EUROPEAN CENTRAL BANK

BANKING SUPERVISION

Walking the talk

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

Results of the 2022 thematic review on climate-related and environmental risks

November 2022

Contents

Executive summary

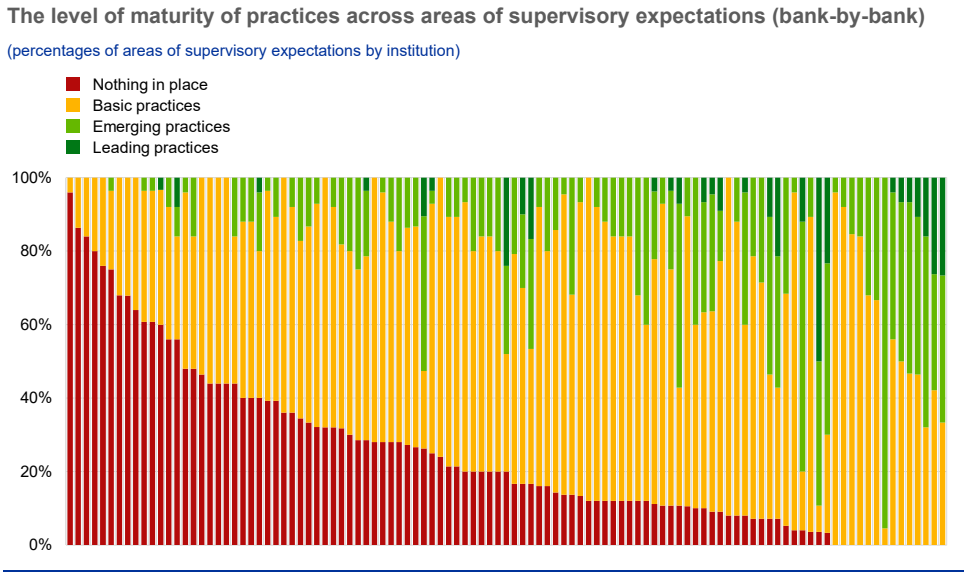
The European Central Bank (ECB) has concluded its thematic review on climate-related and environmental risks of 186 banks with total combined assets of €25 trillion, which is aimed at fostering the alignment of the banking sector with its supervisory expectations. These expectations were set out by the ECB in its Guide on climate-related and environmental risks ("the Guide") published in November 2020 to ensure that the banking sector effectively and comprehensively addresses climate-related and environmental (C&E) risks. In line with its supervisory priorities, the ECB launched a variety of supervisory exercises, including the comprehensive thematic review of institutions' capabilities to steer their C&E risk strategies and risk profile to foster alignment with the expectations set out in the Guide (Expectations 1-10). The review was conducted in tandem with the first supervisory stress test on climate-related risks, within which banks' stress testing frameworks were assessed, including from a qualitative perspective (Expectation 11). The review was conducted by the ECB and 21 national competent authorities and covered 107 significant institutions (SIs) and 79 less significant institutions (LSIs). This report describes the main findings of the review for significant institutions and outlines a number of findings for less significant institutions.

There is broad acknowledgement within the banking sector of the materiality of physical and transition risks within the current business planning horizon. Based on institutions' own assessments, the review shows that more than 80% of institutions conclude that the risks have a material impact on their risk profile and strategy, with 70% seeing material risk within their business planning horizon of three to five years. This presents a significant increase on the previous year, likely driven by improvements in institutions' materiality assessment. While these are predominantly qualitative assessments, institutions that supplement these with quantitative approaches and forward-looking assessments are more likely to gauge the materiality of the risks.

Most institutions have now devised an institutional architecture to address climate-related risks, having clearly built up their capabilities compared with 2021. Over 85% of institutions now have at least basic practices in place for most of the areas addressed by the expectations (see Chart 1). This means that they have performed an initial mapping of their risk exposures, allocated responsibilities within the organisation, set initial key performance and risk indicators, and developed a qualitative mitigation strategy for at least part of their risk exposures. However, the approaches still lack methodological sophistication, the use of granular information on risk and/or active management of the portfolio and risk profile. Moreover, it is noted that around 10% of the institutions are lagging behind and have not shown any material progress in the past year. These institutions started from a weak position in 2021, but have either not been able complete all of their planned actions or have not incorporated last year's feedback from the ECB. For most of them, there is no clear C&E-related risk governance in place, undermining the overall capability to steer the institution towards managing C&E risks.

Chart 1

Bank-by-bank results of the 2022 thematic review



Source: Supervisory assessment of 107 significant institutions' responses to the 2022 thematic review on climate-related and environmental risks.

Some institutions have started to use transition planning tools, along with targeted client engagement to enhance the resilience of their business model over longer time horizons, but a wait-and-see approach is still prevalent. Some leading institutions use scientific pathways to assess their portfolio's alignment with the Paris Agreement and set concrete intermediate targets showing how portfolios have to evolve over time to meet longer-term objectives, such as reaching net-zero emissions by 2050. These institutions adjust their product offering, establish policies to phase out specific activities within a certain timeframe and engage with clients, taking client-specific actions to mitigate the risk of misalignment with the institution's objectives. They have processes in place to respond to cases where engagement fails, such as ultimately abandoning client relationships. Transition planning policies, processes and actions are integrated into these institutions' organisational framework. However, at this stage, a wait-and-see approach in strategy-setting is still prevalent in most institutions. In particular, long-term strategic commitments are not supported by intermediate targets, limits and thresholds, or these are set such that there is negligible immediate impact on the institution's exposure profile. Institutions are exposed to elevated risks, including potential reputational, litigation and liability risks where they do not adequately follow up on their commitments. Moreover, it is still rare for institutions to test their strategies against various pathways.

Virtually all the institutions need to make far-reaching and enduring efforts to develop consequential, granular and forward-looking approaches to manage C&E risks. Less than 10% of institutions use sufficiently forward-looking and granular C&E risk information in their governance and risk management practices. To assess the full magnitude of the risks, institutions first need to develop their data governance framework and more actively collect granular data at the counterparty, facility or asset level in order to develop measurement approaches at higher resolution. In addition, more forward-looking reporting and higher-resolution KRIs at the portfolio level, with

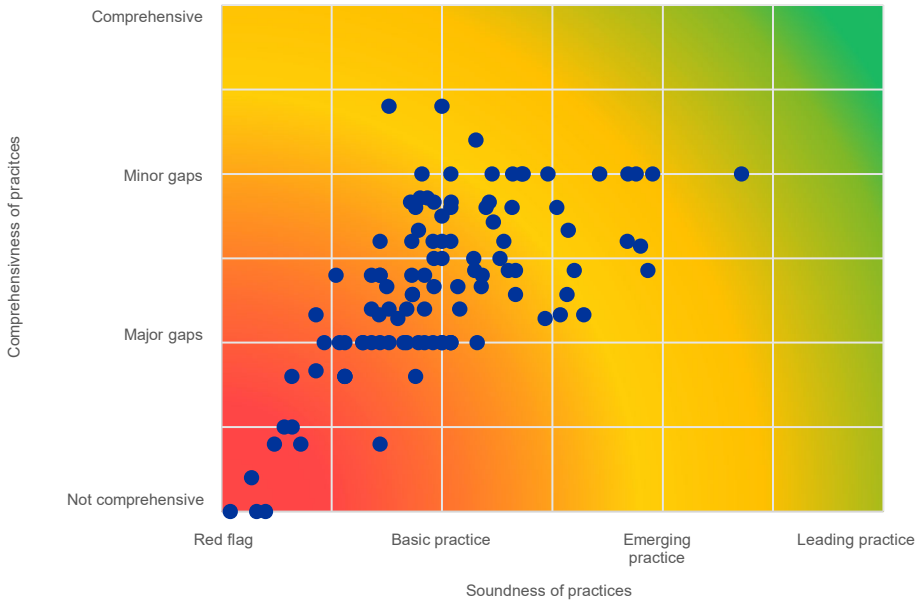
well-calibrated limits and thresholds and clear mitigation actions in escalation procedures, are needed to support decision-making. Institutions should also more expressly integrate C&E risks into their rating systems, pricing and collateral valuations, and better assess reputational and liability impacts when financing activities with adverse environmental consequences, estimating economic capital needs for all material risk. The table below describes various examples of observed practices in this regard.

Institutions need to make further efforts to attain an acceptable degree of coverage of key portfolios, geographies and risk drivers. The supervisory assessment identified significant weaknesses in institutions' practices and their ability to manage C&E risks in a sound and comprehensive manner. Institutions continue to significantly underestimate the breadth and magnitude of the risks. Blind spots in the identification of C&E risks in key sectors, geographies and risk drivers were identified in 96% of institutions and, of these, 60% were considered to be major gaps. For example, for physical risk, many institutions only cover certain risk drivers (e.g. flood risk) for individual portfolios (e.g. mortgages in one country), but fail to reflect the full array of risk drivers. Remarkably, out of the 21 institutions that did not report that they were materially exposed, the supervisory assessment showed that not a single one had comprehensively covered its main risk types and main portfolios. Moreover, when assessing the extent to which institutions' strategies and risk management processes address identified material risks, the review showed that not one institution has practices in place which comprehensively cover all C&E risk drivers that are material or likely to be material.

Chart 2

Soundness and comprehensiveness of institutions' practices to manage C&E risks

(average level of soundness (horizontal axis) and comprehensiveness of practices (vertical axis) for 107 significant institutions)



Source: Supervisory assessment of 107 significant institutions' responses to the 2022 thematic review.
Notes: Each dot represents a single significant institution, taking the weighted average of all applicable assessment modules. The scope of the thematic review varies by institution, as not all institutions were included in all assessment modules (see Chapter 2.2 for more details).

Notwithstanding the progress made by many institutions on their implementation plans, the ECB expresses significant supervisory concern regarding the execution capabilities of around half of the institutions. The review showed that 55% of the institutions have devised practices but failed to implement them effectively. This means that they developed practices at the policy and procedural level, but nevertheless declared relevant counterparties to be out of scope, did not reflect available information in credit decisions or simply did not implement the policies and procedures for significant parts of the portfolio. This lack of effectiveness is in part because the majority of institutions have neither translated strategic objectives into tangible steering of portfolio allocations nor addressed material risks with concrete and consequential limits, tolerances and thresholds. For instance, most institutions have formulated C&E-related key performance indicators (KPIs) and key risk indicators (KRIs), but these are seldom cascaded down to business lines and portfolios, and a clear framework for corrective action is frequently absent. Often, the internal audit function has not been allocated clear responsibilities, leaving the management body without an independent view on the institution's capability to manage C&E risks. Similarly, institutions show a strikingly low appreciation of capacity and resource needs. Even where concrete targets, limits and thresholds exist, the current ambition levels set often have no impact on institutions' existing exposures, business model and risk profile. Lastly, in one-fifth of cases, institutions acknowledged that board-approved planned actions over the past year had not been completed.

The ECB's remediation timelines require the institutions to ensure full alignment with all expectations by the end of 2024 and include the deployment of further supervisory instruments to instigate decisive actions where needed. The ECB took proportional additional steps in its supervisory engagement. All significant institutions received comprehensive feedback letters, on average containing about 25 shortcomings, in which the ECB set institution-specific remediation timelines with a view to ensuring full alignment with all expectations by the end of 2024. After imposing a first set of qualitative requirements in 2021, the ECB imposed binding qualitative requirements on more than 30 institutions as part of the Supervisory Review and Evaluation Process (SREP) to address severe weaknesses. While a handful of institutions had already started setting aside economic capital as part of their Internal Capital Adequacy Assessment Process (ICAAP), for a small number of institutions, supervisory exercises were reflected in SREP scores. These, in turn, have an impact on Pillar 2 capital requirements. The aforementioned timelines and requirements will be closely monitored and if necessary enforced by the Joint Supervisory Teams (JSTs) and reflected in the C&E risk assessment of the SREP and its qualitative and quantitative requirements in 2023 and beyond, where appropriate.

On a more positive note, the good practices observed in numerous institutions demonstrate how the sector can harness innovation to address the prevailing challenges. Leading practices were observed in 25 out of 30 areas under investigation, including in traditionally more challenging ones, such as data governance, risk classification and pricing. A quarter of institutions demonstrated that they had deployed leading practices in at least one area (see Chart 2), showing that concerted efforts can pave the way towards full alignment with the expectations. The

ECB has published a compendium of good practices alongside this report to highlight avenues for further aligning practices with supervisory expectations (see Table 1 for some examples).

