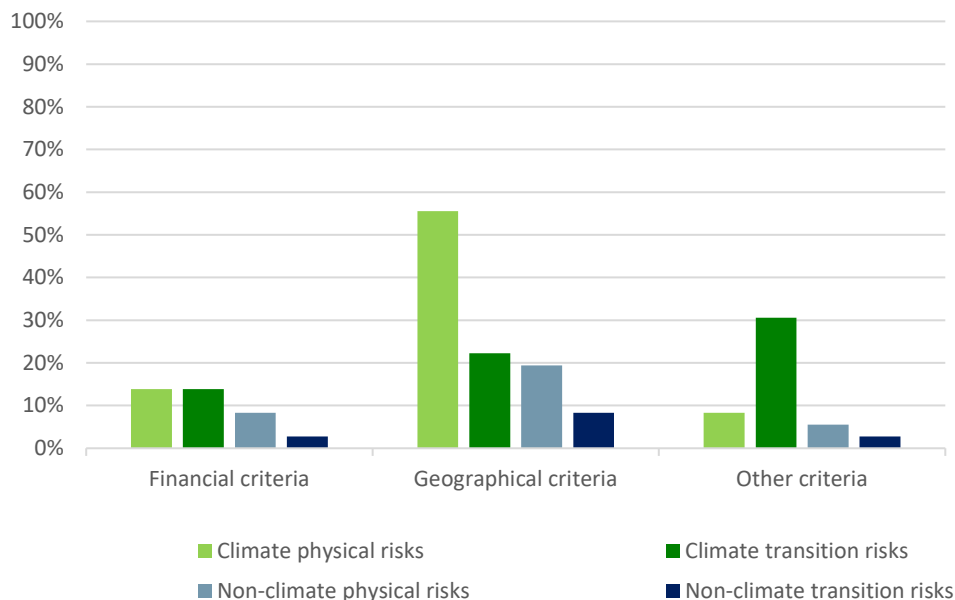
124. While most institutions (58%) declare they have a methodology to qualify climate physical risk exposures for households, fewer (39%) do that for transition risk. Only very few institutions extend their methodologies to other environmental risks.
125. Considering methodologies and criteria used for qualifying these exposures, institutions apply various methodologies and tools, including: Climcycle – a climate risk-assessment tool, FIRST – financial impact rating system, UNEP FI Methodology and Think Hazard – physical risk scoring systems. They are also using regulatory guidance, such as international guidance by the SASB and the EU Taxonomy.
126. Among the observed common practices, institutions break down residential real estate portfolios by energy-efficiency performance classes. The focus is on residential immovable properties, estimating transition risk costs and computing the overall impact on market values based on EPC classes.
127. Additionally, heatmaps play a crucial role in risk identification and qualification by indicating vulnerabilities to climate and environmental risk drivers and hazards across various locations. In some cases, more detailed maps highlight the probability of climatic events by postal code for each property under mortgage, providing localised insights into potential physical risks.

Figure 18: Methodology used to define buckets / pools / levels of HH exposures to ESG risks



128. Scores is the most used methodologies to define buckets, pools or level of environmental risks faced by the households, followed by heat mapping. In both cases these methodologies are used more often for physical than for transition risk.
129. A common approach is to rely on external data providers or public sources to assess the physical risk of immovable property collaterals based on their location and exposure to different hazards, such as floods, wildfires or landslides. When assessing transition risk many institutions use the EPC or other indicators of energy efficiency of immovable properties based on their carbon emissions and potential costs of improvement.
130. Some institutions developed more specific or sophisticated methodologies for classification of climate and environmental risk. For example, one institution uses a scoring system based on the intensity and probability of physical risk events, as well as the potential damage and repair costs for each collateral property. Another institution uses a model that estimates the transition risk cost and the impact on the market value of the collaterals by EPC classes and also monitors the physical risk scores for different hazards. A third institution uses a combination of geographical criteria and EPC classes or net renewable energy levels to classify the risk of collateral properties.

Figure 19: Criteria used for classification of households exposures



131. By far the most used criteria to quantify climate-related physical risk to households are geographical criteria, related to the location of immovable property collateral. For climate-related transition risk, 30% of institutions declared they use other criteria, such as measures of energy efficiency. More specifically, institutions reported using as criteria for physical risk the vulnerability of buildings and clients to acute physical risk events and the concentration metrics. For transition risk, institutions use EPCs and other classifications available in research.

132. Almost all institutions reported that they use environmental risk classification methodology for both risk assessment and monitoring. One institution reported the use of such methodology also for regulatory capital computation, while another institution applies it for product review and development. In some cases, the classification is used in specifying the risk appetite.

**BOX 14: OBSERVED PRACTICE: HOUSEHOLDS QUALIFICATION – ASSESSMENT OF PROBABILITIES OF DEFAULT**

One institution developed an internal methodology to assess physical risk for households. It considers floods as the most prominent risk for households, deeming a flood level of 6 metres as critical.

The risk is categorised as very high if the probability exceeds 20%, high if it falls between 10 and 20%, medium if below 10%. Using these probabilities, they assess collateral value. For high and very high risks, they assume a collateral shock of roughly 10%, which directly impacts credit risk through PD and LGD. The final value of PD incorporates an expert judgement view.

The institution plans to expand its focus on other hazards in the next years, for example wind, heat and drought. They could apply to them, adapted in a similar way, the methods now used for floods. In this case, the focus would be mainly on collaterals.

Data quality remains a challenge, both at the level of available granular data and for comparability between data providers. For example, when the institution had to change data providers, all the precedent datapoints needed to be recalibrated and shifted due to a different methodology in the data collection used by the new data provider.

#### 2.4.4 Conclusions on households

133. Within the portfolios of exposures to households, the survey results indicate that institutions generally focus their methodologies on identifying and qualifying ESG risks almost exclusively on mortgage loans, where the assessment is based on the immovable property collateral. While a variety of methodologies and approaches is observed, most institutions appear to use physical and transition risk indicators, based on the physical hazards and the energy performance of buildings. The scores based on these indicators aim to help assess the potential impact of climate risk on the credit quality of borrowers and potential losses deriving from mortgage exposures.
134. In order to address remaining issues on the availability and accessibility of ESG data, institutions use a combination of internal and external data sources, including internal loan data, external climate data, third-party environmental ratings and public databases.
135. Positive future effects are expected based on the development of national and European databases for climate risk and on raising awareness on climate risk in this segment of the markets. Such efforts should also improve the comparability of energy performance measures and reliability of ESG scoring methods.
136. In addition, the institutions have provided various suggestions for potential approaches considering the above-mentioned challenges:
- Creating or improving national databases that include aspects of physical risk, such as floods, fires, storms or droughts, as well as EPC information for immovable properties. This would facilitate the access and use of data for risk analysis and decision-making purposes.
  - Introducing more legislative measures that impose a mandatory EPC for all immovable property collaterals, regardless of the nature of the transaction financed. This would increase the coverage and validity of energy performance data and enable a more accurate assessment of transition risk. The full implementation of the EPBD is expected to prove positive developments on these aspects.
  - Developing internal models to estimate energy performance or energy consumption for the portfolio, in the absence of reliable or available data. One of the institutions participating in the survey has already implemented this solution, to overcome data limitations and monitor its portfolio.

- Providing more regulatory guidance and standardisation for ESG scoring and climate risk-assessment methodologies and practices. This would enhance the comparability and consistency of the results and reduce the uncertainty and complexity for the institutions.
- Imposing more standardised requirements on the providers of scenarios, methodologies and tools. This would reduce the burden of choosing the appropriate provider and quality assurance.



## 3. Complementary analysis

137. This chapter presents further considerations on key elements of the mandate, based on additional desk work and experience within the supervisory community beyond the results of the survey. In addition, the aspect of materiality assessment is further explored, as this is typically a starting point for the application of any methodology and may largely affect the overall results. The aspects explored in this chapter include: (i) the availability and accessibility of ESG data; (ii) the materiality assessment of ESG risks; (iii) methodological features and challenges related to ESG scores; (iv) ESG risk indicators available from sustainability disclosures; and (v) supervisory stress testing and scenario analysis.

### 3.1 Availability and accessibility of ESG data

138. As noted by the NGFS<sup>42</sup>, ‘addressing climate change and building a sustainable financial system requires a solid climate information architecture based on high-quality, reliable and comparable climate data’. An expanding universe of available, comparable and reliable ESG data could foster more convergence and possibly standardisation. On that basis, the following sections investigate further the state of play and remaining data gaps for (i) environmental risk data, including climate risks and other environmental risks; and (ii) social and governance risk data.

#### 3.1.1 Environmental risk data

139. Environmental risks, as per Article 4 CRR, include both transition risks, resulting from current or prospective impact of the transition to an environmentally sustainable economy, and physical risks, resulting from the physical effects of environmental factors. As such, environmental risk includes climate risk, and other nature-related risks such as biodiversity loss or the collapse of ecosystem service provision, in line with the environmental objectives provided in Article 9 of the EU Taxonomy Regulation<sup>43</sup>.

140. Climate risk, especially climate-related transition risk, is the dimension where data availability and accessibility are most advanced, as it has been among the first environmental risks investigated by regulators and supervisors<sup>44</sup> and which reflects in the more mature risk management practices observed in institutions of the Single Supervisory Mechanism (SSM) compared to other ESG risks<sup>45</sup>. However, the available data are mostly linked to large corporate exposures, while more data

<sup>42</sup> See NGFS (2022), *Final report on bridging data gaps* ([link](#)).

<sup>43</sup> According to Article 9 of Regulation (EU) 2020/852, the six environmental objectives are: (a) climate change mitigation; (b) climate change adaptation; (c) the sustainable use and protection of water and marine resources; (d) the transition to a circular economy; (e) pollution prevention and control; (f) the protection and restoration of biodiversity and ecosystems. This is further broadly consistent with the definitions used by the NGFS, the Task Force on Nature-related Financial Disclosures (TNFD) (see TNFD (2024), *Sector Guidance – Additional guidance for financial institutions*) or the Organisation for Economic Co-operation and Development (OECD) (see OECD (2023), *A supervisory framework for assessing nature-related financial risks, identifying and navigating biodiversity risks*) in recent publications.

<sup>44</sup> See for example NGFS (2019), *A call for action* ([link](#)).

<sup>45</sup> See for example ECB (2022), *Walking the talk. Banks gearing up to manage risks from climate change and environmental degradation* ([link](#)).

gaps exist for other exposure classes. In particular, there is limited availability of granular data for SMEs and households, especially for exposures other than those secured by immovable property collateral.

141. Data gaps commonly identified include granular geographical data such as asset location, both for transition and physical risks, and other related information, with some specificities across different exposure classes:

- For large corporate and SME exposures specific data needs include the location of assets and activities, not only of the counterparty, but also across the value chain. Especially for large corporates, this would require extensive datasets which remain limited at this stage. The existing databases may not be prepared to accommodate such comprehensive information. In addition, in order to allow the use of such data for the purposes of risk assessment, the information on the location of assets and activities would have to be accompanied by assessing materiality or criticality of certain assets and activities for the counterparty, as well as the exposure of these assets and activities to physical and transition risks, including potential mitigating factors. Despite some progress in this area, the complexity of this endeavour lead so far to the development of approaches based on significant simplifications, such as proxies, and largely focused on industry sectors.
- For exposures secured by immovable properties the remaining data gaps relate mainly to comparable energy performance measurement data, e.g. EPCs. This is the case especially for the existing stock of exposures. Indeed, the information on the energy efficiency of exposures secured by immovable property which were originated when providing this information was not yet required, and for which the energy certificate expired, may not be available to institutions. For the new exposures, comparability issues are related to the lack of harmonisation in the way the EPCs are defined and implemented across jurisdictions, as well as to the multitude of possible measures<sup>46</sup> for energy efficiency.
- The rising concerns about the current and potential future climate insurance gaps increase the need for institutions to gather granular insurance-related data. The necessary information would need to include not only the existence, or not, of the insurance policy, but also the scope of coverage for physical risk events. This proves to be challenging at this stage due to the complexity and variety of insurance conditions. Furthermore, in the context of forward-looking assessment, information would be needed on the prospective expected insurance conditions, including availability and

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<sup>46</sup> For example, the Energy Performance of Buildings Directive (EU/2024/1275) provides that the energy performance of a building means the calculated or metered amount of energy needed to meet the energy demand associated with a typical use of the building, which includes energy used for heating, cooling, ventilation, domestic hot water and lighting. More specifically, Annex II of the Directive exemplifies the variety of relevant energy performance indicators, including for example the Primary and final annual energy consumption (ktoe), the Average primary energy use in kWh/(m<sup>2</sup>.y) for residential buildings, the Share of renewable energy in the building sector (MW installed or GWh generated) or Annual operational GHG emissions (kgCO<sub>2</sub>eq/(m<sup>2</sup>.y)). Standardisation of energy performance criteria under the EPBD is expected to mitigate these challenges once the Directive enters into force.

pricing. Finally, information about the current and planned adaptation measures would be relevant for assessing physical risk.

142. Also more specifically for climate-related transition risk, numerous initiatives (e.g. analytical tools and methodologies to measure and report GHG emissions) have improved the landscape. As highlighted by the NGFS<sup>47</sup>, the most relevant data gaps are now forward-looking transition risk data, such as targets, commitments, emissions pathways and projections, which can involve modelled data or estimates.
143. For environmental risks other than climate, data gaps are more significant. Taskforce on Nature-related Financial Disclosures (TNFD) underlines the challenges tied to exposures to sensitive location, entailing where their business model or value chain may have an impact or dependency, and the European Commission flags the significance of data gaps due to the complexity of the relationship between nature and socio-economic systems<sup>48</sup>. While the challenges related to data on geographical location of assets and activities as described above are also valid in the context of other environmental risks beyond climate, the complexity is increased further by the lack of common metrics and high relevance of local specificities. In this context, it appears that data gaps consist not only of the lack of specific counterparty-level information, but also in the uncertainty about what type of information would be most relevant to collect.
144. In the EU, an important improvement factor of the ESG data landscape is the implementation of sustainability reporting frameworks such as CSRD, and related ESRS or other sectoral legislations with positive impact on the ESG data landscape such as the EPBD. These, together with the ESAP, are expected to improve data availability and accessibility for all ESG risk dimensions. Moreover, the use of publicly available data, e.g. the Disaster Risk Management Knowledge Centre (DRMKC) Risk Data Hub<sup>49</sup> developed by the European Commission's Joint Research Centre, can be highly useful to enhance methodological transparency and comparability of risk assessments across jurisdictions. Encouraging development is also expected from the non-listed sector-specific SME voluntary standard, where appropriate incentives for non-listed SMEs to disclose information given the voluntary nature of the standards appear important. Considering their significance for the future data landscape, prospective implications of ESRS will be analysed more specifically in the subsequent sections.