Table 1

Institutions leading the way towards full alignment with the supervisory expectations

Areas of focus	A selection of observed good practices
Business strategy	• Institutions are using **state-of-the-art scientific transition pathways** to develop targets to steer their strategy. • Institutions do so, for example, by setting **intermediate and longer-term targets using forward-looking tools** to avoid the build-up of excessive transition risk in their portfolios. • This target-setting process is **fully integrated** in the institution's governance, risk appetite and risk management framework and reflected in the **types of products and services** offered to clients.
Governance	• Institutions have developed **advanced methods to collect granular data** to quantify the risks stemming from climate change. • With such methods, institutions collect **client and asset-level data**, such as data on actual greenhouse gas emissions, water consumption intensity, energy performance certificates and fossil fuel dependency. • These data are used to develop **granular risk indicators,** which **are reported to the management body** in a systematic manner. Such indicators are also integrated into institutions' **variable remuneration** practices.
Risk management	• Institutions are **allocating economic capital** specifically to the management of physical and transition risks and integrating this in their **rating system for probability of default**. • Institutions assess capital adequacy using **scenario analysis** in their ICAAP, covering market, credit and operational risks. • Institutions are including C&E risks in their **internal ratings-based models**, for example by using qualitative variables or rating overrides in their PD rating systems. In such cases, risks may also be reflected in loan pricing via **credit and funding cost price calculations** or through expected profit margins.

Source: ECB, "Good practices for climate-related and environmental risk management", November 2022.

The ECB also observed good practices being deployed in relation to broader environmental risks, with institutions leveraging existing climate-related risk approaches. Around two-thirds of institutions have now started work on targeting broader environmental risks, including risks related to biodiversity loss, water stress and pollution. In most cases, this is still limited to high-level considerations of physical and transition risk drivers in institutions' materiality assessment and/or the definition of basic exclusion criteria to avoid adverse environmental – and reputational – impacts. However, a group of institutions is leading the way with advanced due diligence approaches, biodiversity impact measurement and target-setting for environmental risks. Some of these practices have been included in the good practices compendium.

1 Organisation of the thematic review

1.1 Background

With the publication of the ECB Guide on climate-related and environmental risks ("the Guide") in November 2020, the ECB set out its view that institutions should take a strategic, forward-looking and comprehensive approach to considering C&E risks. Based on the existing prudential framework, the Guide describes how the ECB expects institutions to consider C&E risks – as drivers of existing categories of risk – when formulating and implementing their business strategy and governance and risk management frameworks. It also explains how the ECB expects institutions to become more transparent by enhancing their C&E disclosures.

In early 2021 institutions were requested to perform a self-assessment of their current practices against the expectations set out in the Guide and to inform the ECB of their implementation plans for advancing the management of C&E risks. On that basis, the ECB assessed institutions' level of preparedness and the adequacy of their implementation plans. The outcome of the assessment was communicated in the third quarter of 2021.[1] In general, the ECB observed that, while some institutions had taken considerable steps, none of the institutions were close to fully aligning their practices with supervisory expectations and the quality of institutions' implementation plans varied considerably. Moreover, few institutions had put in place C&E risk practices with a discernible impact on their strategies and risk profiles.[2]

With the 2022 thematic review, the ECB conducted further deep dives into institutions' C&E risk strategies, as well as their governance and risk management frameworks and processes. In doing so, the ECB assessed and evaluated the soundness and comprehensiveness of institutions' key policies and procedures, as well as their ability to effectively steer their C&E risk strategies and risk profiles.

The ECB discussed the outcome of the thematic review in the supervisory dialogue between the institutions and the JSTs. In addition, the outcome of the thematic review has been incorporated into the 2022 SREP. In line with the ECB's communication that it would not directly reflect the findings from the thematic review in the quantitative SREP requirements across the board, the ECB took qualitative supervisory measures on a case-by-case basis and reflected the outcomes of the exercises in institutions' SREP scores.

---

1 ECB, "The state of climate and environmental risk management in the banking sector: Report on the supervisory review of banks' approaches to manage climate and environmental risks", November 2021 2021.

2 ECB, "Guide on climate-related and environmental risks: Supervisory expectations relating to risk management and disclosure", November 2020.

In line with the supervisory priorities,[3] the ECB conducted the thematic review in tandem with other ECB supervisory initiatives on C&E risks in 2022. Specifically, the ECB conducted the supervisory stress test on climate-related risks[4] and the targeted review of commercial real estate, which contained a granular request for information about the consideration of climate-related risks in specific commercial real estate portfolios. In addition, it started integrating assessment of institutions' management of C&E risks into its on-site supervision and completed a gap analysis of significant institutions' disclosures of C&E risks.[5]

1.2 Scope of the assessment

The thematic review covered 107 significant institutions under the direct supervision of the ECB. Another 79 less significant institutions under the supervision of national authorities from eight Member States also participated. The significant institutions (SIs) were assessed at the highest level of consolidation in the Single Supervisory Mechanism as at 1 January 2022. The less significant institutions (LSIs) were assessed by their respective national supervisory authority.[6] The table below describes the structure of the sample of SIs and LSIs in terms of their country of origin and asset size. It should be noted that whenever any observation in the report concerns LSIs, this will be explicitly mentioned; in all other cases, the use of the term "institutions" refers solely to SIs.

Table 2

Structure of the sample of significant and less significant institutions by country and asset size

	AT	BE	BG	CY	DE	EE	ES	FI	FR	GR	IE	IT	LT	LU	LV	MT	NL	PT	SI	Total
> €500 billion assets					2		3	1	5			2					2			15
€100 - €500 billion assets	2	2			7		3	1	3		3	4					2	1		28
€30 - €100 billion assets	3	3			13		4	1	2	4	2	6		2	1		3	2		46
< €30 billion assets	5		1	2	17	2	4		6			21	2	2	2	7	21	2	3	97
Number of institutions	10	5	1	2	39	2	14	3	16	4	5	33	2	4	3	7	28	5	3	186
Of which SIs	6	5	1	2	22	2	10	3	10	4	5	12	2	4	3	3	7	3	3	107
Of which LSI	4				17		4		6			21				4	21	2		79

Source: Results of the ECB's 2022 thematic review on climate-related and environmental risks.

3 See "Supervisory priorities for 2022-2024" on the ECB Banking Supervision website.

4 For more details, see ECB, "2022 climate risk stress test", July 2022.

5 For more details, see ECB, "ECB report on banks' progress towards transparent disclosure of their climate-related and environmental risk profiles", March 2022.

6 The national supervisory authorities included the Autorité de contrôle prudentiel et de resolution (ACPR), Banco de España, Banca d'Italia, Banco de Portugal, Bundesanstalt für Finanzdienstleistungsaufsicht (BaFin) and Deutsche Bundesbank, De Nederlandsche Bank, Malta Financial Services Authority and Oesterreichische Nationalbank.

The main sources of input for the review were dedicated questionnaires supplemented with underlying documentation and a series of meetings with the institutions. The review consisted of four core modules and three risk-specific modules (see Table 3). The core modules apply to all significant institutions, while the number and type of risk-specific modules vary for each institution, taking into account the principles of proportionality and materiality. Each assessment module consists of a set of assessment objectives, aimed at establishing comparative alignment with the ECB's supervisory expectations (see Chart 3).[7] The review includes a dedicated assessment module on the materiality assessment, as the ECB's supervisory expectations are rooted in the materiality of the risks, and the 2021 assessment showed that many institutions still had significant room for improving the way in which the impact of C&E risks was assessed. For LSIs, the number of assessment modules applicable depended on the type of institution, other complementary supervisory exercises and the national context. These variations should be kept in mind when interpreting the results for LSIs.

Table 3

Number of significant and less significant institutions within the scope of the thematic review

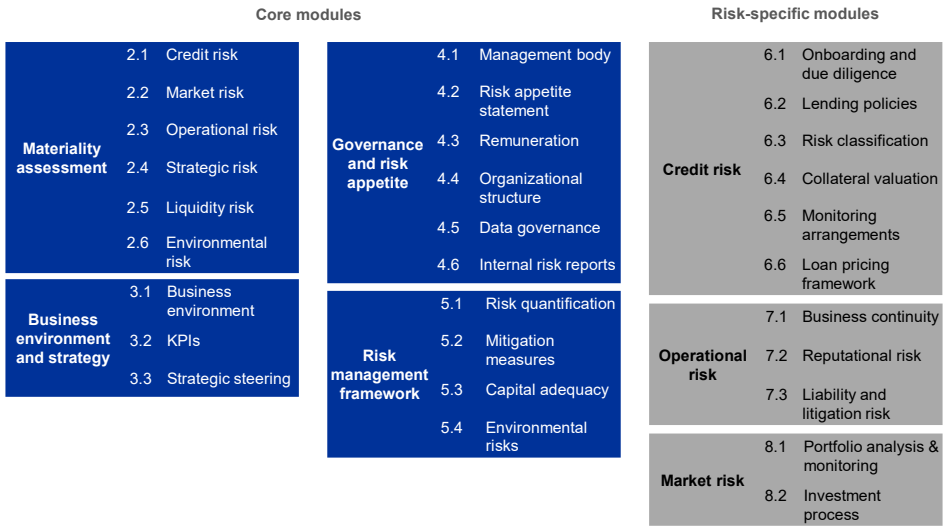
Type of module	Assessment module	Number of SIs	Number of LSIs
Core modules	Materiality assessment	107	79
	Business environment and strategy	107	54
	Governance and risk appetite	107	54
	Risk management framework	107	54
Risk-specific modules	Credit risk	94	23
	Market risk	19	-
	Operational risk	50	-

Notes: SI refers to a significant institution under the direct supervision of the ECB; LSI refers to a less significant institution under the direct supervision of the respective national supervisory authority.

7 Two of the supervisory expectations set out in the ECB Guide have been excluded from the scope of this review, namely Expectation 11 on stress testing and Expectation 13 on disclosures.

Chart 3

Assessment modules of the thematic review

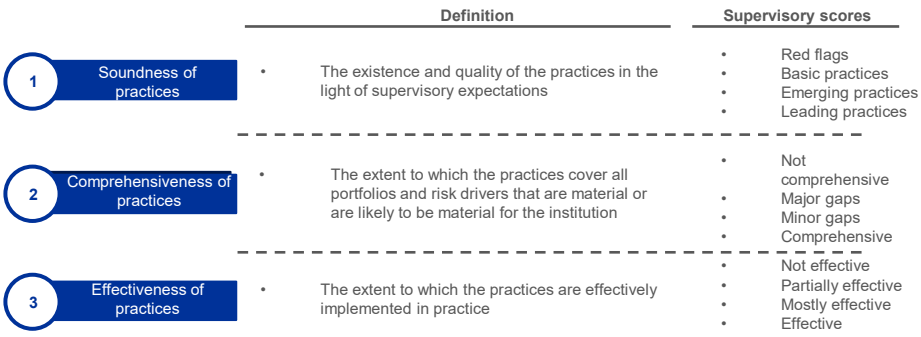


Note: Expectation 11 (stress testing) and Expectation 13 (disclosures) from the ECB's Guide are excluded from the scope of the 2022 thematic review and Expectation 12 (liquidity risk) falls within its scope only in a limited manner.

The institution's practices are assessed from three complementary perspectives, namely their soundness, comprehensiveness and effectiveness. Chart 4 describes the three perspectives in more detail. The decision to focus on these three assessment dimensions was taken in the light of the results and outcome of the 2021 supervisory assessment, which more narrowly focused on the soundness of practices. The 2021 assessment showed that, while institutions were increasingly developing practices within the context of C&E risk management, these practices often did not comprehensively cover C&E risk drivers that are material or likely to be material and/or institutions' main portfolios and geographies. This places limitations on institutions' ability to effectively steer their C&E risk strategies and risk profiles.

Chart 4

Main assessment dimensions of the thematic review



Source: ECB, 2022 thematic review.

In order to form a supervisory view of these dimensions, the ECB assessed the institution's policies and procedures and conducted a number of targeted case assessments. The questionnaire consisted of a series of questions directly related to

the expectations set out in the Guide. It called on institutions to submit supporting evidence and documentation on, for example, relevant policies and procedures. In addition, the JSTs also organised dedicated case study interviews with their institutions. As part of these interviews, institutions were asked to show for several of their clients how they have implemented their policies and procedures in practice (see Box 1).

Box 1

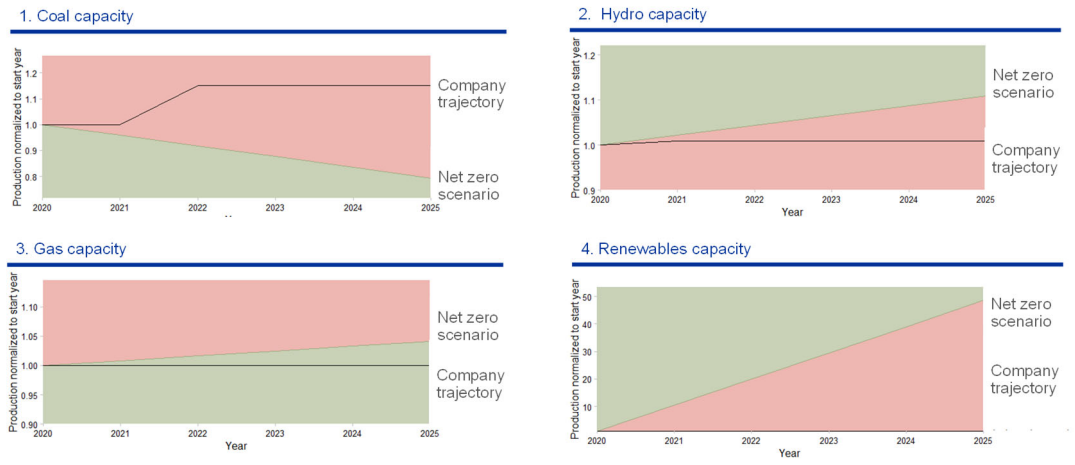
Case study interviews: Using company-level alignment assessments to challenge transition risk assessments

In the context of the thematic review, supervisors conducted case study interviews with banks to establish whether the policies and procedures established by the institutions are implemented effectively in practice. Case study interviews were conducted for the core modules, as well as for the risk-specific modules (i.e. credit, market and operational risk) when these came within the scope of the review. To conduct the interview for the risk-specific modules, supervisors selected a number of the institutions' largest clients that might be exposed to elevated risk and requested the respective client files.

To inform the selection of clients and assess pockets of elevated risks, the ECB used, inter alia, company-level alignment assessments using open source tools (see Chart A). For the assessment of alignment, an asset-level dataset was used containing physical production capacities in the present and forward-looking information on the five-year production plans of the corporates. This allowed construction of a forward-looking assessment of the companies' production capacities and, in turn, determination of the extent to which these are compatible with a narrow but achievable path to reach net-zero emissions by 2050.

Chart A

Anonymised example of company-level alignment assessments used in the thematic review



Sources: PACTA, Asset Resolution and IEA.
Notes: Clients were selected using supervisory data. Company-level assessment of alignment was conducted using the PACTA tool.

The example shows a power generation company with a technology mix of coal, hydro, gas and renewables capacities, with renewables and hydro comprising less than 30% of total production

capacity (not shown). The volume trajectories demonstrate that the company expanded coal-based production capacity in 2021, but has no concrete plans to deploy other capacities until 2025. Moreover, the net-zero scenario foresees a rapid deployment of renewables and hydro capacity alongside the phasing-out of, for instance, coal and gas. A comparison of the company's trajectories with the net-zero scenarios suggests that the company's trajectory is not compatible with the Paris Agreement. As policymakers develop industrial policies to steer their economies and associated production along the path to the Paris Agreement, companies that are clearly misaligned are more likely to be affected by such policy and market movements, and are exposed to elevated transition risk.

Supervisors compared the information from the case study interviews with the institutions' credit files and assessed the extent to which potentially elevated transition risks were identified, assessed and mitigated by the bank in question.

As a follow-up to the supervisory feedback on their implementation plans in 2021, institutions also had to submit their updated plans as part of the thematic review. The ECB assessed whether the institution uses these updated plans as an effective steering instrument to advance its practices towards alignment with the supervisory expectations. This also included an assessment of the extent to which the shortcomings identified in the 2021 feedback letter have been effectively addressed in the updated plan and the extent to which the institution has adequately fulfilled the planned actions it had set out for 2021 and the first quarter of 2022.

1.3 Follow-up of the assessment

Each significant institution has received a feedback letter setting out any shortcomings in its practices vis-à-vis the supervisory expectations. This letter sets out the main results of the thematic review and provides a comprehensive overview of the shortcomings identified, based on both the documentation submitted by the institution and the case study interviews conducted. Before sending out the letter, the JSTs also discussed the results with their institutions as part of the supervisory dialogue. On average, more than 25 shortcomings per institution were identified. Examples of such shortcomings were that the institution has not at all or insufficiently embedded material climate-related risks in the risk appetite statement by setting and measuring KRIs, or that the tasks and responsibilities for managing climate-related risks are not defined or are inadequately defined for the second line of defence. The ECB expects institutions to take decisive action to address the shortcomings identified.

The ECB set institution-specific remediation timelines for achieving full alignment with the expectations by the end of 2024, providing details on intermediate steps. The feedback letters set out remediation timelines for each shortcoming. To this end, the ECB took into account the dates set out in institutions' implementation plans where these adequately address the shortcoming and do so within a reasonable timeframe. Where this is not the case, the ECB set expected remediation dates to ensure a timely and effective resolution of the shortcoming, with

a view to maintaining a level playing field and considering institution-specific circumstances. To calibrate the remediation dates, the ECB took into account a horizontal assessment of institutions' implementation plans. Notably, the ECB observed that, in more than 80% of cases, institutions intend to complete the actions set out in their plans by the end of 2023 (see Chart 5).

In view of the above, the ECB expects institutions to be fully aligned with all supervisory expectations by the end of 2024 at the latest. Moreover, it expects institutions to reach, as a minimum, the following milestones:

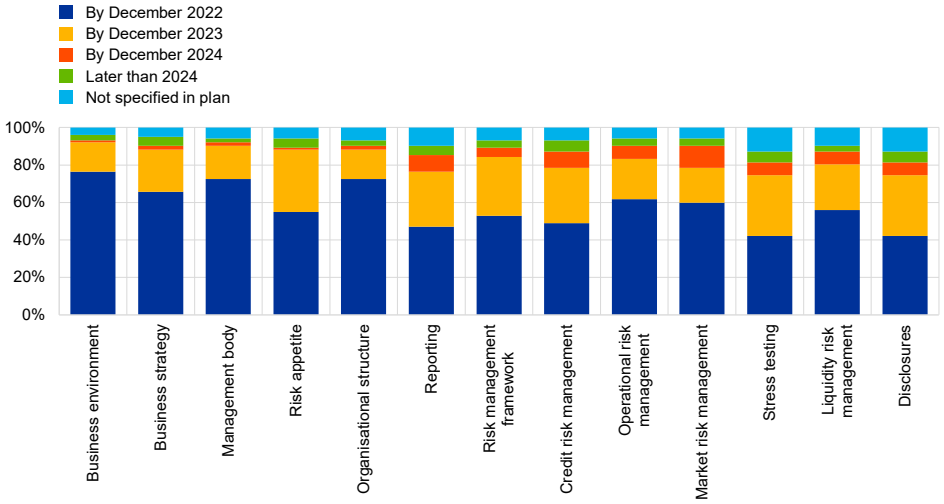
- by the end of March 2023 at the latest, to have in place a sound and comprehensive materiality assessment, including robust scanning of the business environment;
- by the end of 2023 at the latest, to manage C&E risks with an institution-wide approach covering business strategy, governance and risk appetite, as well as risk management, including credit, operational, market and liquidity risk management;
- by the end of 2024 at the latest, to be fully aligned with all supervisory expectations, including having in place a sound integration of C&E risks in their stress testing framework and ICAAP.

Expected remediation dates were discussed with significant institutions in dedicated feedback meetings and compliance will be monitored and if necessary enforced. In individual cases, the ECB considered institution-specific circumstances warranting deviations from the abovementioned expectation on full alignment and minimum milestones. The circumstances of some institutions, such as their risk profile, called for earlier expected remediation dates. In other cases, slight increases vis-à-vis, for instance, the minimum milestones were deemed to be warranted. This was typically accompanied by expectations for these institutions to demonstrate progress on intermediate steps. However, the ECB deemed that the absence of a thorough and complete assessment of C&E risks and their materiality cannot be a reason for lack of progress and should be remediated promptly. The JSTs will monitor compliance with the remediation dates set by the ECB in the feedback letters, taking appropriate supervisory action if warranted. Deviations from these remediation dates will be considered in the SREP going forward.

Chart 5

Institutions' planned implementation timelines by expectation

(percentages of institutions)



Sources: Supervisory assessment of significant institutions' responses to the 2021 self-assessment and the 2022 thematic review.
Notes: The chart shows data for the 102 institutions that participated in both the 2021 self-assessment exercise and the 2022 thematic review. Supervisors registered by what year institutions plan to complete implementation of specific expectations. In the 2022 questionnaire, institutions were asked to provide updates on their plans. This information is reflected in the data.

More than 30 significant institutions received a qualitative requirement as part of the 2022 SREP, and a small number of institutions saw their SREP scores impacted.[8] The ECB has set qualitative supervisory requirements on a case-by-case basis to address severe weaknesses identified in the thematic review. It communicated these qualitative requirements to the institutions concerned via a formal SREP decision. The affected institutions are required, depending on the specificities of the case, to submit a new implementation plan to address the severe weaknesses by a set remediation date, and/or to ensure implementation of already planned actions by a set date. Moreover, for a small number of institutions, the outcome of the 2022 supervisory exercises on C&E risks had an impact on their SREP scores. These in turn, have an impact on their Pillar 2 capital requirements. The table below gives an example of a severe weakness triggering a qualitative measure.

Table 4

Stylised example of severe weaknesses leading to a qualitative SREP requirement

Example of severe weakness	Example of qualitative SREP requirement
The institution did not conduct a sound and comprehensive materiality assessment for C&E risks and its operational plan does not foresee any actions in this regard.[1] The institution has not allocated responsibilities for C&E risks in its governance at all and only plans to reflect C&E risks in its governance framework by the end of 2024. This is deemed untimely from a prudential point of view.[1]	The operational plan shall take into account the institution's performance to date and, with respect to the identified weaknesses, the institution is required to: a) perform a comprehensive qualitative and quantitative materiality assessment of C&E risks, covering all risk categories it might be exposed to; b) explicitly monitor, with adequate metrics, the impact of physical and transition risks arising from climate change and environmental degradation; c) integrate material C&E risks in both the risk appetite framework and the three lines of defence model. In addition, the institution shall implement a) by 31 March 2023 and submit jointly with the updated operational plan further documentation outlining how it intends to implement b) and c) by 31 December 2023 and shall comply with the requirements by that date.

Note: 1) Based on applicable Union law and the national transposition of Articles 74 and 76 of Directive 2013/36/EU.

8 As at June 2022.

2 The state of the banking sector

2.1 Approaches to managing climate-related and environmental risks

Following the supervisory assessment of 2021, virtually all institutions are now out of the starting blocks in terms of identifying and managing their C&E risks.[9] The outcome of the 2022 thematic review shows that the majority of institutions now have at least basic practices in place for most of the expectations (see the lower panel of Chart 6). A group of institutions are leading the way with emerging and/or leading practices in a considerable number of areas. This is a significant increase compared with the results of the 2021 supervisory assessment, which demonstrated that as many as half of the institutions had made no progress or little meaningful progress. While different for each expectation, the basic practices observed this year typically involve an initial mapping of risk exposures, allocating responsibilities within the organisation, setting initial key performance and risk indicators and developing a qualitative mitigation strategy for at least part of their risk exposures. These approaches nonetheless still lack methodological sophistication, the use of granular risk information and/or active management of the portfolio and risk profile.

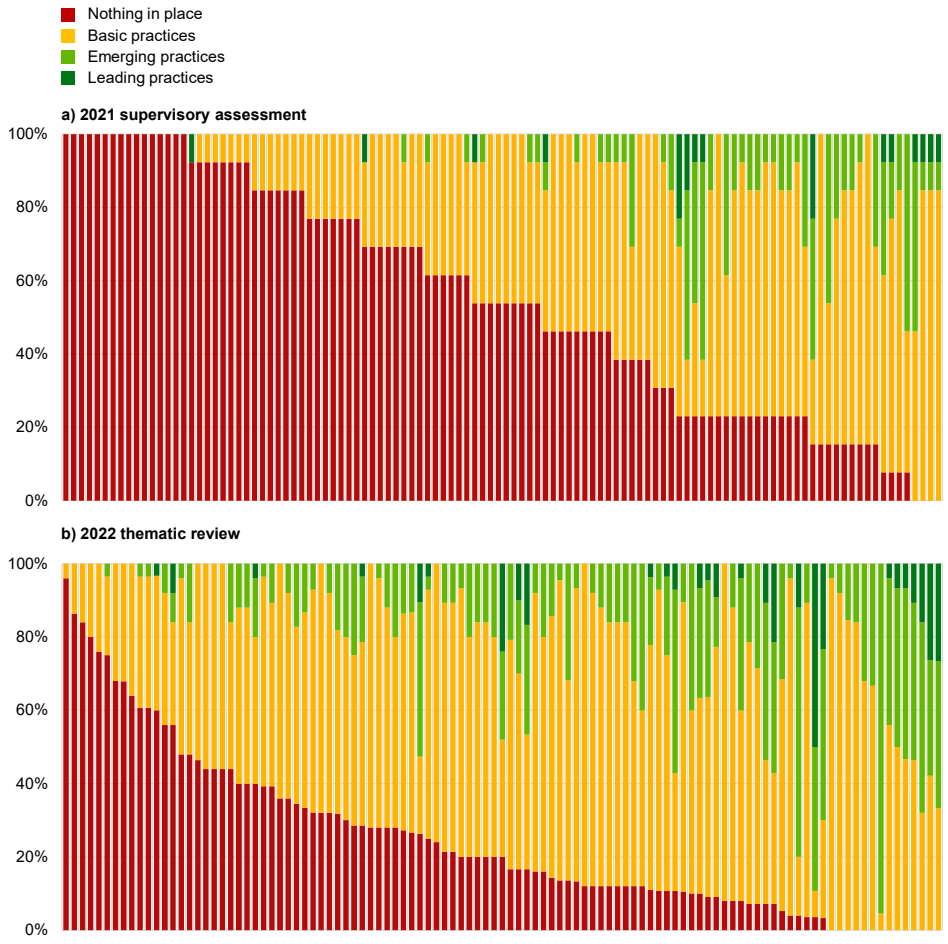
[9] Institutions always refer to SIs unless specified otherwise. Whenever observations concern LSIs this is always explicitly stated.