### 3.1.2 Social and governance risk data

145. In accordance with Article 4 CRR, social and governance risks means the risk of negative financial impact stemming from the current or prospective impact of social or governance factors on counterparties or invested assets. On that basis, drivers of social risks could be related to various elements, such as human and labour rights, well-being and interests of people and communities. Risks related to governance practices may be linked for instance to illegal activities such as bribery

<sup>47</sup> See NGFS (2022), *Final report on bridging data gaps* ([link](#)).

<sup>48</sup> See COM (2024), *Study for a methodological framework and assessment of potential financial risks associated with biodiversity loss and ecosystem degradation*. The study proposes a framework to support financial institutions in measuring and quantifying these challenges and risks, drawing on existing major references such as the NGFS, OECD and TNFD approaches, which could help addressing data gaps over time.

<sup>49</sup> See European Commission Joint Research Centre, *DRMKC Risk Data Hub* ([link](#)).

and corruption, and to corporate culture. Both social and governance risks can be fuelled by lacking or inadequate due diligence policies, and in some cases may lead to litigation processes.

146. In terms of related data, social and governance risks are the dimensions where most scarcity is observed, and the practices remain nascent<sup>50</sup>. In general, data on social and governance risks are obtained mainly through references to standards, frameworks or questionnaires. For scoring purposes, institutions rely on the support of external data providers, while tools used to assess risks stemming from social and governance factors are based on qualitative evaluations. Specifically, the information on social risks still appears largely unstandardised, lacking common agreed definitions or metrics. Assessing governance risk on the other hand has traditionally been incorporated within the credit risk assessments, however this is usually done in a qualitative manner without standardised data.
147. Significant improvement of the data landscape can be expected in the EU with the implementation of CSRD and transposition among Member States. In addition, the Corporate Sustainability Due Diligence Directive (CSDDD) also addresses social and governance aspects by requiring companies to take concrete steps to improve their environmental and social impacts along the value chain, affecting their upstream and downstream business partners. As a result, companies subject both to CSDDD and CSRD may benefit from integrating their due diligence findings into their sustainability reports required by the CSRD. Institutions may leverage their questionnaires to counterparties based on the advancing work in reporting disclosure frameworks especially to capture information on counterparties that are not obliged to disclose information.

## 3.2 Materiality assessment

### 3.2.1 Environmental risks

148. Materiality assessment is not only relevant for risk classification and qualification within the Pillar 1 framework, but also plays an essential role for other institutions' processes<sup>51</sup>. For instance, institutions need to assess the materiality of exposures subject to ESG risks to be able to effectively address them within their risk management framework, to integrate them into their calculations of internal capital as part of ICAAP, to draw conclusions on their business strategy and to extract data on material ESG exposures for supervisory reporting and public disclosures (e.g. ESRS).
149. Evidence on the methodologies and tools institutions are using in their internal materiality assessment for ESG risks is still limited. While the industry survey did not specifically investigate materiality assessment as such, it is observed that institutions often report practices and methodologies that are embedded in or feed their materiality assessment. The analysis presented in this section links the evidence from regulatory or supervisory exercises e.g. ECB's thematic

<sup>50</sup> See EBA (2023), *Report on the role of environmental and social risks in the prudential framework*, pp. 29 -31 ([link](#)).

<sup>51</sup> In its *Report on management and supervision of ESG risks for credit institutions and investment firms* published in June 2021, the EBA underlined that materiality assessment is primarily an institution-specific assessment considering the specificities of the business model, operating environment and risk profile. When conducting this assessment, institutions consider transmission channels and characteristics of ESG factors and ESG risks, including the breadth and scope of their potentially far-reaching impact, and their uncertain and multiple time horizons.

review<sup>52</sup>, good practice papers by other competent authorities<sup>53</sup> to some observations obtained from the survey results.

150. Considering materiality assessment as a process, the industry survey shows that it involves both identification and qualification practices or methodologies. It seems that the initial assessment of material ESG risks in the stage of risk identification feeds into the further qualification of exposures to ESG risks. Most institutions start with the materiality assessment of climate risk and other environmental risks as part of credit risk.
151. Focusing on the materiality assessment of ESG risk as part of the credit risk, institutions apply different levels of granularity, e.g. sectoral vs counterparty or asset level, depending on the specificity of the portfolio. They apply a combination of qualitative and quantitative methodologies with most advanced approaches for climate-related transition and physical risks (see Box 15). Macroeconomic factors related to environmental risks, e.g. carbon tax, emission trading system expenses and borrower's financial figures, e.g. operating revenues/costs can also inform the materiality assessment.

#### BOX 15: TOOLS AND METHODOLOGIES FREQUENTLY USED BY INSTITUTIONS

- **Client questionnaires** on climate-related and environmental risks are widely used in the context of loan origination to come up with a qualitative score for the client.
- **ESG scorecards** tend to focus on individual clients and can be used as a tool for triggering overrides.
- **ESG heatmaps** are commonly used to assess ESG risks at sector or subsector level, and the heatmapping exercise can lead to follow-up actions.
- **Exclusion lists** and/or **internal ESG frameworks/guidelines** can build on international agreements or conventions, as well as industry standards.
- **Third party assessments** help provide sectoral benchmarks and independent external rating.
- **Internal scenario analyses** often include a baseline scenario and an adverse scenario, with different severity levels considered.
- **Expert judgement** remains widely used in assessing and managing ESG risks.

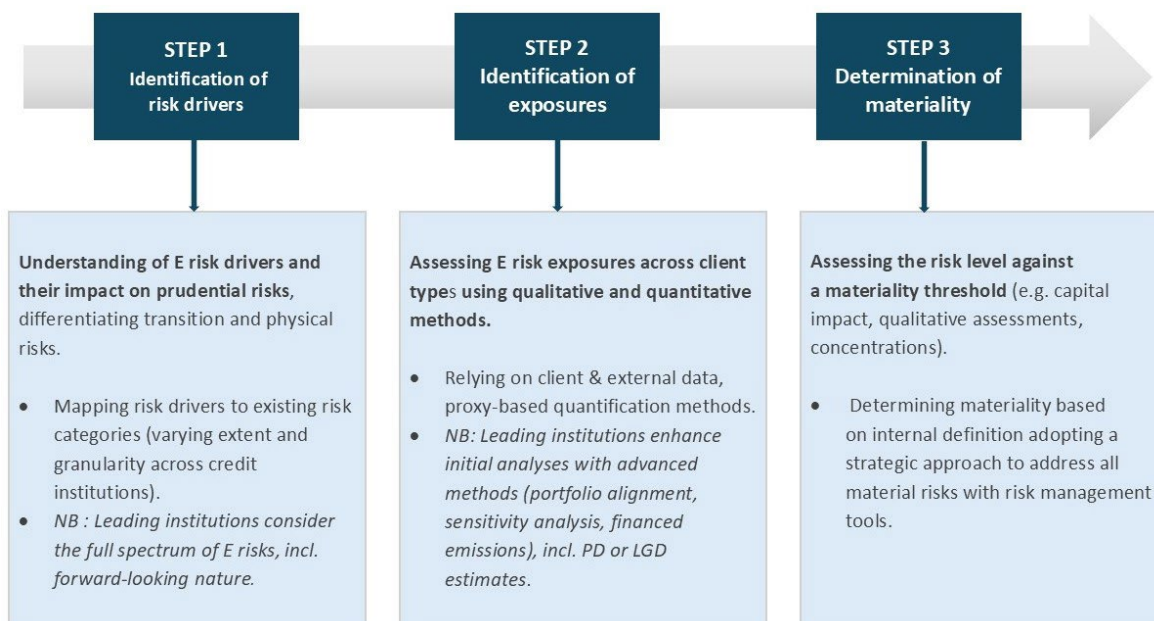
*Source: ECB 2022 Good practices for climate-related and environmental risk management*

<sup>52</sup> See ECB (2022), *Walking the talk. Banks gearing up to manage risks from climate change and environmental degradation* ([link](#)).

<sup>53</sup> See for example, DNB (2020), *Good Practice. Integration of climate-related risk considerations into banks' risk management* ([link](#)) and ACPR (2020), *Governance and management of climate-related risks by French banking institutions: some good practices* ([link](#)).

152. More specifically according to results of the 2022 ECB exercise, institutions generally conduct their materiality assessment in three consecutive steps: identification of risk drivers, identification of exposures, and determination of materiality. These steps are summarised in the figure below. The results of the materiality assessment guide the necessary follow-up actions to integrate environmental risks into the risk management framework.

Figure 20: Steps to determine materiality of environmental risk



153. The 2022 ECB thematic review suggested that institutions using quantitative approaches and forward-looking assessments are more likely to gauge the materiality of the risk. However, most institutions largely relied on qualitative approaches, although often to inform the quantitative ones<sup>54</sup>.

154. Since then, the ECB has monitored the implementation of its 2020 expectations and is observing improvements in the materiality assessments<sup>55</sup>. While most institutions are now providing a meaningful overview of material climate and other environmental risk exposures for each risk category and across different time horizons, the ECB also still observed instances where materiality assessments do not consider all relevant risk categories, that focus only on transition risks or that look only at a subset of geographical areas.

### 3.2.2 Social and governance risks

155. Compared to environmental risks, social and governance risks remain under-represented in institutions' materiality assessment. As stressed earlier, significant obstacles remain when

<sup>54</sup> Although many institutions used such initial assessments as a basis for further targeting more quantitative approaches. For credit risk, progress on quantification is most pronounced, with almost 40% of institutions deploying some form of quantification. Furthermore, the exercise identified three main 'blind spots' in the institutions' materiality assessment: insufficient consideration of risk drivers such as market forces and physical risk, narrow time horizons and incomplete coverage of main business lines and geographies.

<sup>55</sup> See Elderson, F. (2024), *You have to know your risks to manage them – banks' materiality assessments as a crucial precondition for managing climate and environmental risks*, blogpost on 'The Supervision Blog' ([link](#)).

measuring social and governance risks in a standardised manner. It is particularly challenging to rank or quantify the contribution of these factors to specific levels of credit risk. Negative outcomes may materialise via reputational or litigation risks faced by counterparties, extended to institutions through the reduced creditworthiness of their obligors. The risks could increase in a context of geopolitical tensions, where economic or trade sanctions<sup>56</sup> could be an example of transmission mechanisms.

### 3.3 ESG scores as part of credit ratings by nominated ECAIs

156. The survey results confirmed the wide use of ESG scores by institutions. While the previous chapter focused more on internal and external ESG scoring methodologies, this section delves deeper into ESG scores incorporated in the credit ratings by nominated ECAIs.
157. Credit ratings and ESG scores assess different aspects and serve different purposes. Indeed, ESG scores can serve as an input in assessing overall creditworthiness, albeit with significant divergences in time horizon, scope and methodologies. Regarding time horizon, credit ratings usually consider short-to-medium-term horizons (12 to 18 months), while ESG scores often focus on a long-term horizon (5 to 10 years or beyond). Moreover, credit ratings cover a wide range of financial and non-financial factors affecting credit risk, whereas ESG scores concentrate on specific non-financial factors like climate change, environmental impacts, human rights, corporate governance and ethics. Finally, credit ratings use a consistent methodology across sectors, while ESG scores use varied methodologies that depend on data availability and methodological assumptions.
158. The analysis presented in this section is hindered by limited transparency related to specific methodologies and results. It is however acknowledged that transparency should improve over time based on existing regulatory initiatives, both in the context of ESG scores<sup>57</sup> and ECAI credit ratings. The subsequent part of this section focuses specifically on the ECAI credit ratings.
159. Considering the link between ESG scores and ECAI credit ratings, investigation so far suggests a rather cautious stance regarding the use of ECAIs methodologies in the context of the mandate. In 2022 research<sup>58</sup>, the ECB found that disclosures did not allow definite conclusions on climate-risk-driven credit rating differentials. Furthermore, the ECB noted that transparency on definitions and assessment lacks at times the granularity to extract the assessment of a particular climate change factor, i.e. transition risk or physical risk. It was observed that ‘the magnitude of the impact of material climate change risk on credit ratings was rarely disclosed, and similarly it was not fully clear how sectoral assessments inform entity-specific climate change risk assessments’.
160. However, the practices seem to evolve. All major ECAIs tend to consider ESG, possibly relying on ESG scores, although they have no obligation to do so because the Credit Rating Agencies

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<sup>56</sup> See ECB (2024), *Financial Stability Review* ([link](#)).

<sup>57</sup> See EU Regulation on the transparency and integrity of environmental, social and governance (ESG) rating activities, adopted by the Council on 19 November 2024. The new rules aim to strengthen the reliability and comparability of ESG ratings by improving the transparency and integrity of the operations that ESG ratings providers carry out and by preventing potential conflicts of interest. For more information, see EU Council (2024), *Environmental, social and governance (ESG) ratings: Council greenlights new regulation*, press release on 19 November 2024 ([link](#)).

<sup>58</sup> See Breitenstein, M., Ciummo, S., Walch, F. (2022), *Disclosure of climate change risk in credit ratings*, ECB Occasional Paper Series ([link](#)).