Chart 6

Bank-by-bank results of the 2021 and 2022 supervisory assessments

The level of maturity of practices across areas of supervisory expectations (bank-by-bank)

(percentages of areas of supervisory expectations)



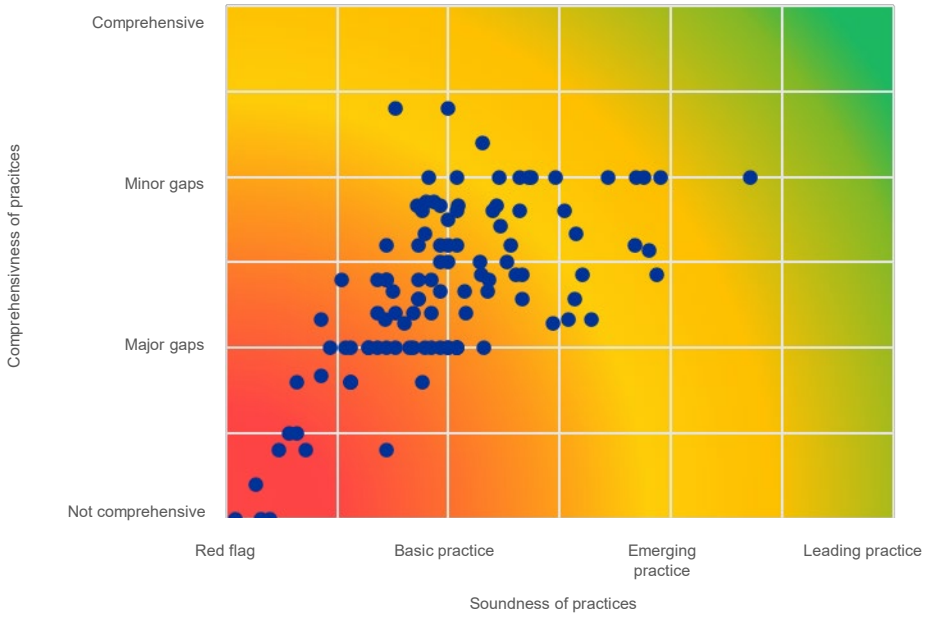
Notes: The 2021 supervisory assessment scores are taken as a proxy to indicate the level of maturity of institutions' practices in 2021. Owing to the updated assessment methodology used in the 2022 thematic review, direct comparison with the results from 2021 gives an indication only.

Notwithstanding the development of good practices in many areas, institutions fail to cover their main areas of risk comprehensively. Not a single institution covered all the areas of risks they are or are likely to be materially exposed to. Most institutions have at least minor gaps, and often major gaps, in various areas under investigation. An example of a major gap could be a mortgage lender with a small corporate portfolio that only manages transition risk for its corporate clients. Regardless of whether it has advanced practices to measure transition risk in its corporate portfolio, the lender continues to be materially exposed in its mortgage portfolios and/or to physical risks in either its corporate or mortgage portfolios. It is therefore subject to major shortcomings, as it has failed to cover large swaths of risk. Chart 7 depicts the level of maturity (soundness) of the practices of the institutions within the scope of the thematic review and the extent of gaps in comprehensiveness. It shows that performance varies widely among the institutions.

Chart 7

Soundness and comprehensiveness of institutions' practices to manage C&E risks

(Average level of soundness (horizontal axis) and comprehensiveness of practices (vertical axis) for 107 significant institutions)

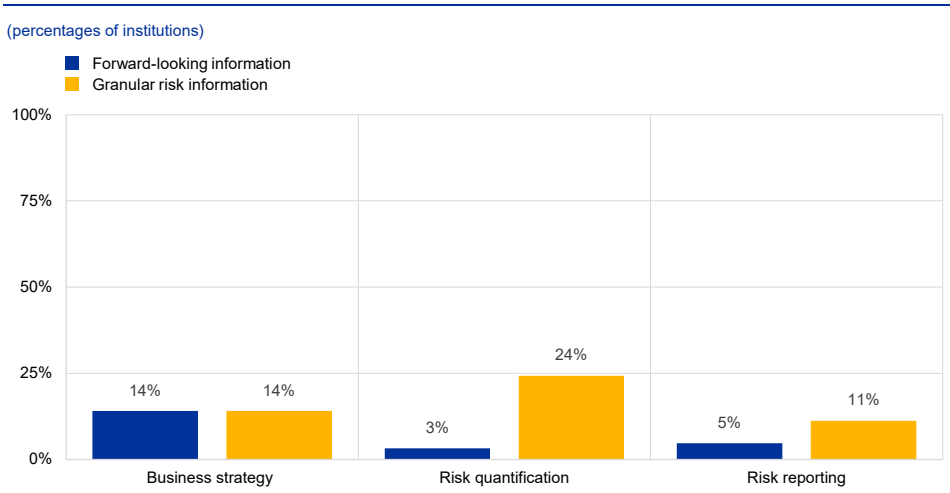


Source: Supervisory assessment of 107 significant institutions' responses to the 2022 thematic review on climate-related and environmental risks.
Notes: Each dot represents a single significant institution, taking the weighted average of all applicable assessment modules. The scope of the thematic review varies by institution, as not all institutions were included in all assessment modules (see Chapter 2.2 for more details). Sample of 107 institutions that were within the scope of the 2022 thematic review.

Only a small group of leading institutions has advanced practices that rely on sufficiently granular and forward-looking information to manage the risks. To understand the full magnitude of the risks stemming from climate change, institutions will need to actively collect granular data at counterparty, facility or asset level, as potential losses are often location and activity-specific. For example, certain areas along a river may be particularly sensitive to flooding, while other nearby but higher-up areas are subject to much less risk. At the same time, owing to the distinctive characteristics of climate-related risks, institutions should adopt a forward-looking perspective to respond in a timely manner in the event that transition and physical risks materialise on their balance sheets. For example, a power generation company may be less exposed to transition risk if it phases out production from fossil fuels along a credible transition pathway. While many institutions are using proxies (see also Section 7.1.1), Chart 8 shows that only a small subset of institutions use forward-looking and granular information for their business strategy, risk quantification and reporting practices. Such leading institutions have developed C&E-related data strategies that are integrated into their established data governance and quality policies. This typically includes performing a data gap analysis, collecting client data, sourcing data externally, including from third-party providers if relevant. These leading institutions also make their IT infrastructure fit-for-purpose and apply intermediate solutions to allow for immediate use of existing C&E-related data, where appropriate.

Chart 8

The use of forward-looking and granular C&E risk information in selected practices to manage C&E risk

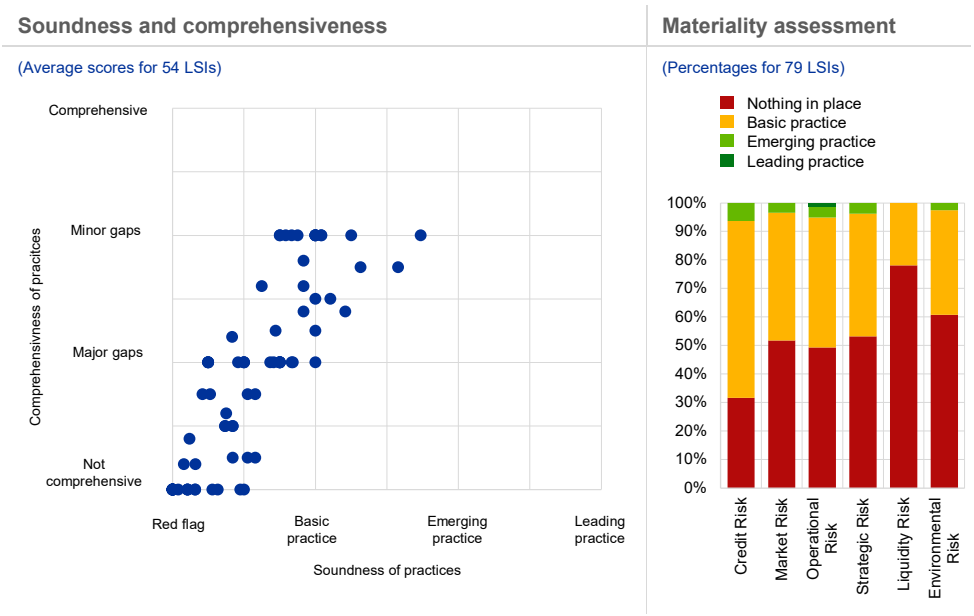


Source: Supervisory assessment of 107 significant institutions' responses to the 2022 thematic review on climate-related and environmental risks.

On the positive side, in specific areas, nearly all institutions have made advancements. For example, virtually all institutions have assigned responsibilities for C&E risks at the level of the management body and the first and second lines of defence. Most institutions have also started implementing exclusion criteria as part of their client due diligence and credit-granting decision-making. Similarly, most institutions have considered the possibility of floods or natural disasters affecting the business continuity of their operations.

Chart 9

Practices of LSIs to manage C&E risks



Source: Supervisory assessment of 79 less significant institutions' responses to the 2022 thematic review on climate-related and environmental risks.
Notes: Left side: Each dot represents a single LSI, taking the weighted average of all applicable assessment modules. The scope of the thematic review varies by institution, as not all institutions were included in all assessment modules (see Chapter 2.2 for more details). Sample of 79 LSIs that were within the scope of the 2022 thematic review.

Smaller institutions demonstrate having greater resource constraints compared with larger institutions does not necessarily impede progress on practices to manage C&E risks. Less significant and smaller institutions show a relatively large dispersion in terms of performance, with many having developed advanced practices, including compared with larger institutions (see Chart 9 above and Chart A.4 in the Annex). This demonstrates that comparative resource constraints are not necessarily an impediment to developing an adequate response to C&E risks. However, it is worth noting that although, on average, smaller institutions perform poorer overall, they generally do better when it comes to comprehensively addressing all material portfolios and risk drivers. This is likely to reflect the comparatively simpler business models of smaller institutions. Larger, more diversified institutions have to develop practices across a broad variety of business lines and geographies, and thus face more pronounced challenges in terms of comprehensiveness. In particular, less significant institutions within the scope of the assessment have recorded progress on assessing the materiality of their exposures and assigning responsibilities within their governance, but are yet to develop their strategic steering capabilities and roll out quantification techniques in their risk management frameworks (see Table 5).

Table 5

Key findings for less significant institutions

Topic	Example
Materiality assessment	On average, half the LSIs have a basic and largely qualitative assessment of materiality. The area of credit risk is most developed, with two-thirds of the LSIs having conducted an initial materiality assessment. In most cases, a qualitative assessment was conducted, with some LSIs (18%) supplementing their materiality assessment with quantitative approaches. About half cover both physical and transition risk. With regard to market, strategic and operational risk, fewer institutions have deployed an approach, with only a handful of institutions deploying quantitative approaches.
Strategy	Most LSIs have started integrating climate-related risk considerations into their business environment scanning and strategy-setting procedures. The integration is high-level, with more than one-third of the LSIs have yet to develop KPIs to support their strategic steering capabilities.
Governance and risk appetite	The majority of LSIs has assigned responsibilities to the management body and about half have assigned them within the organisational structure, with the risks being reflected in remuneration policies in some cases. Most LSIs have yet to devise an effective data governance framework and reflect the risks in internal risk reports and the risk appetite statement. Consequently, the aforementioned allocation of responsibilities has only led to effective integration of the risks in strategy and the risk management framework in a minority of cases.
Risk management	A quarter of participating LSIs have started integrating the risks into due diligence processes, but risk management frameworks and credit risk management processes remain largely underdeveloped in all participating LSIs; roughly half of the LSIs have nothing in place across the board.

Source: Supervisory assessment of the responses given by 79 less significant institutions in the 2022 thematic review on climate-related and environmental risks.
Notes: The figures in this table represent the relative performance of the LSIs within the scope of the respective module and/or assessment objective unless otherwise indicated. Please refer to Table 3 in Section 1.2 for an overview of the number of LSIs that are within the scope of each module.

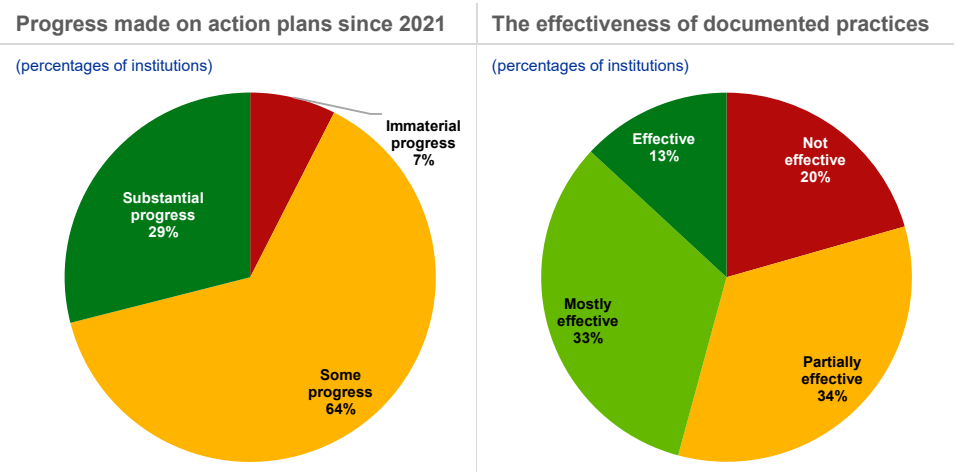
2.2 Execution capabilities

While many institutions are on track with the implementation of their planned actions, a group of institutions is not following through in this regard. Most institutions have improved their action plans to steer risk management since last year's assessment. As part of the thematic review, the ECB evaluated the level of progress made, considering the extent to which institutions follow through on their action plan and have advanced their action plans following supervisory feedback in previous assessments. The results show that 93% of the institutions have made progress. However, in most cases, this progress was limited and not substantial enough to ensure alignment with the supervisory expectations in a timely manner. For instance, these institutions have not always completed the planned actions for 2021 and the first quarter of 2022 or incorporated last year's feedback from the ECB. Only 29% of institutions have made substantial progress in this regard (see the left panel of Chart 10).

In addition, many institutions have not always implemented their documented practices effectively. As part of the thematic review, the ECB held dedicated case study interviews with the institutions, examining several actual client files in order to gain insight into how institutions' policies and procedures have been effectively implemented. The review showed that many institutions have devised practices, but have failed to implement them effectively. This means that they developed practices at the policy and procedural level, but declared relevant counterparties to be out of scope, did not reflect available information in credit decisions, or simply did not implement the policies and procedures for significant parts of the portfolio. In fact, 55% of institutions have practices in place that are not at all or only partially effectively implemented (see right panel of Chart 10).

Chart 10

Supervisory findings on execution capabilities of institutions



Note: Sample of 107 institutions that were within the scope of the 2022 thematic review on climate-related and environmental risks.

The ECB has therefore expressed significant supervisory concern regarding the execution capabilities of around half of the institutions. If the findings outlined above are taken together, the ECB concludes that around half of the institutions have practices that are not – or only partially – effectively implemented and have not made substantial progress on their action plans. While these observations may, to a limited degree, be a consequence of the rapidly evolving field of C&E risk management, the absence of effective steering arrangements, lack of controls, particularly in the third line of defence and/or a strikingly low appreciation of capacity and resource needs often play a major role.

3 Materiality assessment

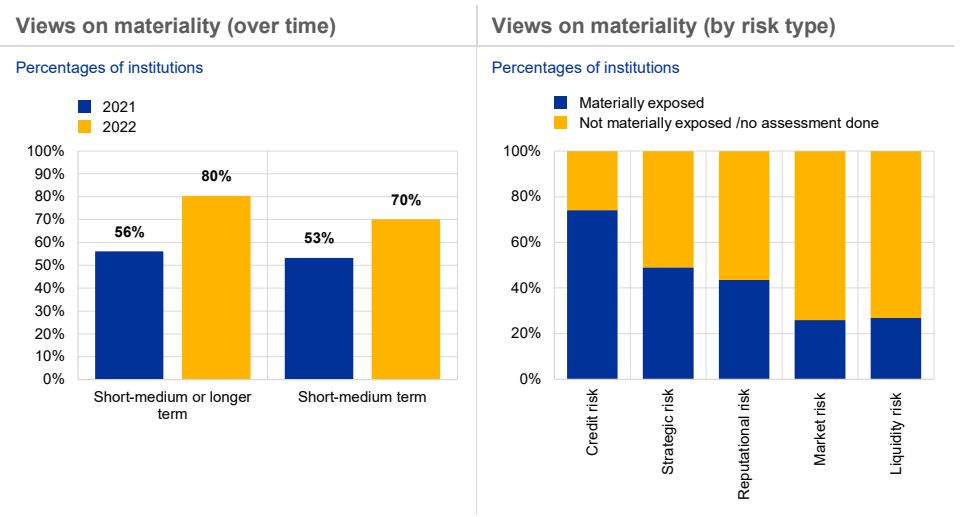
Expectation 7.2

Institutions are expected to comprehensively include climate-related and environmental risks in their assessment of materiality for all of their business areas in the short, medium and long term under various scenarios.

Following persistent supervisory efforts, most institutions have assessed how they could be impacted by climate change and the transition to a low-carbon economy. In 2021, two-fifths of institutions either had not conducted a materiality assessment or had performed one with significant shortcomings. By contrast, this year over 90% of the institutions conducted at least a basic assessment of materiality for at least one of their main risk types. The assessment of materiality plays a critical role in institutions' ICAAPs, as well as their overall risk management and strategy. After all, institutions have to manage all material risks and it is critical that they avoid having any blind spots. The nature of C&E risks makes this all the more important, because they have a far-reaching impact on a variety of sectors and geographies, and require short-term action by various stakeholders to mitigate both shorter and longer-term risks in light of uncertainty on expected transition pathways and the distribution of climate impacts. Institutions are expected to invest significant effort in understanding how their activities could be affected by these risks in the short and medium term, and across various scenarios.

Chart 11

Institutions' views on the materiality of C&E risk drivers for their risk profile



Notes: Percentages for 2021 are calculated taking into account institutions that were within the scope of the 2022 thematic review. The right panel refers to institutions' views on materiality in the short-medium or longer term.

Four out of five institutions reported that they are materially exposed to climate-related risks, up from half of the institutions last year. Out of the 107 institutions in the assessment, 86 institutions reported that they were materially exposed to C&E risks (see Chart 11). Most often, this related to credit and strategic risk, and to a lesser degree to reputational and liability risks. Transition risk was overall deemed material more frequently than physical risk, but this difference decreases with longer time horizons. Remarkably, out of the 21 institutions that did not report that they were materially exposed, the supervisory assessment showed that not a single institution had comprehensively covered its main risk types and main portfolios. In

other words, like last year, no institution has as yet emerged that has comprehensively considered its exposures to C&E risks and concluded that it is not materially exposed.

While institutions' views on their exposures to C&E risks is improving, large blind spots persist in the majority of institutions. Supervisors assessed to what extent institutions had covered relevant risk drivers, business lines and geographies in their assessments. Strikingly, blind spots were identified for 96% of the institutions, of which 60% were considered to be major gaps. These blind spots revolve around three main aspects.

1. **Institutions do not comprehensively consider relevant risk drivers (see Chart 12).** Institutions have focused on transition risk and, in particular, on the impacts of policy and regulation on credit risk. With regard to transition risk, institutions insufficiently appreciate the possible impacts of market forces, including technology and market sentiment, in their assessments. In a similar vein, only about half of the institutions consider possible impacts on their reputation and/or liability despite increasing public scrutiny of their activities. Physical risk is generally considered very narrowly, with a focus on the impact of floods and droughts on credit risk.

2. **Institutions do not comprehensively consider the various time horizons over which the risks can materialise.** For credit risk, about one- third of the institutions address the short-to-medium term (<5 years) and longer term (>5 years) when assessing materiality. By comparison, for other risk types such as market and operational risks, this holds for only one in ten institutions.

3. **Institutions often do not consider their main business lines and the geographies in which they are active in their assessments.** In some cases the institution consciously chose to start with pilots in one area with a view to subsequently rolling them out elsewhere, while in other cases institutions provided limited justification for such omissions.

Chart 12

Coverage of relevant risk drivers in institutions' materiality assessments

(percentages of institutions)

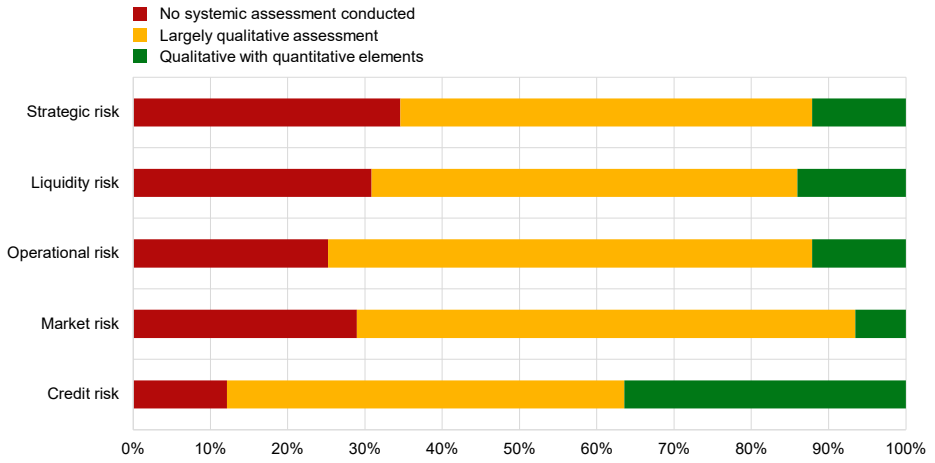
		Credit risk	Strategic risk	Market risk	Reputation and liability risk	Liquidity risk
Transition risk	Policy and regulation	87	64	66	53	54
	Market sentiment	67	52	52	50	47
	Technology	70	45	45	36	36
Physical risk	Floods/sea level rises	83	42	40	42	44
	Droughts/extreme heat	65	36	40	36	38
	Storms/hurricanes	55	36	35	38	33
	Water stress	53	27	29	32	29
	Biodiversity loss/land use change	37	23	25	27	24

Note: Data displayed are based on institutions' 2022 self-assessment questionnaires, irrespective of the nature and/or quality of the assessment conducted.

Institutions that supplement qualitative assessments of the risks with quantitative approaches and forward-looking assessments were more likely to gauge the materiality of the risk. The majority of institutions deploy largely qualitative approaches to assess materiality of C&E risk drivers on traditional categories of prudential risks (see Chart 13). Such qualitative assessments, if properly conducted, provide institutions with a holistic view of areas of impact and potential pockets of risk. Many institutions use such initial assessments as a basis for further targeting more quantitative approaches using the outcomes of the initial assessments. In the area of credit risk, progress on quantification is most pronounced, with almost 40% of institutions deploying some form of quantification. While many institutions have yet to use quantitative methods to supplement the qualitative assessment, the results show that institutions with higher scores for soundness and comprehensiveness in the materiality assessment are more likely to have an affirmative judgement on materiality.

Chart 13

Qualitative and quantitative materiality assessments by risk type



Note: Sample of 107 institutions that were within the scope of the 2022 thematic review on climate-related and environmental risks.

4 Strategy

Many institutions have taken steps to understand how climate-related risks might impact their business model and set out initial strategic responses, but their strategies do not yet make their business model resilient to these risks or address all risks comprehensively. The ECB expects institutions to take a strategic, forward-looking and comprehensive approach to considering C&E risks. In addition, in its Guide, the ECB points out that the way that institutions strategically respond to changes in their business environment stemming from C&E risks will impact the resilience of their business model over time. The following paragraphs describe the progress made by institutions and point to where their practices are still lacking vis-à-vis the ECB's supervisory expectations.

Expectation 1

Institutions are expected to understand the impact of climate-related and environmental risks on the business environment in which they operate, in the short, medium and long term, in order to be able to make informed strategic and business decisions.