Regulation<sup>59</sup> does not include corresponding obligations. New regulatory initiatives aim to ensure transparency, hence addressing some of the challenges described above. As elaborated in ESMA's consultation paper<sup>60</sup>, as of now, some gaps and inconsistencies indeed remain in the disclosure of ESG factors by ECAs, such as the lack of clarity, comparability and comprehensiveness, the lack of granularity, frequency and timeliness, the lack of alignment with the EU taxonomy, and the lack of differentiation between credit ratings and ESG scores. In the future, ECAs may be obliged to explain the materiality of the considered ESG factors, if and how they affect the outcome of credit rating. At this stage, the methodologies and scope of information considered may still differ across ECAs.

161. It must be noted that ECAs take into account ESG risks only to the extent that they affect the creditworthiness of the counterparty. To reach these conclusions they consider the ESG factors in conjunction with the financial standing of an entity. Therefore, at least in some cases, even considerable exposure to ESG risks may not lead to a significant decrease in the creditworthiness of the assessed entity. In addition, given that credit ratings should be based on objective evidence and considerations, ECAs may limit the analysis of ESG factors to those that are most likely to materialise, rather than the forward-looking considerations based on uncertain scenarios. This means that overall ESG risks may be more significant than the aspects considered by the ECAs in their credit ratings.
162. Finally, considering all ESG dimensions, ECAs seem to be more advanced in assessing governance risk than environmental and social risks. It appears that environmental risks have less impact on ratings compared to social or governance risks. This could be due to the fact that methodologies for assessing organisational and governance aspects have long been part of credit risk assessment, including ethical and decision-making arrangements, while on the other hand, the environmental aspects are still a relative novelty in credit risk assessments. Nevertheless, a granular definition of governance in the sustainability context is still lacking.

### 3.4 Information on ESG risk indicators from sustainability disclosures

163. As explained in the previous sections on data availability and accessibility, the implementation of CSRD, based on detailed ESRS, will significantly and positively impact the data landscape in the EU, for all three pillars of ESG risks and various exposure classes<sup>61</sup>.
164. The availability of detailed, comprehensive and comparable information about sustainability aspects at counterparty level should allow institutions to develop over time approaches to assess the impact of ESG factors on a borrower's creditworthiness and incorporate these factors in PD and LGD estimates:

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<sup>59</sup> Regulation (EC) No 1060/2009 of the European Parliament and of the Council of 16 September 2009 on credit rating agencies ([link](#)).

<sup>60</sup> See ESMA (2024), *Consultation Paper. Proposed Revisions to Commission Delegated Regulation (EU) 447/2012 and Annex I of CRA Regulation* ([link](#)).

<sup>61</sup> While the analysis is based on the current CSRD as adopted, it is also acknowledged that based on current political discussions some amendments may be introduced into the CSRD in the future, which may impact the scope of data that will be available as well as the timelines.



- The ESRS include numerous narrative data points reflecting relevant information, for instance regarding strategies. This information appears suitable for the different qualitative approaches that institutions are employing to identify and qualify exposures to ESG risks. Yet, for other qualitative information collected by institutions presently, additional efforts will be required to make this information usable for quantitative approaches also.
- The ESRS also include a large number of numerical data points which appear suitable for quantitative approaches. Given the first disclosures under CSRD will only become available in 2025, it is not yet possible to determine which of these data points may have the most explanatory power for estimating credit risk parameters. As more data becomes available, institutions will be able to make more robust inferences for different portfolios of exposures.

165. The following sections investigate selected data points in the ESRS that may positively affect the ESG data universe, which in turn could provide an indication on the feasibility of standardised methodologies<sup>62</sup>.

166. Further support for data collection to assess the impact of environmental risks for creditworthiness assessment comes from entities reporting under IFRS Sustainability Disclosure Standard<sup>63</sup>. According to the reporting standards, entities are required to disclose information both on current and future anticipated effects of climate risks on financial positions, including quantitative and qualitative information<sup>64</sup>. The likely limitation to these disclosures is their ‘best effort’ nature, as disclosures are proportionate to the capabilities and resources of entities, with an option not to provide quantitative information if financial effects are not separately identifiable or if measurement uncertainty is too high<sup>65</sup>. Another example of voluntary disclosure standards, which may provide useful input for financial institutions in their assessment of their ESG risks, is the GRI, consisting of universal, sectoral and topical standards.

167. A practical limitation to the availability of environmental risks is the difficulty for financial institutions to use and compare data disclosed based on different standards. For this reason, interoperability between different sustainability disclosure standards<sup>66</sup> is a feature that needs to continue to be addressed. Furthermore, both voluntary and mandatory sustainability reporting standards begin with a materiality assessment, which may differ in terms of methodologies and hence may result in an incomplete and varied coverage of ESG risks.

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<sup>62</sup> However, for the reasons explained in the previous paragraph, the mentioned examples of relevant data points should be regarded as non-exhaustive and non-prescriptive.

<sup>63</sup> These entities will disclose sustainability-related information following ISSB IFRS Sustainability Disclosure Standard S2 for annual reporting periods beginning on or after 1 January 2024.

<sup>64</sup> IFRS Sustainability Disclosure Standards S2 paragraph 15 and 16.

<sup>65</sup> IFRS Sustainability Disclosure Standards S2 paragraph 18, 19, 20.

<sup>66</sup> See IFRS Foundation, GRI (2024), *Interoperability considerations for GHG emissions when applying GRI Standards and ISSB Standards* ([link](#)) and EFRAG, IFRS Foundation (2024), *ESRS – ISSB Standards. Interoperability guidance* ([link](#)).

**Box 16: Focus on the European Sustainability Reporting Standards**

The CSRD – ESRS framework is expected to positively foster the availability and accessibility of ESG data that in turn may be used for developing transition and physical risk indicators (and overall risk management and assessment tools), as well as other sustainability risk indicators for social and governance factors. As it currently stands, the CSRD and its implementing standards, the ESRS, should contribute to a better understanding of sustainability risks by providing transparency to investors (including institutions) about circa 60 000 companies across Europe.

**The CSRD is applicable to companies from all economic sectors, also covering listed SMEs.** As such, the quantity and quality of ESG-related information that is available is expected to be significantly enhanced compared to the current situation. The application will follow a staggered approach. The first disclosures by the largest companies are expected in 2025 for the reference year 2024. The scope of application for EU firms will be gradually extended in 2026 and 2027. As of 2029 the standards will also become applicable to non-EU firms with subsidiaries or branches in the EU if they exceed certain revenues. Although the scope of the ESRS is very broad, it should be noted that not all EU companies will be required to abide by them, even when they are fully phased in (reporting year 2029) as, for example, non-listed SMEs will remain exempt, as well as subsidiaries of a parent company disclosing under the CSRD.

**Set 1 of the ESRS comprises 12 standards, covering general requirements and disclosures (ESRS 1 and ESRS 2), which are mandatory for all firms in scope, as well as disclosures on environmental (ESRS E1 to E5), social (ESRS S1 to S4), and governance matters (ESRS G1). Firms need to disclose the latter templates subject to a materiality assessment.**

If an undertaking does not conclude a sustainability matter is material based on its materiality assessment, it will only need to disclose a limited, general set of data points rather than specific data required in the individual standards on ESG matters. This will limit the availability of the quantitative information from ESRS-based disclosures.

**All the standards have aim to enable users of the disclosures to understand the financial implications on the disclosing firms of ESG risks over the short, medium and long term.** They require disclosure of current financial effects and anticipated financial effects, with an understanding of effects on financial performance and cash flows. **This may constitute a strong basis for future quantifications of these risks by the reporting entities, as entities in essence need to assess impacts, risks and opportunities related to each of the ESG dimensions.**

**In summary, the ESRS standards are based on concrete qualitative information items and quantitative data points and metrics.** In this regard, the CSRD promotes standardisation and comparability and is expected to significantly increase the ability of institutions to collect ESG data on their corporate clients. Further, the assurance requirements of CSRD are also expected to improve data reliability.

**3.4.1 Environmental risk indicators**

168. The information covered in ESRS E1 can inform the assessment of both climate-related physical risk and transition risk<sup>67</sup>. Companies will disclose both qualitative and quantitative information that can inform, for example, cash flow projection for institutions' counterparties, assessment of future financing needs or collateral valuation.
- For climate-related physical risk, relevant information that will become available includes, for example, the monetary amount of assets at material (acute, chronic, overall) physical risk (E1-9, AR71b), net revenues from business activities at material physical risk (E1-9, 66d) or the magnitude of anticipated financial effects in terms of margin erosion for business activities at material physical risk (E1-9, AR71b). Disclosure under ESRS E-1 will also alleviate challenges institutions face when collecting data on geolocations of corporate assets since companies will disclose the location of significant assets at material physical risk, both in narrative form and disaggregated by NUTS<sup>68</sup> code.
  - For climate-related transition risk, one of the key areas will be the disclosure about corporate transition plans, which is expected to provide institutions with relevant information on the preparedness of their borrowers to manage the transition to a low-carbon economy. The disclosed information includes, for example, information on the compatibility of the transition plan with the Paris agreement, information on decarbonisation levers and key actions as well as information on the financial resources needed for and allocated to the plan.
169. Other data points can also inform the identification and qualification of transition risks to which a borrower's business is exposed. For example, such data points cover information on capital expenditures, net revenues (E1-9, AR76) and customer figures related to highly polluting activities; anticipated financial effects in terms of margin erosion for business activities at material transition risk (E1-9, AR76b); information on actions and resources and expected cost savings related to climate change mitigation and adaptation (E1-9, 69a); or detailed information on GHG emissions disaggregated along various dimensions (E1-9, AR74c-e) including achieved and expected reductions, as well as targets and progress made towards meeting the targets.
170. Similarly, disclosed information can also inform the value of collateral. Potentially relevant information includes, for example, disclosure on assets at material transition risk with and without mitigating actions (E1-9, 67a-b), the amount of real estate assets by energy-efficiency classes (E1-9, 73b) or the amounts of potentially stranded assets (E1-9, AR73a).
171. In addition to climate risks, institutions are still trying to gain a better understanding of how other environmental risks impact economic activities. In this regard, a quantification of these risks in

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<sup>67</sup> Climate change-related information is the focus of ESRS E1. Composed of nine disclosure requirements, ESRS E1 is one of the most comprehensive ESRs. The nine disclosure requirements cover information on the (i) transition plan for climate change mitigation; (ii) policies related to climate change mitigation and adaptation; (iii) actions and resources in relation to climate change policies; (iv) targets related to climate change mitigation and adaptation; (v) energy consumption and mix; (vi) gross scope 1, 2, 3 and total GHG emissions; (vii) GHG removals and GHG mitigation projects financed through carbon credits; (viii) internal carbon pricing; and (ix) potential financial effects from material physical and transition risks and potential climate-related opportunities.

<sup>68</sup> Nomenclature of Territorial Units for Statistics. For more information, see NUTS website ([link](#)).

financial terms is essential for creditworthiness assessment. The disclosure requirements in ESRS are expected to provide a better understanding of the impact of these risks, as well as a higher degree of standardised financial information. The relevant standards<sup>69</sup> cover 315 disclosure data points, out of which 21% are of a quantitative nature<sup>70</sup>. For biodiversity and ecosystems, one of the areas highlighted as particularly challenging in terms of data availability in the industry survey, quantifications of physical risks and transition risks will be disclosed subject to materiality assessment. Examples of data points on physical risks included in the ESRS E4 are costs of storm damage to coastal infrastructure exacerbated by loss of coastal protection from ecosystems, e.g. mangrove forests or the cost of land loss to desertification and soil degradation. Furthermore, information on transition risks such as exposure to litigation risk due to spills of pollutants damaging ecosystem health or shifting supply or demand impacts due to ecosystem degradation will have to be disclosed.

172. However, while ESRS provide for a significant amount of potentially relevant information, certain limitations remain. In particular, the disclosure of the anticipated financial effects applies with a 1-year phase-in while the ESRS permit reporting only qualitative disclosures for the first 3 years of preparation of sustainability statements, where it is impracticable to prepare quantitative disclosures. Nevertheless, as previously mentioned, the usefulness and predictive power of disclosed data points for creditworthiness decisions may not necessarily be diminished due to their narrative character. Another challenge could lie in the differences across materiality assessment methodologies implemented by NFCs, upon which institutions in turn must rely for their own counterparty assessment.

#### BOX 17: SME VOLUNTARY REPORTING STANDARDS

European Financial Reporting Advisory Group (EFRAG) is currently working on two additional standards aimed specifically at addressing data gaps which are intrinsic for SME exposures:

- listed SME standards – for listed SMEs, small banks and captive insurers;
- voluntary SME standards – voluntary standards for other SMEs outside the scope of the CSRD.

The finalised standards will enable institutions to collect several basic metrics on the practices for transitioning towards a more sustainable economy, such as information on energy and GHG emissions, pollution, water, biodiversity, while also providing data on social and governance issues. However, the availability of data will depend on the number of SMEs that will be subject to the standard, in particular those non-listed SMEs that voluntarily decide to adopt the standard, which may vary across jurisdictions.

<sup>69</sup> The ESRS chapters covering environmental disclosures other than those related to climate risks are: ESRS E2 – pollution, E3 – water and marine resources, E4 – biodiversity and ecosystems and E5 – resource use and circular economy.

<sup>70</sup> The data points counted are based on the list in ESRS from E2 to E5 published by EFRAG ([link](#)). The counting does not include data points from the cross-cutting standards ESRS 1 and ESRS 2.

### 3.4.2 Social and governance risk indicators

173. Significant challenges are observed to assess social and governance risks in a standardised manner, and to quantify the extent to which they drive credit risk. However, the availability of information on social and governance risk metrics from CSRD reporting could significantly enhance the quality and usability of social and governance risk indicators.