Most institutions monitor the impact of climate change on their business environment but are still unaware of areas of risk that may endanger the resilience of their business model. While most institutions have started monitoring the impact of climate change on their business environment, only a few identify risks at the level of key sectors, geographies, products and services. Institutions might conduct an initial monitoring at group level of various possible impacts of climate change on their business environment. However, they typically rely on expert judgement and do not always consider longer time horizons. Furthermore, these group-level analyses do not identify consequences at the level of, for instance, business areas. This finding reflects blind spots in the materiality assessment that often ignores the various time horizons over which the risks can materialise and institutions' main business lines and geographies. Without a detailed and sufficiently long-term understanding of how climate change impacts the business environment, institutions' strategies cannot be adequately calibrated to respond to key areas of risk.

Expectation 2

When determining and implementing their business strategy, institutions are expected to integrate climate-related and environmental risks that impact their business environment in the short, medium or long term.

The majority of institutions have also started to determine the impact of climate-related risks on their business strategy and established an initial set of KPIs for their strategic response. However, in most cases this is an initial approach at an early stage of development. An example of such an initial approach could be that an institution has (i) communicated its goal to achieve net-zero greenhouse gas (GHG) emissions, including from its financing activities (financed emissions) by 2050 or earlier and even set intermediate objectives, (ii) declared that it will refrain from providing products and services to clients or from transactions that are particularly harmful to the environment, and (iii) set out guidelines and internal policies for environmentally harmful sectors. Most of the institutions depicted in the below graph with KPIs and those shown taking a high-level consideration of climate-related risks in their strategy-setting process fall into this category.

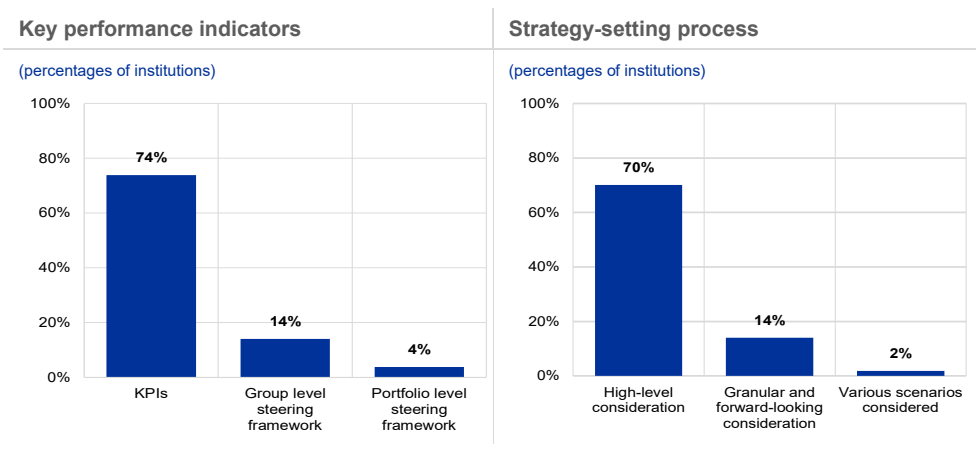
However, with this initial approach, institutions still lack steering capabilities to implement their strategic response to climate-related risks. Often KPIs are not formulated in a way that allows for effective implementation and monitoring of progress. For instance, institutions might declare that they will stop financing or investing in companies which generate a certain share of their revenues from thermal

coal by a certain date. However, they rarely provide details as to how they are going to achieve such goals and thereby set their institutions on a steady and controlled path towards attaining them. Moreover, the chart below on KPIs shows that only around 14% of institutions have processes in place that allow them to take corrective action when KPIs are missed. For example, while banks have started to engage with clients, generally they have neither specified concrete consequences for when their clients do not progress as envisaged nor set exit rules. As the chart below also illustrates, only a subset of institutions cascade their KPIs down to individual business lines and portfolios.

A number of leading institutions employ forward-looking tools to determine the impact of climate-related risks on their business strategy and use the results as a basis for concrete strategic actions. Around 14% of institutions use scientific pathways in their strategy-setting process to set concrete intermediate targets, typically using portfolio alignment methodologies, in order to pursue longer-term strategic objectives. The more advanced institutions demonstrate awareness of the need to use up-to-date scientific pathways to set targets that are sufficiently ambitious. These targets show how the institution's portfolios have to evolve over time in order to meet the longer-term objectives. In addition, these institutions have adjusted their product offering to achieve their targets and established policies and procedures to follow up on misalignments in their portfolios. For example, some have strengthened their exclusion policies to phase out specific activities within a certain timeframe. In addition, they might engage with clients in a structured dialogue with the aim of steering them onto a pathway that is compatible with the institution's portfolio trajectory. Clients might, for instance, be required to implement time-bound action plans. Institutions also reflect elevated risk in their risk classification procedures and pricing. Finally, leading institutions have processes in place to respond to cases where engagement fails, such as ultimately abandoning client relationships. As shown in the chart below on strategy-setting, only a subset of institutions also use scenario analysis to test the adequacy of various strategic responses, for example by quantifying the impact of climate-related risks on profits and losses, risk-weighted assets and regulatory capital.

Chart 14

Climate-related risk practices in business strategy



Note: Sample of 107 institutions that were within the scope of the 2022 thematic review on climate-related and environmental risks.

In nine out of ten cases, the ECB found that institutions' strategies do not respond to all the material risks to which they are exposed or are likely to be exposed. Typically, institutions place more emphasis on transition risks than on physical risks. This happens, for instance, in the context of scanning their business environment or identifying risks that have an impact on their business strategy. Consequently, business strategies tend to be less developed to respond to physical risks than to transition risks. Moreover, institutions that have set intermediate targets to achieve their longer-term objectives have usually done so only for a subset of their portfolios. In addition, some institutions do not cover all the geographical regions in which they are present. For instance, portfolio alignment objectives might cover only some of these regions.

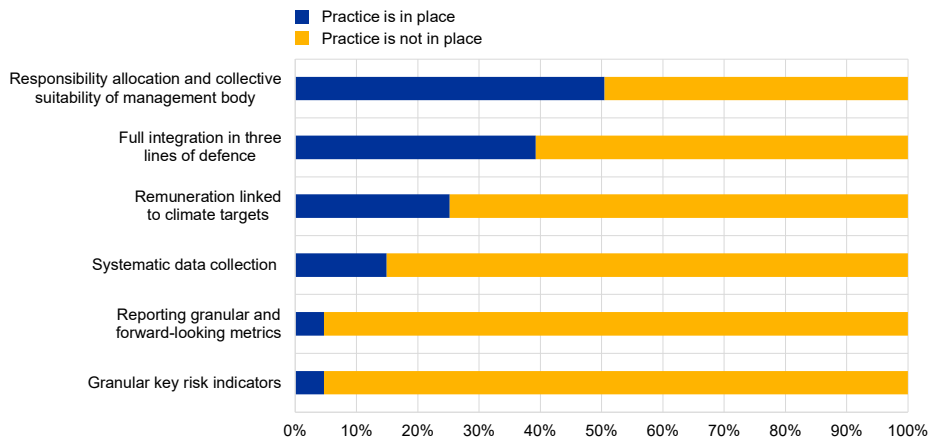
Overall, institutions are still taking a wait-and-see approach in their strategic response to climate-related risks. Even where concrete intermediate targets have been set, currently these are often inconsequential in the light of the institution's existing exposures, business model and risk profile. Targets are typically only established for some sectors counting for a small percentage of institutions' total exposure and/or contribution to climate change. Moreover, institutions might have phase-out goals for certain activities, but the corresponding limits are set significantly above current exposures. As a result, targets and limits are often set such that there is negligible immediate impact on the institution's exposure profile. Moreover, institutions that make long-term strategic commitments are exposed to elevated risks, including potential reputational, litigation and liability risks, where they do not adequately follow up on such commitments.

5 Governance and risk appetite

Institutions have improved their organisational structure and gained awareness of data gaps, but are still in the early stages of tackling climate-related risks in a granular, bank-wide and comprehensive manner. Most institutions have defined roles and responsibilities for the management body, the first and second lines of defence and laid the groundwork for collecting data. The management body frequently receives at least some information on climate-related risks monitored using an initial set of KRIs. However, the management body is not yet always in a position to effectively manage climate-related risks, as monitoring and reporting on these risks is mostly done without granular and forward-looking information. Some institutions have started to systematically collect data, but this is still rare, in particular for granular data. Moreover, the institutional framework of many institutions is still lacking, as the tasks of the internal audit function and remuneration policies do not yet support their efforts to manage climate-related risks.

Chart 15

A structured, integrated and granular governance of climate-related risks



Note: Sample of 107 institutions that were within the scope of the 2022 thematic review on climate-related and environmental risks.

Expectation 3

The management body is expected to consider climate-related and environmental risks when developing the institution's overall business strategy, business objectives and risk management framework and to exercise effective oversight of climate-related and environmental risks.

Almost all institutions have assigned roles and responsibilities for climate-related risks to members of their management body and/or its sub-committees. Institutions have thus made further progress in this area, which the ECB had already identified in last year's assessment as being more advanced than others. Frequently, institutions have established dedicated committees to assist the management body in both embedding climate-related risks in the institution's business strategy and risk management framework and its oversight functions. In many cases, the chief executive officer is tasked with the execution of the institution's climate-related strategy, either directly or in their capacity as chair of a dedicated committee. However, about half of institutions do not yet regularly monitor the collective suitability of members of the management body and actively involve all the

relevant functions in embedding climate-related risks in the institution's strategy and risk management framework. To this latter end, some institutions have established committees with representatives from different functions and levels of hierarchy who provide input for strategy-setting discussions and subsequent implementation across the organisation.

Expectation 6

For the purposes of internal reporting, institutions are expected to report aggregated risk data that reflect their exposures to climate-related and environmental risks with a view to enabling the management body and relevant sub-committees to make informed decisions.

An increasing number of institutions have also recognised the importance of collecting data and taken initial steps in this respect. More than 80% of institutions have performed gap analyses to identify shortcomings related to their data availability and IT systems with regard to climate-related risk management and have set out follow-up actions. As regards data availability, it is not sufficient for institutions to focus solely on the data needed to comply with upcoming disclosure requirements. In fact, more advanced institutions also assess the data needed for their risk management (including for internal risk reporting purposes), business objectives and commitments, if any. Data gaps vary across institutions. For example, one institution has formulated an approach for measuring climate-related risks. It found that it has less than 30% of the data needed for its initial transition and physical risk management metrics, and only around 10% of client information (such as clients' GHG emissions). This shows that data collection should be an institutional priority.

A small group of leading institutions systematically collects the data needed for climate-related risk management, but the collection of granular data is still in its early stages. About 15% of institutions have a systematic data collection process in place to identify and collect the data needed for climate-related risk management. Part of this data is sourced externally (e.g. via third-party providers). However, institutions' data procurement processes do not always expressly require an analysis and evaluation of the methodologies used by data providers. A subset of the institutions with systematic data collection processes in place have started to collect granular data, such as on energy performance certificates (EPCs) for collateral, the share of revenues that are "green" or GHG-intensive, the energy mix of physical assets (e.g. power plants) and clients' GHG intensity. The collection of granular data remains rare across the board, particularly when it comes to existing clients or transactions. For instance, some institutions might collect EPCs for new transactions, but do not do so yet for the stock of assets for which they still use proxies. Institutions should be aware of the limitations of using proxy-level data with regard to the proper identification, monitoring and management of climate-related risks.

Despite being generally in the early stages of efforts to overcome data gaps, most institutions provide the management body with at least some climate-related risk information. Around two-thirds of institutions provide information on the impact of climate-related risks on their business model and risk profile in their internal reports. In last year's assessment, less than 15% of institutions had effectively integrated C&E risks into the formal risk reports submitted to the management body or relevant sub-committees. However, in most cases, institutions only report proxy-based climate-related risk metrics. Such metrics might, for instance, report the breakdown of exposures to GHG-intensive sectors, proxies for GHG emissions by sector and proxy-based ESG scoring of clients. Just over 10% of institutions report granular climate-related metrics, such as actual client GHG

emissions, EPCs or geospatial physical risk data. Even fewer institutions also provide the management body with forward-looking climate-related metrics, which are particularly important owing to the distinctive characteristics of climate-related risks.

Expectation 4

Institutions are expected to explicitly include climate-related and environmental risks in their risk appetite framework.

Institutions have generally bolstered their risk appetite framework by including climate-related KRIs, albeit not always in a granular manner and often without specifying consequences for indicator breaches. Around two-thirds of institutions have included climate-related risks in their risk inventory and established an initial set of KRIs in their risk appetite statement (RAS). This represents an improvement on last year, when less than one-fifth of institutions included KRIs for C&E risks in their RAS. While still rare, around 5% of institutions were found to have established granular KRIs. Institutions without granular KRIs typically use qualitative statements and often focus on exposures to sectors traditionally linked to elevated climate-related risks (e.g. fossil fuels, energy, mining, agriculture, etc.). Other examples of initial KRIs relate to sustainability rating levels awarded to the institution by rating agencies. The former examples of initial KRIs are insensitive to firm-specific risk profiles and the latter examples of initial KRIs may not properly reflect risks and/or dilute individual impacts. Institutions with granular climate-related KRIs make use of more risk-sensitive data that go beyond sectoral or geographical classifications. Such KRIs might, for instance, track the alignment of the emissions intensity of exposures in the institution's portfolio with its envisaged transition trajectory or identify flood risk levels for individual assets. The ECB observes that detail is often lacking regarding the concrete remedial actions that may be triggered as a result of breaches of climate-related indicators.