174. Considering social risk more specifically, the data points on the occurrence and frequency of certain material negative impacts, for example on the workforce or on communities, are mostly found in ESRS S1. These data points may provide relevant insights into the practices of corporates, although with significant limitations, for instance:

- The ‘Number of severe human rights issues and incidents connected to own workforce’ (S1-17, 104a), the ‘Number of complaints filed to National Contact Points for OECD Multinational Enterprises’ (S1-17, 103b) and the ‘Amount of material fines, penalties, and compensation for severe human rights issues and incidents connected to own workforce’ (S1-17, 104b) could be cited as metrics normally tilted to a ‘zero’ extreme when applied to a specific client (in internal ratings), but might more easily be referred to non-zero benchmarks on an aggregate portfolio basis, e.g. in constructing a key risk indicator for the institution.
- Other potential indicators would presumably require a more careful, non-zero benchmarking even for individual reporting counterparties, perhaps on a sectoral basis. Examples could include the ‘Rate of recordable work-related accidents for own workforce’ (S1-14, 88c) or a ratio of the ‘Number of days lost to work-related injuries and fatalities from work-related accidents, work-related ill health and fatalities from ill health related to employees’ (S1-14, 88e) (or any other employee event count) weighted by the ‘Number of employees (full-time equivalent)’ (S1-6, 51).
- Finally, some potential indicators could fail to be feasible despite their quantitative accent and presumed social risk density (despite supposedly reflecting higher/lower risks). For instance, this could derive from a lower reliability of reporting data or from the lack of appropriate benchmarks for the risk level. One possible case of such a data point is the ‘Percentage of employees paid below the applicable adequate wage benchmark’ (S1-10, 70).

175. While the underlying social or governance factors are less likely to have first order effects on an obligor’s creditworthiness, e.g. in terms of direct financial losses, they could also lead to second order effects. Social or governance factors could negatively affect a borrower’s cash flow, and in turn its repayment capacity, or affect the institution’s performance, via reputational channels. The following aspects from disclosures could present relevant information with potential to capture second order effects:

- Approaches in regard to relationships with suppliers, taking into account risks related to supply chain and impact on sustainability matters – these could include data points such as the ‘Average number of days to pay invoice from date when contractual, or

statutory term of payment starts to be calculated’ (ESRS G1, 33a) or the ‘Number of outstanding legal proceedings for late payments’ (ESRS G1, 33c).

- Policies to manage material impact related to business conduct and corporate culture – these might be captured in a measurable manner by qualitative binary variables that refer to the availability of specific policy items, with disclosures prescribed on ESRS G1 and ESRS 2 disclosures.
- Policies, actions and plans towards preventing corruption and bribery, as well as information on past incidents, fines and ongoing legal cases – these are perhaps the most diverse and adaptable to sector-wide regulatory uses, including quantitative items such as the ‘Number of confirmed incidents of corruption or bribery’ (ESRS G1, 25a) the ‘Number of confirmed incidents relating to contracts with business partners that were terminated or not renewed due to violations related to corruption or bribery’ (ESRS G1, 25c) and the ‘Amount of fines for violation of anti-corruption and anti-bribery laws’ (ESRS G1, 24a), among other items.
- Safeguards for reporting irregularities including whistleblowing protection. For example, this could include the failure to set up internal reporting whistleblower reporting channels or at least a timetable for implementation, as well as lacking internal measures to protect involved workers from retaliation.

176. As highlighted earlier, while this section provides some examples of data points that might be relevant from the perspective of credit risk assessment, institutions will have to test which exact data points would have the most predictive power, and which aspects are the most relevant for their business models and strategies. Some of the data points may be more relevant for assessing risk of individual counterparties, while others may be applied in the portfolio-level monitoring. Institutions must decide how to build their risk-assessment methodologies and tools in a way that is most meaningful for their specific portfolios.

### 3.5 Supervisory stress testing and scenario analysis of climate-related financial risks

177. Assessing the financial sector’s or individual institutions’ exposure to climate and environmental risks has become increasingly essential as the climate emergency intensifies. In this respect, the forward-looking dimension, that is inherent to both climate stress testing (CST) and more broadly climate scenario analysis (CSA), is very relevant, given the prevalence of climate change and the uncertainty surrounding the pace and magnitude of its development over the coming decades. In fact, as previously confirmed by the EBA, climate risks are forward-looking by nature<sup>71</sup>. By their very definition, CST and CSA are ‘hypothetical’ exercises, designed to assess the implications of different

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<sup>71</sup> See EBA (2021), *Report on management and supervision of ESG risks for credit institutions and investment firms* ([link](#)), p.66.

scenarios on the resilience of financial institutions<sup>72</sup>. So far, no supervisory stress-testing exercise has been conducted on ESG risks other than climate. Therefore, the following sections focus only on climate risk<sup>73</sup>.

178. In general, scenario analysis is a process for identifying and assessing the potential implications of a range of plausible future states of the environment. It is used to explore and develop an understanding of how various combinations of climate risk may affect its businesses, strategies and financial performance over time. In practice, it can be used to strengthen the management and supervision of climate-related financial risks (see also BCBS April 2024 discussion paper)<sup>74</sup>. Stress tests can be understood as a specific type of scenario analysis, providing projections under a specific set of adverse conditions. They are used to identify vulnerabilities, to assess the loss absorbing capacity, while at the same time they help evaluate internal processes.

#### BOX 18: SCENARIO ANALYSIS AND STRESS TESTING

**Scenario analysis** typically uses multiple scenarios, embraces the short, medium and long-term horizons, and is of a dynamic, forward-looking nature. It is a process for identifying and assessing the potential implications of a range of plausible future states under conditions of uncertainty. For example, institutions can use scenario analyses to test their resilience to long-term impacts of ESG factors to cope with the unstable environment in the long term. Nevertheless, scenarios are hypothetical constructs and not designed to deliver precise outcomes or forecasts. Instead, they provide a way for organisations to consider how the future might look if certain trends continue or certain conditions are met.

In that context, climate scenarios are an internally consistent description of a plausible future state of the world concerning the climate system, based on a specific set of assumptions about future emissions, socio-economic factors, technological developments and policy actions. It combines several ingredients: a meaningful narrative, a set of climate-related variables, relevant assumptions and most often modelling choices.

**Stress tests** are a projection under application of (severely) adverse scenarios. They focus on the short-term horizon, and to some extent leverage historical data to project future outcomes. Standard stress tests help to identify risk vulnerabilities, to assess the ability to absorb shocks and evaluate internal processes and capital implications.

In that regard, climate stress tests are a forward-looking assessment of the potential impacts of a set of distinct, adverse (yet plausible) short- to medium-term climate scenarios on the capital position of an institution. A CST typically uses projections of the institution's capital resources and requirements and focuses on the institution's vulnerabilities and its capacity to absorb

<sup>72</sup> For a more detailed exposition of climate stress testing and climate scenario analysis, see Chmelar, B., Kok, C. and von Köppen-Mertes (forthcoming), *Designing Stress Tests for Sustainability Risks*, chapter on Central Banking and Sustainability.

<sup>73</sup> While the focus of the analysis presented in this section is on climate-related financial risk, supervisory practices on other environmental risks are also in place, e.g. see DNB (2023), *The economic and financial stability repercussions of nature degradation for the Netherlands: Exploring scenarios with transition shocks* ([link](#)).

<sup>74</sup> See BCBS (2024), *The role of climate scenario analysis in strengthening the management and supervision of climate-related financial risks* ([link](#)).

losses. For example, a scenario could assume a hypothetical regulatory change concerning climate risk which can have implication in the short- or medium-term climate scenario, for example, within less than 5 years.

In other terms, CSTs explore how both the transition towards a low-carbon economy and the occurrence of increasing (acute) physical risks may impact macroeconomic and financial variables.

Consequently, CST and CSA can play an important role in the strategic planning and management of climate risk impact on institutions' balance sheets.

179. Despite certain similarities with traditional stress tests, both CST and CSA show very different characteristics from traditional stress tests<sup>75</sup>. Traditional stress tests explore severe but plausible scenarios such as macroeconomic downturns or recessions affecting the financial sector. Since climate risk comes with some specific characteristics that differ from the traditional risk types, the traditional risk models used by institutions to price standard risks (e.g. credit risk, market risk) might not be fully suitable or advanced to also capture the effect of climate risk.

- First, while traditional risk modelling often relies on historical data as inputs, climate risk shows weaker correlation with historical events and may be more extreme and non-linear in nature. Therefore, institutions need to rely on more hypothetical data inputs and wider statistical confidence intervals.
- Second, transitioning to a low-carbon economy affects institutions' business portfolios in different sectors and adverse physical hazards do not occur homogeneously across regions. This requires a higher level of granularity and geographical segmentation compared to supervisory stress tests.
- Third, climate risk, especially for chronic physical risk events, require a much longer-term horizon, e.g. 30 years, than traditional risks to properly assess their implications. However, such long-term modelling come with challenges and its outcome remains subject to a high degree of uncertainty hence hampering their use for capital losses calculation.

180. To consider the specific features of climate and environmental risks, the assessment and quantification of the potential impact of climate risk on institutions' exposures requires new approaches and tools. In that respect, the modelling faces new challenges and increased level of complexity. A combination of climate-related transition and physical risks as well as macroeconomic and financial variables would seem needed to quantify the impact of climate risks in a compound risk scenario. In addition, scenarios would need to consider a set of direct and indirect transmission channels. Direct transmission channels consist of the inclusion of climate-related variables, e.g. carbon prices, GHG emission intensity, energy mix, etc., in existing or newly developed models. Indirect transmission channels include climate shocks to macroeconomic variables, e.g. differentiated sectoral impacts on gross value added or sectoral shocks to property prices.

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<sup>75</sup> See BCBS (2024), *The role of climate scenario analysis in strengthening the management and supervision of climate-related financial risks* ([link](#)).



181. In general, reliable climate data are a prerequisite for an accurate and robust CST and scenario analysis. Several pilot microprudential climate stress tests carried out by supervisors in various jurisdictions<sup>76</sup> have emphasised the importance for the industry to step up efforts to develop climate data capabilities.
182. The expected benefits of CSRD have been outlined in the previous section. Also, in the context of CST, the availability of granular ESG data are expected to facilitate future exercises, creating opportunities to use current or recent historical climate and environmental data as a basis for projections. Similarly, the revised Capital Requirements Directive (CRD VI) requires institutions to prepare plans to address climate and environmental risks arising from their transition towards climate neutrality by 2050. These plans should facilitate future exercises by helping anticipate potential climate-related losses in the case of adverse events.

#### BOX 19: REVIEW OF SUPERVISORY EXERCISES

##### **The ECB designed and conducted a microprudential climate-related stress-test exercise in 2022 (the 2022 CST).**

Conceived as a joint learning exercise, the 2022 CST aimed to (i) provide a first measurement of risks and vulnerabilities of enhancing both institutions' and supervisors' capacity to assess climate risk; and ii) gain an understanding of institutions' climate risk stress-testing frameworks and level of preparedness as regards the ECB's supervisory expectations. This exercise differed from traditional stress tests as it had no capital implications and was in fact a holistic assessment of institutions' capabilities, including qualitative and quantitative elements.

From a methodological perspective, the 2022 CST was conducted as a constrained bottom-up exercise, meaning that institutions were requested to provide their own data submissions and stress-test projections subject to common methodology and scenarios.

After the 2022 CST, the ECB published a 'good practices' report on climate stress testing in December 2022, to contribute to the dialogue in the industry and promote greater consistency in practice<sup>77</sup>. The report highlights which practices are considered preferable to ensure alignment with the ECB's expectations, offers suggestions and examples to help institutions overcome challenges and meet supervisory expectations. In a nutshell, the 2022 CST exercise and related 'good practices' report has served the purpose of acting as a catalyst for institutions to strengthen their efforts in developing climate risk stress-testing frameworks and enhance their climate data capabilities, including the collection of relevant breakdowns of exposures and

<sup>76</sup> For example, the ACPR launched a climate stress-test pilot exercise in July 2020, which involved 9 banking groups and 15 insurance groups (i.e. 85% of the total balance sheet of banks and 75% of the total balance sheet of insurers). At EU level, the EBA published the results of an EU-wide pilot exercise on climate risk (see EBA (2021), *Mapping climate risk: Main findings from the EU-wide pilot exercise*) and the ECB also conducted a climate stress test in 2021. Other examples include the macroprudential stress-test exercises from DNB (2018), Danmarks Nationalbank (2020), OeNB (2021), ECB (2021, 2023) and Fit-for-55 exercise (2024).

<sup>77</sup> See ECB (2022), *ECB Report on Good Practices for Climate Stress Testing* ([link](#)).

income. The ECB expects that institutions will be fully aligned with supervisory expectations on climate stress testing by the end of 2024<sup>78</sup>.

**Pioneering on European level, the EBA conducted its EU-wide pilot exercise on climate risk in 2021<sup>79</sup>**, aiming to map institutions' exposures to climate risk and provide an insight into the green estimation efforts banks have carried out so far. Published in May 2021 and covering a sample of 29 institutions, the results showed that more disclosure on transition strategies and GHG emissions would be needed to allow banks and supervisors to assess climate risk more accurately. In addition, the results highlighted the importance for institutions to expand their data infrastructure to include clients' information at activity level.

**As another example from a National Competent Authority, the French ACPR launched a climate stress-test pilot exercise in July 2020.** This exercise, the first to be carried out on such a large scale by a supervisor, aimed to (i) provide a first measurement of risks and vulnerabilities of financial institutions in France; as well as (ii) provide a forward-looking view of risks. The pilot exercise also led to the identification of seven sectors sensitive to transition risk. Drawing on its experience, the ACPR conducted a second climate stress test exclusively focused on insurance undertakings, to explore new dimensions of risk assessment, e.g. short-term scenario, as well as using more granular data, allowing for better sectoral and geographical differentiation of risks.

**Finally, a pioneering stress-testing exercise has been conducted in 2018 by DNB to assess energy-related transition risk for the Dutch financial system<sup>80</sup>.** The exercise was a first attempt to gauge the potential financial stability impact of a disruptive energy transition in the Netherlands.

183. Furthermore, the EBA has also reviewed several climate-related exercises conducted outside the EU and compared these with exercises conducted by EU authorities. The EBA observes common tendencies, but also significant diversity in approaches and scenarios used for climate-related exercises (see Box 20). Firstly, all exercises consider transition risk, with half addressing physical risk. All reviewed exercises assess credit risk, with some also considering market risk and operational risk. The scope of portfolios varies, with some exercises covering only credit institutions and others including insurance and pension funds. Secondly, most exercises consider long-term horizons (generally 30 years), with some also considering short-term horizons (generally 5 years), including different time horizons for transition and physical risks. Thirdly, the exercises largely build on NGFS scenarios, though often complemented by other scenarios and projections. There are notable variations in the baseline scenarios used, and only a few exercises explicitly consider second-round effects. Finally, significant differences appear in the methodologies used, involving static and dynamic balance sheet approaches, top-down and bottom-up approaches.

184. The above-mentioned variations support the EBA's cautious view, at this stage, regarding the direct use of these exercises for the design of a standardised methodology for the qualification of

<sup>78</sup>See Elderson, F. (2024), *You have to know your risks to manage them – banks' materiality assessments as a crucial precondition for managing climate and environmental risks*, blogpost on 'The Supervision Blog' ([link](#)).

<sup>79</sup> See EBA (2021), *Mapping climate risk: Main findings from the EU-wide pilot exercise* ([link](#)).

<sup>80</sup> See DNB (2018), *An energy transition risk stress test for the financial system of the Netherlands* ([link](#)).

exposures to ESG risks, including for large corporates. Nevertheless, the EBA underlines these exercises' strong value added for the identification of ESG risk pockets in portfolios. Moreover, climate stress-test exercises serve different purposes for the authorities conducting them, also explaining the observed differences. Hence, the observed differences do not rule out further standardisation in methodologies for the qualification of exposures to ESG risks going forward.

#### BOX 20: COMPARISON OF SELECTED KEY FEATURES ACROSS SUPERVISORY ASSESSMENTS

Reviewing 18 climate-related exercises recently or currently conducted by Bank of England (BoE)<sup>81</sup>, ACPR – Banque de France<sup>82</sup>, ECB<sup>83</sup> and more specifically the SSM<sup>84</sup>, DNB<sup>85</sup>, Bank of Canada (BoC) and Office of the Superintendent of Financial Institutions (OSFI)<sup>86</sup>, Australian Prudential Regulation Unit (APRA)<sup>87</sup>, Austrian National Bank (OeNB)<sup>88</sup>, Banco de España (BdE)<sup>89</sup>, Banco de Portugal (BdP)<sup>90</sup>, Deutsche Bundesbank<sup>91</sup>, Swedish Financial Supervisory Authority (Finansinspektionen)<sup>92</sup>, National Bank of Romania<sup>93</sup>, Hong Kong Monetary Authority (HKMA)<sup>94</sup>, Federal Reserve of the United States (US FED)<sup>95</sup>, the EBA observes common tendencies, but also a significant diversity of approaches and scenarios. The following presents the main takeaways on the scope, time horizon, scenarios and model ownership.

- a. After relying on sectoral and/or counterparty-level data, all exercises consider transition risks, with half of them also addressing physical risks (for insurers only in the case of ACPR), and only one of them explicitly addressing litigation risk (BoE). **On that basis, virtually all exercises assess at least credit risk, with some exercises (8 out of 18) also considering market risk**, and one of them (HKMA) explicitly considering operational risk as well.

Further considering the scope of portfolios, 12 out of 18 exercises cover only credit institutions, while the other exercises also include insurance, with 2 of them including

<sup>81</sup> See BoE (2022), *Results of the 2021 Climate Biennial Exploratory Scenario (CBES)* ([link](#)).

<sup>82</sup> See ACPR (2021), *A first assessment of financial risks stemming from climate change: The main results of the 2020 climate pilot exercise* ([link](#)).

<sup>83</sup> See ECB (2023), *The Road to Paris: stress testing the transition towards a net-zero economy* ([link](#)).

<sup>84</sup> See ECB (2022), *2022 Climate risk stress test* ([link](#)).

<sup>85</sup> See DNB (2018), *An energy transition risk stress test for the financial system of the Netherlands* ([link](#)) and DNB (2023), *Floods and financial stability: Scenario-based evidence from below sea level*, Working Paper 796 ([link](#)).

<sup>86</sup> See BoC and OSFI (2022), *Using Scenario Analysis to Assess Climate Transition Risk* ([link](#)).

<sup>87</sup> See APRA (2022), *Information Paper – Climate Vulnerability Assessment Results* ([link](#)).

<sup>88</sup> See OeNB (2021), *OeNB climate risk stress test – modelling a carbon price shock for the Austrian banking sector* ([link](#)) and OeNB (2023), *Transitorische Risiken – Analyse und Vergleich quantitativer Kennzahlen für österreichische nichtfinanzielle IFRS-Unternehmen* ([link](#)).

<sup>89</sup> See BdE (2021), *An initial analysis of energy transition risks using the Banco de España's FLESB stress-testing framework* ([link](#)). The most updated analysis was published in the AMCESFI (Spanish Macropudential Authority Financial Stability Council) Report on Climate Change in 2023 [Section 3.2 for transition risks and Section 4.1 for physical risks] (see AMCESFI (2023), *Biennial report on climate change risks to the financial system* ([link](#))).

<sup>90</sup> See BdP (2023), *Annual Report on the Banking Sector's Exposure to Climate Risk* ([link](#)).

<sup>91</sup> See Deutsche Bundesbank (2023), *Sustainability risks in banking supervision*, Monthly report April 2023 ([link](#)) and Deutsche Bundesbank (2024), *Climate transition risk stress test for the German financial system*, Technical Paper 04/2023 ([link](#)).

<sup>92</sup> See Finansinspektionen (2022), *Transition risks in the banks' loan portfolios – an application of PACTA* ([link](#)).

<sup>93</sup> See National Bank of Romania (2019), *Financial Stability Report December 2019* ([link](#)).

<sup>94</sup> See HKMA (2023), *Guidelines for Banking Sector Climate Risk Stress Test* ([link](#)).

<sup>95</sup> See US FED (2024), *Climate Scenario Analysis Exercise Results* ([link](#)) and US FED (2023), *Pilot Climate Scenario Analysis Exercise* ([link](#)).

pension funds (ECB, DNB) or funds (Bundesbank). Corporate exposures are assessed in most exercises (except for SME exposures, for which data are not always readily available), with the second most frequently covered explicit exposure class being mortgage exposures (ECB, APRA, ECB-SSM, DNB). More specific exposure classes mentioned include households and sovereigns (ACPR), real estate (DNB) and commercial real estate loans (US FED).

- b. **More than half of the exercises** (10 out of 18) focus on short-term horizon only with most of them ranging from 1 to 5 years, and 2 of them considering respectively 8- and 10-year time horizons. The other exercises explicitly consider long-term horizons (generally 30 years, at times including 5- or 10-year intervals), with 3 of them also considering short-term horizons. Some authorities (BoE, US FED) considered differing horizons for transition (30 years, 10 years) and physical risks (60 years, 1 year).
- c. **The exercises largely built on a set of NGFS scenarios**, often complemented or enhanced by other scenarios and projections (e.g. physical risk scenario based on the Representative Concentration Pathways (RCP) 8.5, macroeconomic scenarios, BMPE<sup>96</sup> projections). Few exercises are not based upon NGFS scenarios, but reference different ones, for instance open-source flood scenarios from national database (DNB), scenarios used as part of the PACTA tool (Finansinspektionen) or other 'in-house' scenarios (OENB). Different variations of orderly, disorderly or delayed transition narratives are considered in combination on that basis. **Notable variations also appear in the observed baseline scenarios** (e.g. counterfactual<sup>97</sup>, orderly transition, current policies, current solvency stress test). Only few exercises sought to explicitly consider second-round effects, essentially via insurance coverage (BoE, ACPR, HKMA, US FED).
- d. **Most of the exercises implement a static balance sheet approach (16 out of 18)**, while 3 of those exercises combine static and dynamic elements in their approaches, the latter being considered for longer-term horizons. Only 2 exercises apply a dynamic approach (BdE) or constrained dynamic approach (APRA). **Just over 50% of authorities further chose top-down approaches (10 out of 18)**, while others retained a bottom-up approach. Two authorities that use a bottom-up approach combine it for selected parts of the portfolio with top-down elements (e.g. for insurers in the ACPR exercise, and for market risk in the OFSI exercise).

The EBA underlines that further exercises have been conducted beyond those of the stocktake above, providing further complementing insights. For instance, BdP recently published the second assessment of climate risks to the banking system, focusing on the credit risk of the banking system's exposure to non-financial corporations<sup>98</sup>. Also, Danmarks Nationalbank recently published a CSA to assess the risks to the Danish economy and financial system arising from the 'green transition'<sup>99</sup>. This analysis is based on a risk scenario where a lack of technical

<sup>96</sup> The Broad Macroeconomic Projection Exercise (BMPE) delivers the short and medium-term economic outlook for the euro area and for the individual euro area countries. See for example ECB (2024), *Macroeconomic projections* ([link](#)).

<sup>97</sup> As in the BoE exercise, a hypothetical scenario with no headwinds from climate risks.

<sup>98</sup> See BdP (2023), *Annual Report on the Banking Sector's Exposure to Climate Risk 2024* ([link](#)).

<sup>99</sup> See Danmarks Nationalbank (2024), *New methodology for assessing economic and financial risks of the green transition* ([link](#)).

reductions, for example through the deployment of technologies such as carbon capture and storage, leads to the need for an additional CO<sub>2</sub> emission tax in Denmark. Finally, while the review of the exercise does show common tendencies, the significant variations observed upon close examination in scope, time horizon, scenarios used, and model ownership leads the EBA to confirm its overall cautious assessment. **While the conducted exercises can certainly help institutions to identify relevant pockets of climate-related financial risk, at this stage, a standardised qualification does not appear feasible by directly leveraging those exercises.**

185. At any rate, supervisory CST are expected to remain a key tool to incentivise institutions' efforts to build up relevant capabilities in the near future.
186. Looking forward, CSA should be crafted with adaptability and modularity to accommodate continuous improvements as the technical knowledge in this field of exercise and the scientific research on climate change progress. Future refinements of CSA are likely to further focus on addressing the limitations and challenges of traditional macroeconomic models, i.e. trying to incorporate feedback loops, tipping points, non-linearities and coping with long-term uncertainties. While institutions are currently more advanced in measuring and assessing climate risk and mostly starting their analysis on climate-relevant exposures, e.g. exposures in key sectors being affected by climate change, it is crucial for them to further develop their tools and practices to be able to extend the scope of their exercises, not only in terms of the spectrum of risks, e.g. inclusion of broader environmental risks, but also other ESG risks and in terms of the portfolio covered.

## 4. Conclusions

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### 4.1 Availability and accessibility of ESG data

187. The EBA acknowledges significant improvements over the last few years regarding the availability and accessibility of data. Various entities are disclosing an increasing amount of relevant information, structured data are increasingly available through specific databases and an improved offer of external data providers. In addition, important regulatory and legislative initiatives aim to further improve the availability and accessibility of data and hence the availability and accessibility is expected to further improve. Also, institutions themselves have started disclosing relevant data, especially in relation to material exposures to climate risk and related governance and risk management arrangements<sup>100</sup>. Materiality assessments are becoming more robust<sup>101</sup> which may indicate an improving capability to collect and assess ESG risk data.

188. Despite these positive developments, the EBA observes that the landscape of ESG data remains incomplete at this stage. The following main limitations and challenges are observed:

- Relevant data are available primarily for large corporates and mostly for climate risk, predominantly for transition risk. The most significant challenges in terms of data are observed for retail SMEs, due to the lack of sustainability reporting obligations and internal capability limitations.
- For households, the relevant data are almost exclusively on immovable property collateral for mortgage exposures. Specific challenges for mortgage exposures to households include the availability and variety of data related to energy efficiency of immovable property collateral, which is the central information for assessing climate-related transition risk in this exposure class. Despite recent developments, the lack of full harmonisation of EPCs across the EU may present a challenge for institutions operating across different jurisdictions. The review of the EPBD will provide requirements relating to national databases on the energy performance of buildings, on access to those databases and publication of aggregated information, which will improve further data accessibility.
- For environmental risks beyond climate, while the data becomes increasingly available, it remains less structured. There is no consensus yet about the type of data that would be needed for institutions to meaningfully assess these risks. This challenge is further exacerbated by the complexity of various environmental risks and their transmission channels, interrelations between them and high relevance of local specificities.

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<sup>100</sup> See ECB (2023), *The importance of being transparent: A review of climate-related and environmental risks disclosures practices and trends* ([link](#)).

<sup>101</sup> See ECB (2024), *You have to know your risks to manage them – banks' materiality assessments as a crucial precondition for managing climate and environmental risks* ([link](#)).

- The overall volumes of data points necessary to assess the entire value chain, including geographical location of assets and activities, pose significant limitations at this stage. Granular information about value chain remains largely unavailable, and the challenges are exacerbated where the value chain include entities outside the EU.
  - Significant data gaps remain for social and governance risks, where available information and related assessments are mostly qualitative in nature.
189. Existing data gaps can lead to high reliance by institutions on proxies and estimates, especially for counterparty-level emissions and energy intensity data, and particularly for exposure classes other than large corporates. This in turn raises the questions about the relevance, quality and comparability on these proxies and estimates. In addition, institutions largely use data from third-party data providers, whereby the scope, granularity, as well as quality assurance and transparency differ significantly among different providers. Overall, the access to granular data, either through internal collection or external providers, remains costly for institutions.
190. Significant improvements in the availability and accessibility of the data on the full spectrum of ESG risks for corporates are expected with the implementation of CSRD. For large corporates, it will cover most of the remaining data gaps. With the progressive implementation, it will also provide information on many corporates, as well as by 2029 on non-EU firms exceeding certain revenue threshold with subsidiaries or branches in the EU. In general, CSRD is expected to significantly increase the ability of institutions to collect ESG data on their corporate clients.
191. Although the scope of the CSRD/ESRS is very broad, it should be noted that not all EU companies will be required to abide by them, even when fully phased in (reporting year 2029) as, for example, non-listed SMEs will remain exempt<sup>102</sup>. In this context, the importance of further work by EFRAG on the voluntary standards for SMEs is important. Nevertheless, the success of this initiative in terms of improvements in the data landscape will depend on the adoption rate of the voluntary standards by non-listed SMEs. Finally, international frameworks such as the ISSB standards may help SMEs worldwide to address sustainability risks and disclose them accordingly, thus further improving the international ESG data landscape.
192. The overall analysis presented in this report covered exposure classes such as corporates, SMEs and mortgages to households, as these types of exposures were judged to be most relevant from the perspective of ESG risks, and the practices of institutions in terms of risk identification and qualification for these exposure classes are the most advanced. However, in order to be able to address ESG risks across the whole balance sheet, institutions need to collect relevant data also for other exposure classes, including most notably sovereigns, regional governments, public sector entities as well as financial entities. While for financial institutions some data are available based on Pillar 3 disclosures on ESG risks<sup>103</sup>, the other exposure classes also pose significant challenges.