The ECB also observes that no institution has yet taken a bank-wide approach to setting KRIs. Institutions typically set KRIs at the highest level of consolidation and do not cascade them down to relevant business lines and portfolios. Even institutions that have started to do so take a qualitative approach and do not establish separate limits, tolerances and thresholds. The absence of thorough practices in this respect casts doubt on institutions' current ability to effectively take action based on their KRIs.

Expectation 5

Institutions are expected to assign responsibility for the management of climate-related and environmental risks within the organisational structure in accordance with the three lines of defence model.

From a wider organisational perspective, around nine in ten institutions have at least defined tasks for the management of climate-related risks by their first and second lines of defence. The table below provides a non-exhaustive list of observed tasks related to C&E risks performed by the risk management function. However, few institutions define the tasks and responsibilities of the internal audit function, which is expected to review the extent to which an institution is equipped to manage C&E risks. As a result, institutions' management bodies might only rarely receive an independent internal view on this subject matter. Moreover, given the increasing awareness among institutions of the materiality of climate-related risks, it is striking that fewer than 5% have a systematic process to evaluate the appropriateness of their human and financial resources to manage these risks.

Table 6

Non-exhaustive list of examples of tasks performed by the risk management function

Task type	Description of task
Expert opinion on client transactions	To analyse and provide expert judgement on exposures to clients from high-risk industries.
Recommendations for risk mitigation	To provide recommendations for actions to mitigate risk for transactions assessed as high risk.
Veto right	To veto transactions that are assessed as high risk.
Methodology development: risk management policies	To prepare and maintain the institution's climate-related risk management policies (e.g. exclusion policies).
Methodology development: portfolio alignment	To develop and roll out the institution's methodology for portfolio alignment assessments (e.g. using PACTA).
Methodology development: financed emissions	To develop and roll out the institution's methodology for measuring financed emissions (e.g. using PCAF).
Methodology development: client questionnaires	To develop and roll out the institution's climate-related client questionnaires for due diligence and data collection purposes.

Source: ECB, "Good practices on climate-related and environmental risks", November 2022.

Despite overall progress on governance and risk appetite frameworks, adjustment of remuneration policies to stimulate behaviour consistent with an institution's climate-related (risk) approach is still in its early stages. Almost three-quarters of institutions either do not consider climate-related risks in their remuneration practices or do so in a limited manner without using climate-related KPIs. Observed KPIs typically concern the achievement of product goals (e.g. issuing a predefined amount of "green finance" products over a given timeframe) or putting in place certain climate-related policies within the institution. Some observed KPIs are risk-based, for instance, tracking the institution's performance vis-à-vis its portfolio alignment trajectory. Institutions' remuneration policies are typically less developed for employees outside of the management body and senior management.[10]

Most of the time, institutions' governance, risk appetite and reporting frameworks do not cover all areas of material risk. For instance, institutions do not always establish clear responsibilities for the management body, define tasks for the business functions and describe reporting obligations for all climate-related risk drivers or portfolios that are material or likely to be material. Similarly, their climate-related data strategies do not always adequately cover both transition and physical risk drivers or consider the need to adjust the institution's IT infrastructure. In addition, remuneration practices frequently relate to short-term targets (e.g. "green finance" product targets), but do not properly reflect the long-term nature of climate-related risks and the institution's response thereto. More generally, there is frequently a disconnect between institutions' materiality assessment, on the one hand, and their governance, risk appetite and reporting practices, on the other.

[10] According to paragraph 16 of the EBA's Guidelines on sound remuneration policies under Directive 2013/36/EU (EBA/GL/2021/04), "the institution's remuneration policy for all staff should be consistent with the objectives of the institution's business and risk strategy, including environmental, social and governance (ESG) risk-related objectives, corporate culture and values, risk culture, including with regard to long-term interests of the institution […]."

6 Risk management

6.1 Risk management framework

6.1.1 Risk quantification and proxies

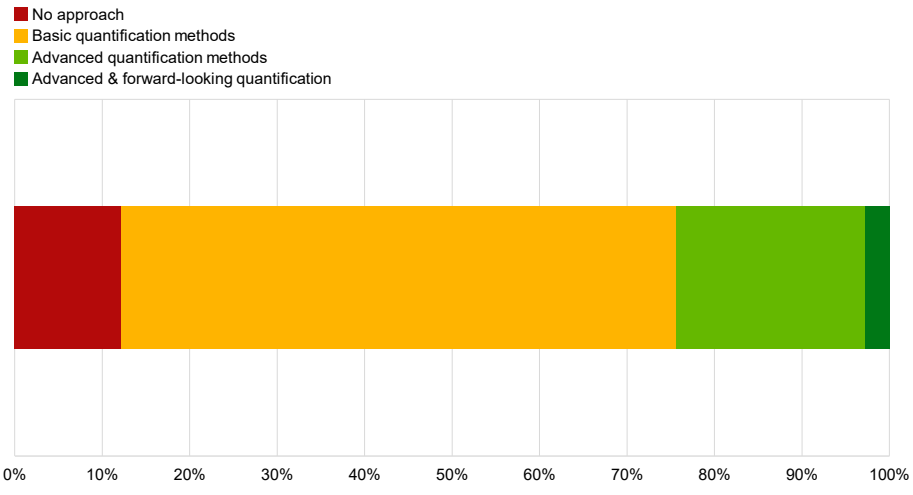
Expectation 7

Institutions are expected to incorporate climate-related and environmental risks as drivers of existing risk categories into their risk management framework, with a view to managing, monitoring and mitigating these over a sufficiently long-term horizon, and to review their arrangements on a regular basis. Institutions are expected to identify and quantify these risks within their overall process of ensuring capital adequacy.

Almost all institutions use at least basic quantification methods to measure climate-related risks, employing proxies and assumptions when data availability is limited. Such methods typically involve using a limited number of variables to approximate climate-related risks, for example, the NACE sector classification of a corporate debtor to approximate an institution's climate-related risk exposure. While it is encouraging that institutions are taking initial steps to identify pockets of risk, the ECB stresses that such insights may not provide the full picture. For example, it is well known that the within-sector dispersion of exposures to transition risk, for instance estimated in terms of financed emissions, is very wide.[11] Thus, institutions should follow a precautionary approach when basing decisions on such simplified methods. More generally, institutions are encouraged to develop suitable proxies, while taking into account the associated limitations in a prudent manner and making efforts to start collecting client-level data.

Chart 16

Quantification methods for climate-related risk management



Note: Sample of 107 institutions that were within the scope of the 2022 thematic review on climate-related and environmental risks.

Most institutions have yet to develop the granular and forward-looking quantification methods required to fully grasp the magnitude of the risks. A quarter of institutions have advanced and/or forward-looking quantification methods to measure risks stemming from climate change. Such methods typically rely on granular

[11] FSR May 2020, Chart 3.9.

data sources, such as client and asset-level data, as well as scientific climate pathways and scenarios to generate insights into forward-looking risk. Such data is critical for gaining an understanding of the actual level of climate-related risks. For example, farmland in certain regions might be more impacted by a rising number of drought and heat events than that in others. Even within the same region, some farmers may have successfully adapted to climate stress through methods such as smart irrigation or more robust crop types. The ECB also found indications that institutions' exercises are conducted in isolation and are not well embedded in day-to-day practices. For example, it observed institutions that use third-party proxies for EPCs in their scenario analysis even when they have the actual client information on file. The table below provides a non-exhaustive list of observed data items, which can also be found in the good practice compendium to this report.

Table 7

Non-exhaustive list of observed data items used to quantify the risks

Data item	Description
Current and projected total GHG emissions	An estimate of the total current and projected GHG emissions of financed assets broken down by Scope 1, 2 and 3 emissions (e.g. tCO2 or tCO2e/t produced product)
Fossil fuel dependency	Production, processing, distribution, storage, or combustion of fossil fuels (percentage of total)
Geographical location data	Granular data on the geographical location of financed assets and/or main client activities (e.g. postal codes)
Energy consumption	An estimate of the energy consumption of clients (e.g. gigawatt hours – GWh), including a split of the share of (non-)renewable sources
Water consumption	An estimate of the water consumption of client activities in million m3
Energy performance certificate	Energy performance certificate for both residential and commercial real estate
Sustainable building certificate	Sustainability certificate for construction projects (e.g. BREEAM or LEED)

Source: ECB, "Good practices on climate-related and environmental risks," November 2022.

6.1.2 Capital adequacy

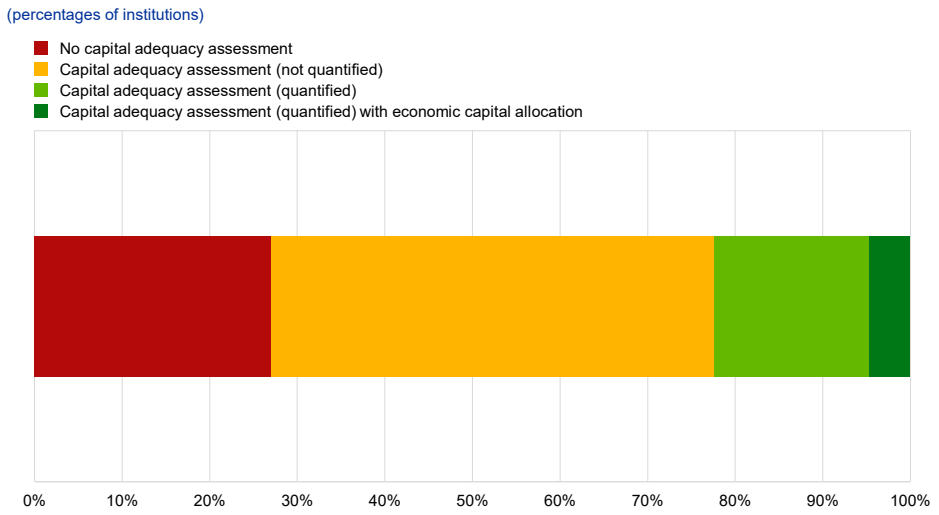
Expectation 7

Institutions are expected to incorporate climate-related and environmental risks as drivers of existing risk categories into their risk management framework, with a view to managing, monitoring and mitigating these over a sufficiently long-term horizon, and to review their arrangements on a regular basis. Institutions are expected to identify and quantify these risks within their overall process of ensuring capital adequacy.

While many institutions have started to consider climate-related risks in their assessment of economic capital adequacy, in most cases this remains a qualitative assessment. Roughly three-quarters of institutions have described the impact of C&E risks on their capital adequacy at least in qualitative terms in their ICAAP. Typically, institutions identify specific climate-related risk drivers, such as flood risk or carbon price risk, and make a qualitative judgement, sometimes supported by exposure analysis or simple scenario analysis, on the materiality of the risks for their capital adequacy. For example, some institutions have included in their ICAAP a standalone stress test of their exposures to the carbon-intensive sectors on their balance sheet, but do not yet consider non-carbon intensive sectors and/or second-round effects. Roughly one-fifth of the institutions have also quantified the impact of climate-related risks on their capital adequacy, for example by reflecting it in capital and profitability ratios. Typically, this is derived by stressing the impact of climate-related factors (e.g. carbon emissions, geospatial location data, flood data, etc.) on risk parameters (e.g. probability of default (PD) or loss-given default (LGD)).

Chart 17

Integration of climate-related risks in the ICAAP



Note: Sample of 107 institutions that were within the scope of the 2022 thematic review on climate-related and environmental risks.

The ECB observes that only a handful of institutions has allocated economic capital specifically to the management of material climate-related risks. These institutions address both transition and physical risk drivers, and allocate economic capital to either credit, market or operational risk, typically based on the outcome of climate-related scenario analyses (e.g. NGFS scenarios and business continuity scenarios). In addition, they have made progress on identifying how C&E risks drive other risk categories, thereby enhancing their ability to model C&E risks. In some cases, institutions have decided to reflect C&E risks as part of the management buffer, pending the availability of more granular data and risk quantification methods. Furthermore, one institution has taken a significant loan loss provision related to expected C&E-related credit losses, impacting capital indirectly through the profit and loss account.