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<sup>102</sup> While the analysis is based on the current CSRD as adopted, it is also acknowledged that based on current political discussions some amendments may be introduced into the CSRD in the future, which may impact the scope of data that will be available as well as the timelines.

<sup>103</sup> Under the Implementing Technical Standards on prudential disclosures on ESG risks in accordance with Article 449a CRR.

## 4.2 Feasibility of introducing a standardised methodology

### Premises for the conclusions

193. The mandate included in Article 501c(1) letter (b) requests the EBA to assess the feasibility of introducing a standardised methodology to identify and qualify the exposures based on a common set of principles to ESG risks classification. Given that the mandate is provided in an overall context of the Pillar 1 prudential framework, in the continuity to the Report on the role of environmental and social risks in that framework published in October 2023, and considering that the mandate refers to exposure classes in accordance with Title II of Part III of CRR, the conclusions follow the following principles:

- The report assesses the possibility of elaborating a methodology that would be standardised across all institutions and could inform further consideration about a structure and calibration of potential capital requirements explicitly accounting for ESG risks.
- The need for a standardised methodology to identify and qualify exposures subject to ESG risks may arise from the current diversity in methodological approaches of institutions and potential lack of a level playing field.
- The analysis is focused on credit risk. The ultimate purpose is therefore to consider a methodology not only for identifying and quantifying ESG risks, but eventually to assess if and how these risks affecting the counterparties translate into credit risk faced by institutions. In order to be able to assess the effects on credit risk, ESG factors would have to be considered in conjunction with other relevant drivers of credit risk, such as financial standing or creditworthiness of the counterparties.
- Based on the conclusions included in the 2023 Report on the role of environmental and social risks in the prudential framework, specific recommendations will be followed by the EBA, including by reviewing relevant guidelines and technical standards to provide better clarity on how to incorporate ESG risks into the internal models and related processes.

### Current practices

194. The starting point for assessing the feasibility of common methodology is the overview of the institutions' existing practices. The results of the survey carried out for this report show that:

- The most commonly used criteria for assessing transition and physical risks are based on sectors and geographies. There is a widespread use of analytical risk mapping, e.g. in the form of heatmaps, based on these criteria, which is typically a starting point for more detailed analysis at counterparty or exposure level.
- The common patterns are mostly visible for large corporates and at times for non-retail SMEs, e.g. heatmapping, ESG scoring. However, there are substantial differences in the



details of the methodologies and inputs used. Those differences appear to arise not only from the methodological choices, but also from factors such as different portfolios, business models, markets, customer segments, size and level of complexity of the considered institution.

- Specifically for assessing transition risk for NFCs the methodologies seem more mature and some standardisation is already observed, e.g. in terms of the data that is collected including GHG emissions, transition plans. This more advanced state of play could potentially provide a starting point for a more comprehensive methodology. In this context, introducing a standardised methodology to identify and qualify exposures subject to the impact of environmental or social factors seems to be the most feasible for climate-related transition risk for NFCs.
  - For exposures to households, the efforts so far have been focused on mortgage exposures, where methodologies are based on the energy efficiency and location of the immovable properties. On transition risk, some degree of standardisation is observed especially through collection of energy-efficiency data and use of estimated energy performance and EPC when needed. There have been improvements in the data for physical risk on the geolocation of the financed assets. However, the full assessment of physical risk may require more specific information about certain features of these assets, their resilience to climate events, as well as availability and coverage of insurance.
195. For exposure classes other than NFCs and mortgage exposures to households, the methodologies are less mature and the process of developing relevant methodologies to identify and assess ESG risks is still ongoing. Especially for retail SME exposures, institutions are facing significant challenges related to the availability of granular data, and to the lack of technical expertise enabling meaningful identification of ESG risks.
196. While there are emerging practices for assessing environmental, in particular climate risks, few institutions made significant progress to date on assessing how these risks affect credit risk levels. At this stage, only very few institutions adapt their PD or LGD models or introduce other methods for measuring credit risk related to ESG factors.
197. Finally, the practices for assessing social and governance risks are still nascent and mostly qualitative. While governance aspects have traditionally been part of assessing creditworthiness of counterparties, both by institutions and by ECAs, there is little standardisation and the approaches are mainly qualitative, often based on expert judgement. Social risks are even more difficult to assess concretely in this context, with a lack of common understanding of the types and boundaries of these factors, their transmission channels to credit risk, relevant metrics, as well as structured data.

### Components of the mandate

198. The mandate included in Article 501c(1)(b) of the CRR requests the EBA to look specifically into three elements, that could potentially support the development of a standardised methodology to

identify and qualify ESG risks, namely: (i) sustainability disclosure reporting frameworks; (ii) supervisory stress testing or scenario analysis of climate-related financial risks; (iii) relevant ESG score of the ECAI credit risks rating by a nominated ECAI. These elements were more broadly explored in Chapter 3. It should be noted however, that despite certainly promising characteristics, all three elements are still in the development phase and have not been fully implemented. Therefore, at this stage they cannot yet be the basis for a common methodology, but some prospects in that regard can be observed for potential future application, as further elaborated below.

199. Regarding sustainability disclosure reporting frameworks, the most relevant framework in that regard is the CSRD, and related ESRS. The full implementation of this framework, although subject to phase-in and sequential arrangements<sup>104</sup>, will significantly improve the availability and accessibility of granular counterparty-level structured data on all elements of ESG risks. The industry survey further showed that several institutions are already making efforts to anticipate information from CSRD disclosures, yet further progress is necessary such as translating the CSRD indicators into credit risk information.
200. However, at the time of drafting this report, the reporting standards under CSRD for listed and non-listed SMEs were still under development, though in the final stages. While these standards are expected to significantly increase the availability of relevant data for this exposure class, the usability of these disclosures will largely depend on their adoption rate.
201. Regarding the relevant ESG score of the ECAI credit risk ratings, the work is ongoing by ESMA for the incorporation of ESG factors in the credit ratings, and transparency of the methodologies used and results obtained<sup>105</sup>. Also, the BCBS is conducting a study on the extent to which ESG risks are reflected in external credit ratings. Currently, the heterogeneity and lack of transparency of underlying methodologies make it difficult to formulate strong conclusions regarding implications on and correlations with creditworthiness of counterparties. Going forward, some commonalities in the approaches may start emerging over time, allowing further considerations on a potential future SA for identifying and qualifying ESG risks in the context of credit risk.
202. Finally, regarding supervisory stress testing and scenario analysis, the work is also still ongoing in this area. The joint guidelines on supervisory ESG stress testing in accordance with Article 100(4) of the CRD are expected in 2026, similarly as the EBA Guidelines on ESG scenario analysis which are currently under development in accordance with Article 87a(5) of the CRD<sup>106</sup>. The recently published results of the EU-wide Fit-for-55 CSA exercise provide important insights into the financial system vulnerabilities to climate risk. Although the findings are subject to inherent uncertainty, especially given the novelty of the climate stress-testing approaches, they helped refining modelling

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<sup>104</sup> While many companies start disclosing in 2025, phase-in implementation arrangements are in place until 2029 for companies of different sizes. Further development of sector-specific standards is expected in the future to complement the sector agnostic standards. However, the implementation of the Corporate Sustainability Reporting Directive (CSRS) may be affected by potential subsequent amendments to this directive, as currently under discussion.

<sup>105</sup> In June 2023 ESMA received a formal request for Technical Advice from the European Commission concerning Annex I of Regulation 1060/2009 on Credit Rating Agencies (the CRA Regulation) and (EU) Delegated Regulation 447/2012 on the demonstration of compliance of credit rating methodologies (the Delegated Act), see ([link](#)).

<sup>106</sup> See EBA (2024), *Consultation paper : Draft Guidelines on the management of ESG risks* ([link](#)).

tools, and enhanced consistency in the approaches taken by the EBA, ECB and other ESAs. The exercises have also informed how compound risk scenarios could be framed and calibrated. However, as it was a one-off exercise, conducted in a top-down fashion, it cannot be the basis for developing a common standardised methodology. Other supervisory exercises performed so far had mostly exploratory characters and differed significantly in terms of scope, assumptions and methodologies. Nevertheless, these exercises provided institutions with methodologies to build on for further developing their own practices. Also, the industry survey confirmed that several institutions continue employing the approaches from these exercises. If a common methodology to identify and qualify ESG risks was to be based on supervisory stress testing, these would have to be related to broad, EU-wide stress testing, performed regularly based on similar assumptions and methodologies. However, the regular EU-wide CST is not planned to be launched by the EBA before 2026. The methodology and scenarios have not been established yet, and they are expected to develop and adapt over time.

203. Apart from the timeline, several other limitations have also been identified in the use of stress-test and scenario analysis for identifying and qualifying exposures to climate-related financial risks, in particular:

- The conclusions of supervisory CST cannot be directly applied to the qualification of exposures to ESG risks, as the purposes they serve are different. In fact, the results depend largely on a specific scenario applied. While the scenarios are meant to be plausible, they are not considered as forecasts, but just one of many possible futures, without assigning any specific probability. However, certain methodological features of stress testing, e.g. the sectoral or regional segregation of exposures, may be useful to identify and assess exposures to ESG risks, if appropriately adapted.
- Granular and reliable data are needed to understand how emissions or other relevant metrics might translate into prudential credit risk metrics such as PD or LGD. Usually, institutions still often rely on proxies and do not implement their own modelling of ESG factors in PD and LGD computations. Rather, they tend to feed their models with third-party ESG ratings to generate PD and LGD. This comes with limitations as described in this report, given that ESG ratings are not designed to reflect credit risk.
- Finally, there are still specific challenges in the incorporation of climate risk into stress-testing framework. This is particularly challenging due to the time mismatch between the realisation of climate risk and standard ones, e.g. chronic physical risk events are expected to materialise only in the medium and long term, differently to standard risk impacting the economy – and ultimately institutions – in the short term. This also leads to challenges when calibrating compound risk scenarios such as those arising from the combined effect of an economic recession and climate-related shocks.

204. Despite the remaining challenges, supervisory CST has shown that institutions are able to deliver the requested information when methodological approaches are provided by supervisory authorities. Accordingly, such exercises could in the future foster reflection regarding the development of standardised methodologies.

## Prospects

205. In order to facilitate the alignment of approaches and to support particularly those institutions that are at the early stages of developing their ESG risks assessment methodologies, the EBA sees merit in providing high-level principles and guidance on the identification and qualification on ESG risks, as envisaged in the mandated Article 87a(5) of the CRD. In that regard, the EBA Guidelines on ESG risk management already seek to provide such common principles, to further enhance the robustness of the financial sector against ESG risks. Furthermore, additional guidance will be provided for setting the scenarios that institutions will use to test their resilience to negative impacts of ESG factors in accordance with Article 87a(3) of the CRD. Further specific guidance will also be provided for institutions using the IRB approach, including in the context of their stress-testing programme in accordance with Article 177 of the CRR, in line with the conclusions of the Report on the role of environmental and social risks in the prudential framework.
206. However, the principles and guidance should allow sufficient flexibility to allow the development of tailored approaches for the internal risk management by institutions. This is important especially for those institutions that have already taken investments and effort to build up their own internal methodologies or to buy external tools and data. Any guidance for institutions on the management and measurement of ESG risks should be proportionate and should not hamper further developments and innovation.
207. The EBA concludes that the feasibility of designing a standardised methodology differs greatly depending on the type of exposures and risks considered. While developments are observed in the context of identifying and assessing ESG risks, there is still insufficient understanding and evidence on their effective impact on credit risk parameters. In this context, introducing a standardised methodology to identify and qualify exposures subject to climate-related transition risk seems to be the most feasible for large corporates. This potential feasibility will further increase once transition plans and data points from ESRS will be published<sup>107</sup>. For climate-related physical risks, institutions still face data gaps regarding granular data on geolocation of the company's economic activities (directly or indirectly through its value chain). However, climate risk data appears more available for the financed immovable properties and the granularity of the data available to institutions regarding economic activities is expected to improve in the coming years, thereby increasing the feasibility of introducing a standardised methodology for large corporate exposures, also to address climate-related physical risk.
208. Regarding SMEs, a similar approach as the one suggested for larger corporates could be suggested in the medium term. However, given the limited availability of data and the lack of standard practices, introducing such a methodology in the short term does not appear feasible.
209. Mortgage exposures for households account for a significant proportion of loans to households. For this specific category of exposures, practices tend to be fairly standardised. Significant efforts have been made by public institutions to standardise information over time<sup>108</sup>. Therefore, it seems

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<sup>107</sup> The largest EU companies in scope are expected to publish their first sustainability report under CSRD by January 2025.

<sup>108</sup> For example EPCs starting from 2002 in the EU, in accordance with Directive 2002/91/EC.

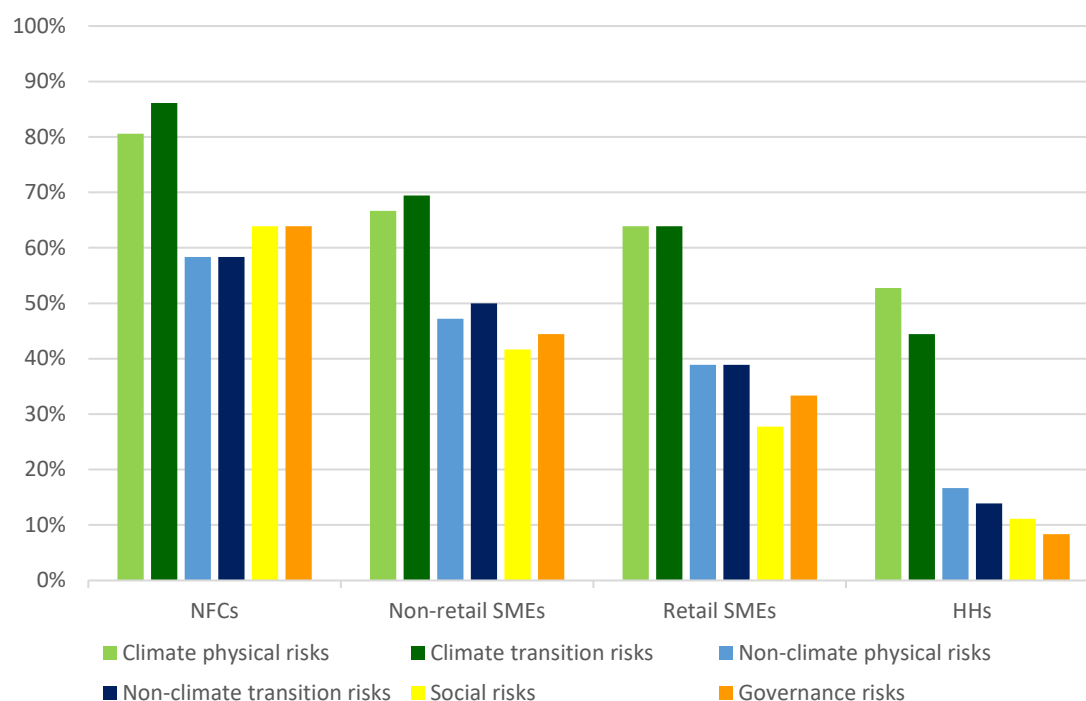
feasible to develop a common methodology for mortgage exposures, covering both physical and transition risks, based on the location and energy efficiency of the immovable property collateral, although the required granularity and linking it to climate hazards may still pose specific challenges.

210. For other environmental risks beyond climate, social and governance risks, practices appear still nascent and the availability of data too limited to consider proposing a standardised methodology to identify and classify exposures in the short term.
211. In the future, should the development of such a common methodology be pursued for all types of exposures, the following conclusions from the current analysis could be considered:
- Assessing materiality of ESG risks and their impact on credit risk parameters could be the starting point. At the current stage institutions apply various approaches to assessing the materiality, which may lead to significant variability in both the results of the assessments and the information that is disclosed.
  - Different pace in developments is observed in different exposure classes, hence any common methodology may also need to follow a sequenced approach. It appears that most promising prospects at this stage exist for assessing climate-related transition risk for large corporates, based on the industry sector, emission levels and transition plans. Another exposure class where relatively more commonalities in approaches emerge are mortgage exposures to households, based on geographical location and energy efficiency of immovable property collateral. For other exposure classes, more time may be needed to find consensus on the appropriate approaches and transmission channels.
  - For the full spectrum of environmental risks, including transition and physical risks, it seems that the most commonly applied criteria are economic sector and geographical location. This could therefore be a basis for potential future consideration of a standardised methodology. For example, a focus on high-transition-risk sectors could be envisioned, particularly the fossil fuel industry, given its critical role in achieving climate objectives. However, this would require prior developments regarding availability of granular data, especially related to geographical locations. More evidence in that regard would be needed to assess the possibility of such a common methodology.
212. In the continuity of this report, the EBA will continue to work, taking account of advances in the use of ESG data and risk methodologies in this area. The EBA is also preparing to deliver on the mandates included in points (c) and (d) of Article 501c(1) of the CRR. As part of these efforts, the EBA will assess the effective riskiness of exposures related to assets and activities subject to impacts from environmental or social factors compared to the riskiness of other exposures that are not related to such assets and activities. Based on that, the EBA will further consider the possibility of a revision to the prudential framework, considering the developments agreed to at the international level by the Basel Committee.

## ANNEX I: Key survey results for non-retail SME exposures

213. In addition to Chapter 2.2, this annex aims to present an overview of key results from the industry survey regarding the SME non-retail exposures to ESG risks. The following figures emphasise main findings for practices related to the identification and qualification of such exposures.

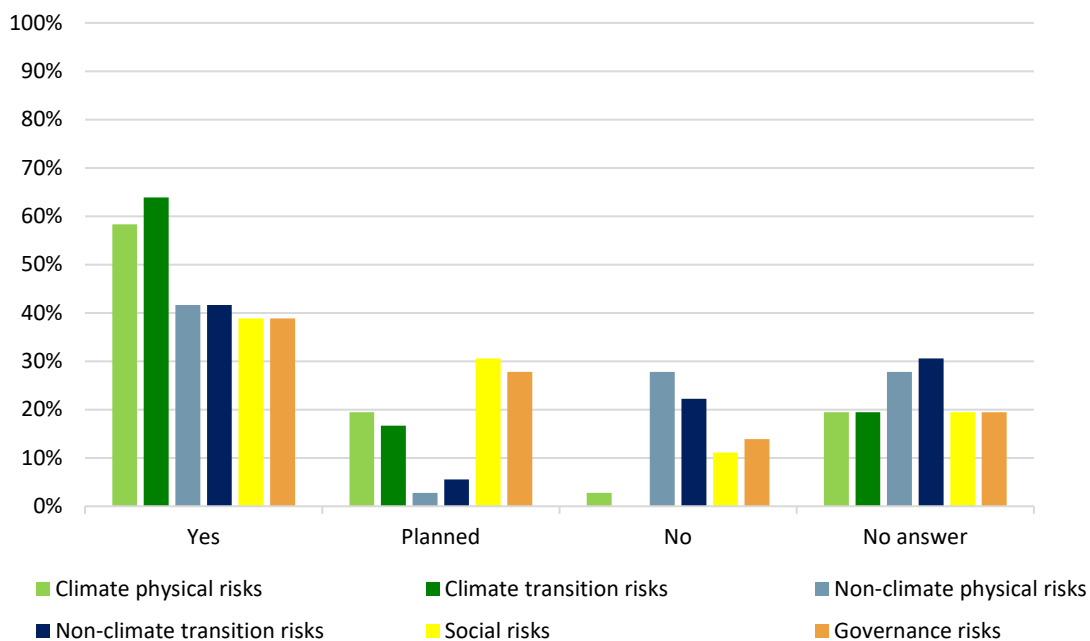
Figure 21: Institutions identifying or qualifying exposures to ESG risks<sup>109</sup>



214. Around 70% of the institutions participating in the survey have a methodology to identify and possibly quantify exposures to climate risks. Lower percentages are observed for the other ESG risks, with non-climate-related physical and transition risks being around 50%. Social and governance risks have slightly lower percentages, but are above 40%.

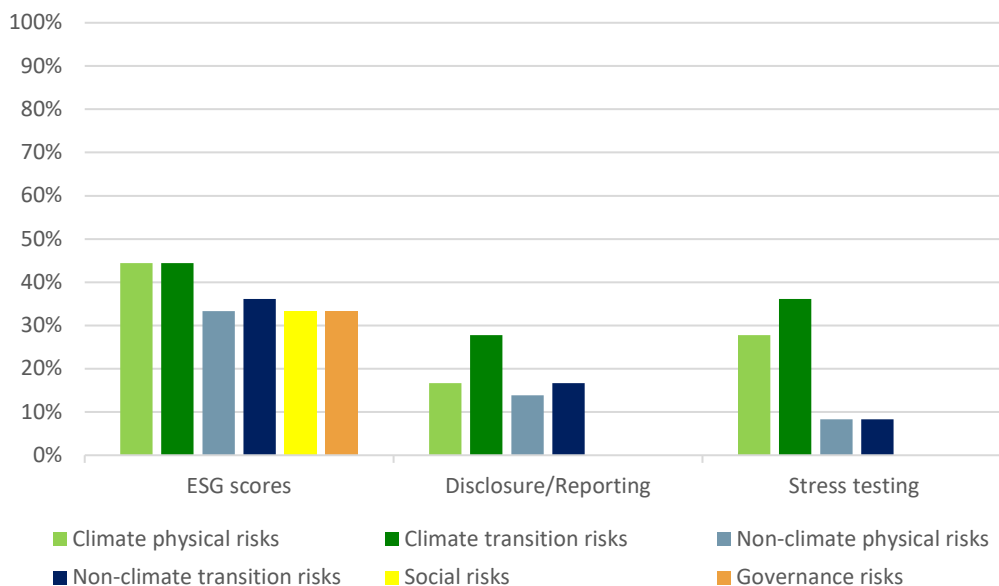
<sup>109</sup> Please take note that 11% of the institutions did not provide any reply (neither 'Yes', 'Planned' or 'No') in the exposure class HHS for non-climate physical, non-climate transition risks and social risks, and 14% for governance risks.

Figure 22: Institutions identifying ESG risks to non-retail SME exposures



215. Most institutions declare having an identification methodology, mostly for environmental transition and physical risks (around 60% for climate-related risks and around 40% for other environmental risks), and to a lesser extent for social and governance risk, which also concentrate most of the related planning efforts (close to 30%).

Figure 23: Elements currently used to identify ESG risks to non-retail SME exposures<sup>110</sup>

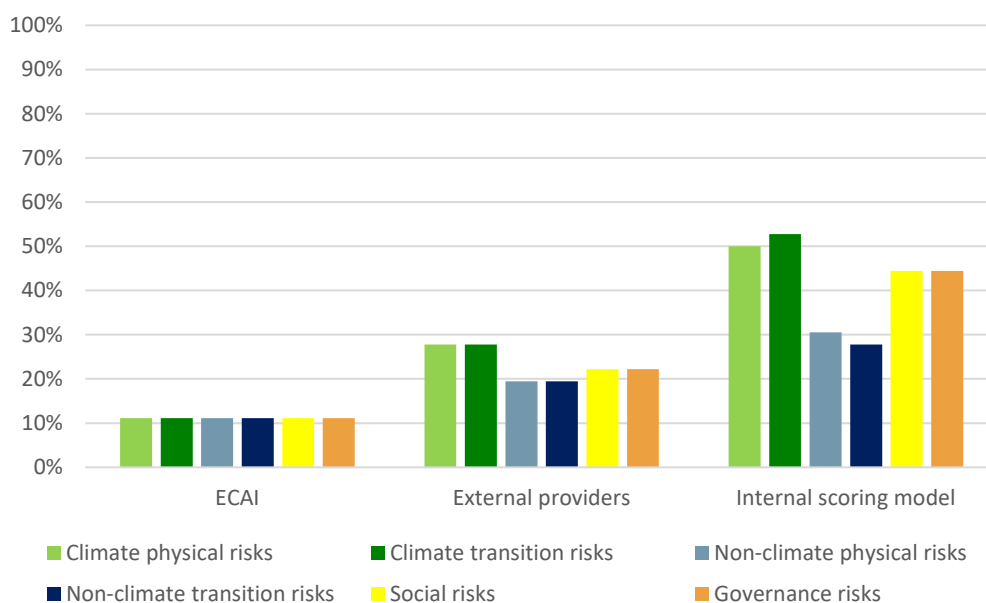


216. Among the mandate’s sub-elements, the most used to identify non-retail SME exposures to all E, S and G risks appear to be ESG scores, especially for climate-related risks (around 45%) and in more than 30% of the cases for the other ESG risks. The guidance and conclusions from stress testing and scenario analysis is predominantly used for identifying climate-related transition risks (about 30% of cases on average). Planning efforts seem somewhat evenly distributed for climate-related risks across the three tools. Nevertheless, both for current and planned practices the EBA has observed a significant percentage of non-responses for risk types and tools (oscillating between 19% for ESG scores considering climate-related, social and governance risks, and 28% for stress testing and scenario analysis).

<sup>110</sup> Please take note that 19% of the institutions did not provide any reply (neither ‘Yes’, ‘Planned’ or ‘No’) for ESG scores for climate physical and transition risks, social risks and governance risks, while 22% for non-climate physical and transition risks. For disclosure/reporting, 22% of the institutions did not provide any reply (neither ‘Yes’, ‘Planned’ or ‘No’) for climate physical and transition risks, while 28% for non-climate physical and transition risk. For stress testing, 22% of the institutions did not provide any reply (neither ‘Yes’, ‘Planned’ or ‘No’) for climate physical and transition risks, while 28% for non-climate physical and transition risks.

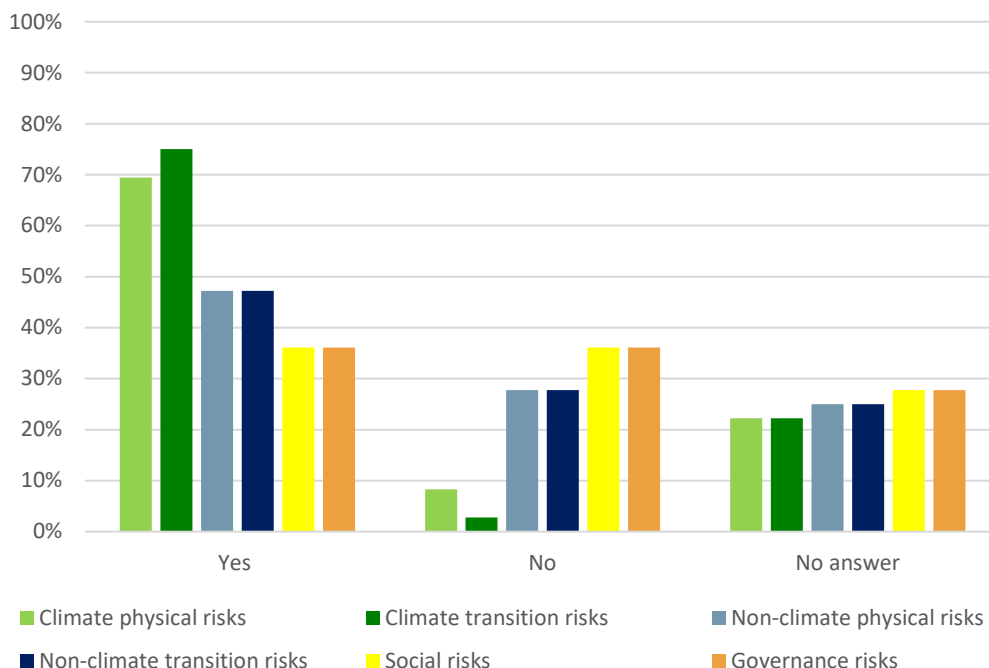


Figure 24: Type of ESG scores used / planned to be used to identify ESG risks to non-retail SME exposures



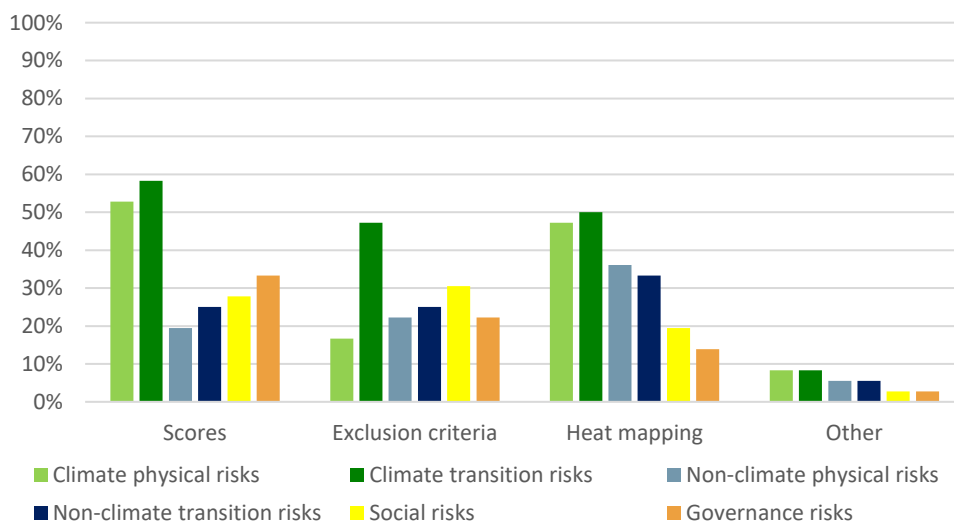
217. Overall, institutions state their reliance on ESG scores for the identification of non-retail SME exposures to ESG risks, including ESG scores of other external data providers, internal scoring models and ESG scores of a nominated ECAI. Most institutions appear to rely on ESG scores of internal scoring model (at least around 30% for all categories except for environmental transition risks other than climate-related risks). Over 50% rely on them for the identification of climate-related risks, and around 30% for other environmental risks. About 45% use such scores for the identification of social and governance risks.

Figure 25: Institutions qualifying non-retail SME exposures subject to ESG risks



218. Compared to the percentages of banks identifying exposure to ESG risk, slightly fewer banks declare they have in place methodologies to qualify and classify exposure to ESG risk. Higher percentages are still for climate risks, with less than 10% of the banks saying they do not have qualification processes in place. Percentages of ‘no’ answers are below 30% for all the types of ESG risks.

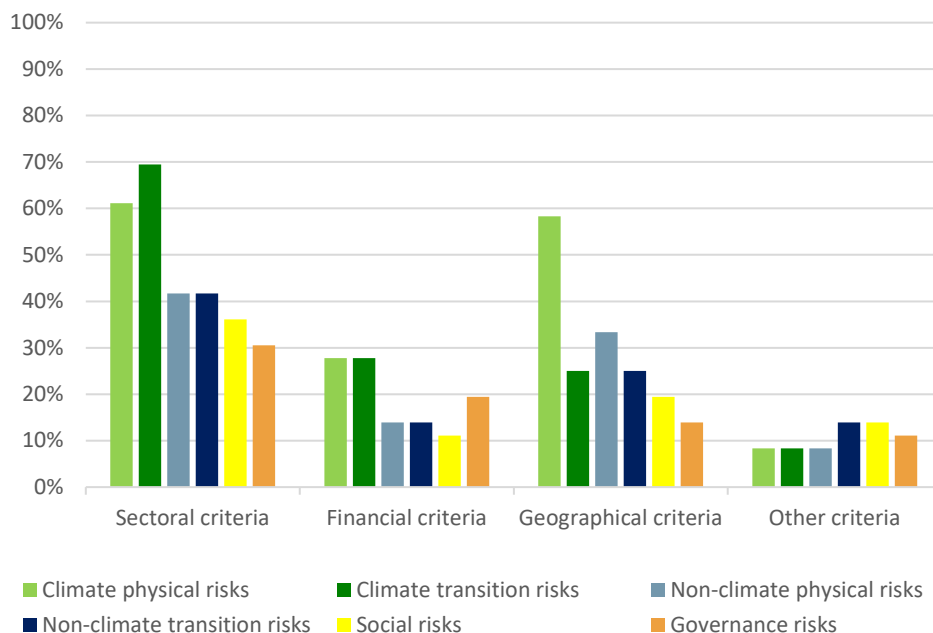
Figure 26: Methodology used to define buckets / pools / levels of non-retail SME exposures to ESG risks



219. Close to 60% of the institutions use ESG scores (calculated internally or acquired from external sources) for the qualification of non-retail SME exposures to climate-related transition risks, while around 50% use exclusion criteria (such as limiting or excluding financing for certain activities or sectors associated with higher ESG risks), and heatmapping (for example assessing the vulnerability

of different sectors and geographies to ESG risks). Only very few institutions report relying on other types of methodologies.

Figure 27: Criteria used for classification of non-retail SME exposures



220. Most institutions use sectoral criteria for classifying non-retail SME exposures to environmental risks, about 60% use geographical criteria for climate-related physical risks, and close to 30% use financial ones for climate risks. Only about 10% of institutions state they use other criteria across ESG risk types, with most occurrences observed for environmental transition risks beyond climate and social risks.

## ANNEX II: Review of selected climate-related risk assessments

		ACPR / BdF	APRA	BdE	BdP	BoC / OFSI	BoE
Date	Publication	May 2021	Early 2022	2023	Jul 2023	Nov 2021	May 2022
Scope	Financial sectors	Banks & Insurers	Banks	Banks	Banks	Banks & Insurers	Banks & Insurers
	Exposure focus	Corporates, households and sovereign [insurers' assets and claims from physical events]	Banks' corporate & mortgage exposures (rep around 75%)	Exposures in the business in Spain and the Spanish and other euro area countries' bond portfolios.	Banks' exposures to NFCs	10 most emission-intensive sector & Canadian and partial other American exposures	<i>Non-available or non-applicable</i>
	Types of climate risks	Transition risk [physical risk for insurers only]	Transition & physical	Transition and physical	Transition & physical	Transition	Transition, physical + litigation
	Types of banking risks	Credit, market & counterparty	Credit + qualitative for other risks	Credit, market and other	Credit	Credit	Credit
Horizon	Time horizon	Long-term	Long-term	Short-term	Long-term	Long-term	Long-term

	<b>Specific time span</b>	30 years	30 years	3 years	30 years	30 years (5-year intervals)	30 years, physical risks 60 years
<b>Scenarios</b>	<b>Scenarios</b>	3 NGFS + 1 physical (based on RCP 8.5)	2 NGFS	ECB-ESRB scenarios with NGFS estimates and Banco de España estimates of variables.	3 NGFS	4 NGFS	3 NGFS enhanced
	<b>Scenarios narratives</b>	> Orderly transition > Disorderly transition > Delayed transition	> Current policies > Delayed transition	> Disorderly transition scenario > Drought and heatwave scenario	> Current policies > NZ 2050 > Delayed transition	> Current policies (2019) > Below 2°C > Below 2°C delayed > NZ (1.5°C)	> Current policies > NZ (Orderly transition) > Disorderly transition
	<b>Baseline scenario</b>	Orderly transition	<i>Non-available or non-applicable</i>	A trend baseline scenario in which there is no climate change related risk.	NZ 50	BAU - current policies	Counterfactual = hypothetical scenario with no headwinds from climate risks
<b>Model</b>	<b>Owner</b>	Bottom-up [top-down for the liability side of insurers]	Bottom-up	Top-down	Top-Down	Bottom-up & Top-down for credit risk / Top-down for market risk	Bottom-up
	<b>Balance sheet approach</b>	Static to 2025, dynamic to 2050	Constrained dynamic	Dynamic	Static	Static	Static + dynamic elements in questionnaire
<b>Data</b>	<b>Granularity</b>	Sectoral & counterparty	Sectoral & counterparty	Sectoral & counterparty	Sectoral & counterparty	Sectoral & counterparty	Sectoral & counterparty

		ECB	Deutsche Bundesbank	Deutsche Bundesbank	DNB	DNB	Finansinspektionen
Date	Publication	2023	Apr 2023	Jan 2024	Nov 2018	Dec 2023	Apr 2022
Scope	Financial sectors	Credit risk: banks, Market risk: banks, insurance companies, investment funds, pension funds	Banks	Banks, Insurers and Funds	Banks, Insurers & pension funds	Banks	Banks
	Exposure focus	Banks' corporate & mortgage exposures	Banks' corporate exposures	Banks corporate exposures, all institutions securities portfolios	Half of total aggregate exposures	Real estate exposures	Exposures towards high emitting sectors
	Types of climate risks	Transition	Transition	Transition	Transition	Transition & physical	Transition
	Types of banking risks	Credit & market	Credit	Credit & market	Credit & market	Credit	Credit
Horizon	Time horizon	Short-term	Short-term	Short-term	Short-term	Short-term	Short-term
	Specific time span	2022-2030	3 years/10 years	8 years	5 years	1 year	5 years
Scenarios	Scenarios	3 NGFS, enhanced with BMPE projections for 2023-25	2 NGFS 1 scenario generated within an Environmental	2 NGFS 1 scenario generated within an Environmental	4 energy transition scenarios	38 adverse scenarios (from national open-source data base)	Scenarios from the PACTA tool

			Dynamic Stochastic General Equilibrium Model	Dynamic Stochastic General Equilibrium Model			
	<b>Scenarios narratives</b>	<ul style="list-style-type: none"> <li>&gt; Accelerated transition (NGFS delayed transition frontloaded to 2023)</li> <li>&gt; Late-push transition (NGFS delayed transition frontloaded to 2026)</li> <li>&gt; Delayed transition (NGFS orderly transition starting in 2026)</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Current policies</li> <li>&gt; Orderly transition</li> <li>&gt; Ad hoc carbon price increase</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Current policies</li> <li>&gt; Orderly transition</li> <li>&gt; Ad hoc carbon price increase</li> </ul>	<i>Non-available or non-applicable</i>	<ul style="list-style-type: none"> <li>&gt; single-breach floods</li> <li>&gt; extreme multiple-breach floods</li> </ul>	Scenarios are consistent with the Paris Agreement.
	<b>Baseline scenario</b>	Current policies	NGFS current policies	NGFS current policies	<i>Non-available or non-applicable</i>	<i>Non-available or non-applicable</i>	None
<b>Model</b>	<b>Owner</b>	Top-down	Top-down	Top-down	Top-down	Top-Down	Bottom-up
	<b>Balance sheet approach</b>	Static	Static	Static	Static	Static	Static
<b>Data</b>	<b>Granularity</b>	Counterparty	Sectoral & counterparty	Sectoral & counterparty	Sectoral	Sectoral & counterparty	Loan level

		HK	National Bank of Romania	OeNB	OeNB	SSM	US FED
Date	Publication	Probably by end 2024	Dec 2019	Nov 2021	H1 2023	Jul 2022	May 2024
Scope	Financial sectors	Banks	Banks	Banks	Banks	Banks	Banks
	Exposure focus	BS exposures + Off BS exposures	Banks' exposures to NFCs	banks' corporate loans	Loan exposure of a sample of 49 Austrian capital market oriented non-financial IFRS groups	Institutions' corporate & mortgage exposures + at least 80% of geo exp	Banks' corporate & RRE and CRE loans
	Types of climate risks	Transition & physical	Transition	Transition	Transition	Transition & physical	Transition & physical
	Types of banking risks	Credit, market & operational*	Credit	Credit & market	Credit	Credit & market	Credit
Horizon	Time horizon	Short-term & Long-term	Short-term	Short-term	Short-term	Short-term & Long-term	Short-term & Long-term
	Specific time span	5 years & 30 years (5-year intervals)	1 year to 5 years	5 years	1 year	3 years & 30 years (10-year intervals)	Physical 1 year (under projected conditions in 2050), Transition 10 years
Scenarios	Scenarios	3 NGFS + 1 short-term (climate & macroeconomic)	3 NGFS	3 in-house	1 NGFS	3 NGFS + 1 short-term + 2 physical	2 NGFS + range of severity physical shocks



	<b>Scenarios narratives</b>	> Below 2°C (Orderly) > Delayed transition (Disorderly) > Current policies	> Current policies > NZ 2050 (orderly transition) > Delayed transition	> Current policies > Orderly increase of carbon emission costs > Disorderly increase of carbon emission costs	> Orderly transition (additional costs due to a CO2 price of 60 EUR/t CO2 equivalents)	> Current policies (HHW) > NZ (Orderly transition < 2°C) > Disorderly transition	> Current policies > NZ 2050 (orderly transition)
	<b>Baseline scenario</b>	<i>Non-available or non-applicable</i>	Current policies	Current OeNB solvency ST	CO2 costs already accounted for in the financial statements.	<i>Non-available or non-applicable</i>	Current policies
<b>Model</b>	<b>Owner</b>	Bottom-up	Top-down	Top-down	Top-down	Bottom-up	Bottom-up
	<b>Balance sheet approach</b>	Static + banks may adjust portfolio mix if clear and measurable goals	Static	Static	Static	Static for ST, dynamic for LT	Static
<b>Data</b>	<b>Granularity</b>	Sectoral & counterparty	Sectoral & counterparty	Sectoral	Counterparty	Sectoral & counterparty	Counterparty



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