A quarter of the institutions using the internal ratings-based (IRB) approach include climate-related risks in their IRB models. The majority of these institutions include this information in the PD rating systems as qualitative variables or to indicate the need for a rating override, and guidance is established in the respective rating assignment processes. For example, one institution allows for the integration of C&E risk in its rating assignment process through both an assessment of business risk and an expert judgement overlay. The most commonly covered portfolios are Corporates, Large Corporates, Institutions, and Project Finance. Only in very limited cases is C&E-related information considered in collateral valuation as a significant driver of the LGD quantification. One institution has reported the submission of a model change application in 2021 for Corporates and Large Corporates portfolios, encompassing the integration of an ESG component in the qualitative section of the rating assignment process. More generally, the final impact of the integration of climate-related information on risk parameters in the context of IRB models appears to be negligible in most cases.

6.2 Risk management processes

6.2.1 Credit risk management

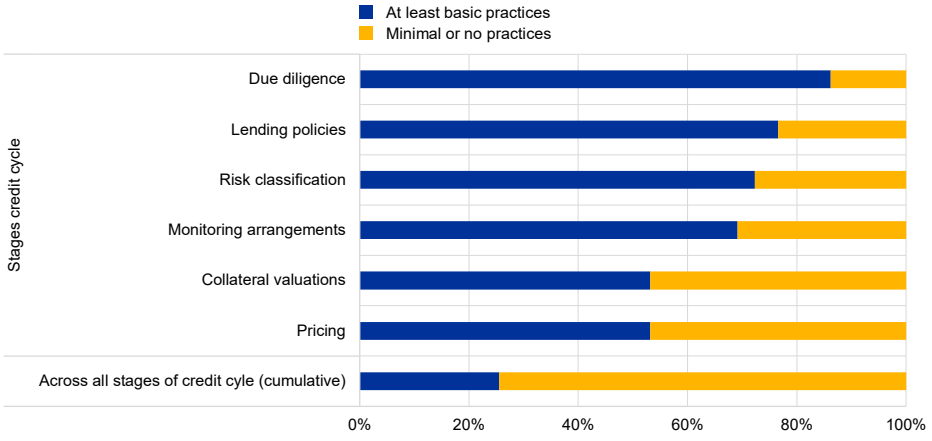
Expectation 8

In their credit risk management, institutions are expected to consider climate-related and environmental risks at all relevant stages of the credit-granting process and to monitor the risks in their portfolios.

Only a quarter of institutions have put in place at least basic climate-related risk practices across all stages of the credit risk management cycle. Nevertheless, the ECB observes significant improvements in the field of credit risk management. While last year roughly two-thirds of institutions had started integrating climate-related risks in isolated areas like lending policies, now virtually all institutions have started to do so. For example, most institutions have procedures and approaches in place to engage on C&E risks with new clients. However, while many institutions have made considerable progress towards integrating climate-related risks, often this is not yet done in a structural manner across all stages of the credit cycle. Chart 18 shows the cumulative percentage of institutions that have at least basic climate-related risk practices in place across various stages of the credit risk management cycle.

Chart 18

Climate-related risk practices across the credit risk management cycle



Note: Sample of 94 institutions that were within the scope of the credit risk assessment module of the 2022 thematic review on climate-related and environmental risks.

The majority of institutions have integrated climate-related risks into the credit-granting and client on-boarding processes. To avoid material climate-related risks, institutions are setting exclusion or phasing-out criteria in lending policies to stop or limit financing of economic activities with elevated climate-related risks. Clients that meet these limits are subject to due diligence, whereby the level of climate-related risk is investigated. Most institutions have at least a generalised approach in place that takes into account at least one or a few client characteristics (e.g. sectors and/or geographies). More advanced institutions are also conducting regular due diligence of existing clients, for example with the objective of collecting updated information and/or mapping existing information gaps.

In the subsequent stages of the credit management cycle, the level of climate-related risk integration is more limited. Institutions are using qualitative information to construct proxies to identify and evaluate how climate-related risks drive credit risk. But only a small subset of institutions is using sufficiently granular data, such as client and/or asset-level data (e.g. technology mix, geolocation of assets and carbon intensity) to develop sound climate-related risk classification and monitoring arrangements. In terms of risk mitigation, roughly half of the institutions are starting to consider climate-related information in the process of collateral valuations and loan pricing. For example, increasingly institutions are providing discounts on interest rates for green mortgages or sustainability-linked loans. A small group of leading institutions has also started to integrate climate-related risk metrics in valuations of collateral using qualitative or quantitative methods (e.g. scores, haircuts and thresholds) as part of the regulatory update of collateral values. In some cases, these processes rely on forward-looking information, for instance taking into account the potential decrease in value of energy-inefficient houses.

Credit risk management practices often do not yet comprehensively cover all material portfolios and risk drivers. The level of maturity of credit risk management varies considerably across the institution's client types, products and portfolios. Some institutions have only rolled out climate risk ratings for their large corporate and wholesale portfolios, thus excluding smaller retail clients. Other institutions have started using geospatial location data to assess physical risks (such as floods) to residential real estate, while not yet collecting any energy efficiency certificates to assess possible transition risks. Institutions are expected to roll out their credit risk management practices in such a way that all material portfolios and risk drivers are addressed.

6.2.2 Operational risk management

Expectation 9

Institutions are expected to consider how climate-related and environmental events could have an adverse impact on business continuity and the extent to which the nature of their activities could increase reputational and/or liability risks.

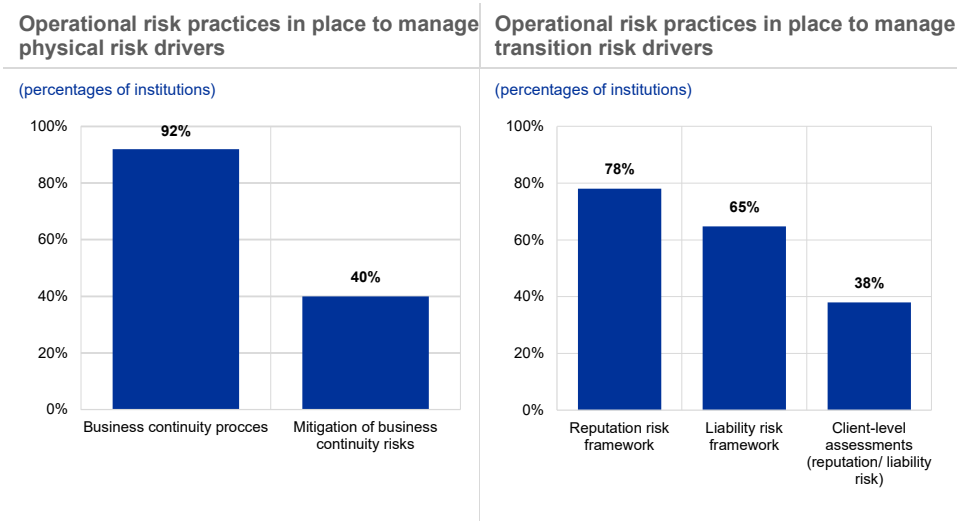
Institutions are starting to account for both physical and transition risk drivers in their operational risk management. For its thematic review, the ECB analysed how institutions assess and manage the physical impact of climate change on their operations and the risk of future reputational damage, liability and/or litigation stemming from the nature of the activities in which they are involved. Institutions tend to analyse physical risk drivers in the context of the business continuity of their operations, while they are more likely to assess transition risk drivers in the context of reputational and/or liability/litigation risks. Both risk drivers can be material, and many institutions deem themselves to be materially exposed to these in the short to medium term.

Almost all institutions have considered the possibility of floods or natural disasters affecting their operations. To this end, institutions have performed an impact analysis on the possible consequences for business continuity and have a process in place to restore critical services if needed. However, institutions do not always consider how future climate change may further exacerbate those risks, meaning that institutions may still underestimate the impact on their operations, especially because adapting operations in a climate-resilient manner is often

time-consuming and costly. Less than half of the institutions have considered the need to implement mitigating actions, such as relocating buildings and servers, or increasing monitoring and control activities. For example, one institution performed an operational risk assessment, after which it compiled a high-risk watchlist of all of both its own premises and those of third-party providers. Depending on the level of physical risks, certain contractual agreements were then made (for example, insurance policies, agreements with hotels in case of staff relocation and/or establishing recovery sites).

Chart 19

Climate-related risk practices within operational risk management



Note: Sample of 50 institutions that were within the scope of the operational risk assessment module of the 2022 thematic review on climate-related and environmental risks.

Most institutions have integrated the consideration of climate-related risks into their framework for reputational risk, as well as for liability and/or litigation risks in a high-level manner. Institutions are identifying controversial economic activities in vulnerable sectors, such as mining, nuclear energy, coal, deforestation, oil and gas, for example by monitoring sustainability ratings or screening media reports, environmental regulations and NGO publications. To a somewhat lesser extent, institutions are also identifying sources of future liability and/or litigation relating to their own activities. Less than half of the institutions have a process in place to evaluate, score and monitor relative levels of climate-related reputational risks or liability/litigation risks at the client-level. Those risk classifications are often based on a qualitative rating system, which allows differentiation of the level of risk (e.g. high/medium/low). Even fewer institutions have processes in place to adopt mitigation actions for identified reputational or liability/litigation risks. These mitigation actions are particularly important at a time of growing concern over greenwashing. Some institutions are likely to be insufficiently prepared to handle the repercussions from clients that are exposed to reputational issues, especially when they have themselves made claims related to being “green” or to “sustainability” or have issued such products.

6.2.3 Market risk management

Expectation 10

Institutions are expected to monitor on an ongoing basis the effect of climate-related and environmental factors on their current market risk positions and future investments, and to develop stress tests that incorporate climate-related and environmental risks.

Most institutions within the scope of the market risk module have taken initial steps towards integrating climate-related risks in the investment process and portfolio monitoring. In total, 19 institutions came within the scope of the market risk assessment module. Typically, this concerns banks with a universal business model (global systemically important banks) or more targeted institutions such as investment banks and/or asset managers. More than half of the institutions have documented climate-related exclusion criteria for specific types of investment (e.g. companies with direct exposure to companies producing oil sands, shale gas and shale oil). Many institutions are conducting portfolio analysis to assess climate-related market risks. On the basis of aggregated climate-related risk information (e.g. sector/geography/portfolio), institutions have developed qualitative scores or heatmaps to assess risk concentrations. Based on this risk information, the institution then steers its portfolio decisions to limit exposure towards highly climate-sensitive positions or activities.

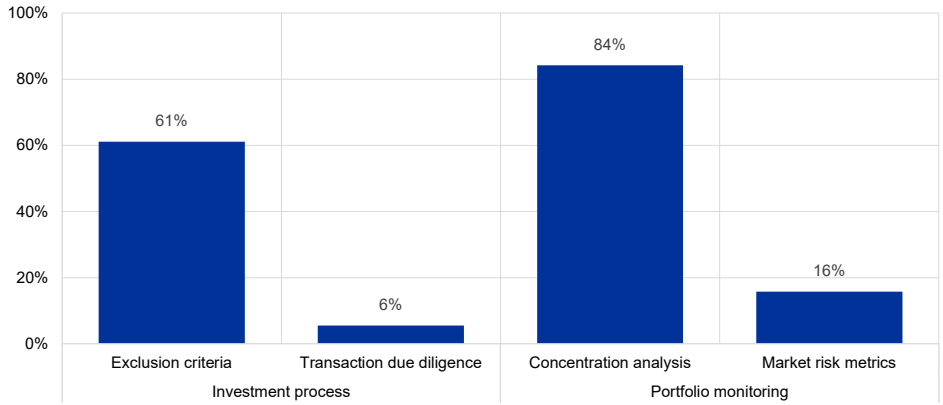
Only a small subset of institutions has more advanced practices in place that assess and monitor climate-related market risks, including compared with other risk types. In the area of market risk, institutions are advancing more slowly compared with credit risk or operational risk practices. Less than one-fifth of institutions have adopted existing market risk metrics based on climate-related factors. Examples include metrics such as a climate value-at-risk or changes in climate-induced mark-to-market. For example, for transition risk, one institution uses a sensitivity-based P&L simulation to understand the impact of selected C&E risk-related variables (e.g. carbon prices or credit spreads of affected sectors) on economic risk parameters and economic capital. Some other institutions use external tools or providers to obtain a breakdown into individual exposures (e.g. at issuer or counterparty level). Only a handful of institutions perform a climate-related due diligence of transactions. Those institutions may use information that can be sourced externally (e.g. ESG ratings) or developed internally (e.g. CO2-intensity estimates). In some cases, institutions perform a capital adequacy assessment for market risk, with some deciding to allocate economic capital in view of elevated climate-related risks.

Chart 20

Climate-related risk practices within market risk management

Percentages of institutions that integrated climate risks into selected market risk practices

(percentages)



Note: Sample of 19 institutions that were within the scope of the market risk assessment module of the 2022 thematic review on climate-related and environmental risks.

6.2.4 Environmental risk management

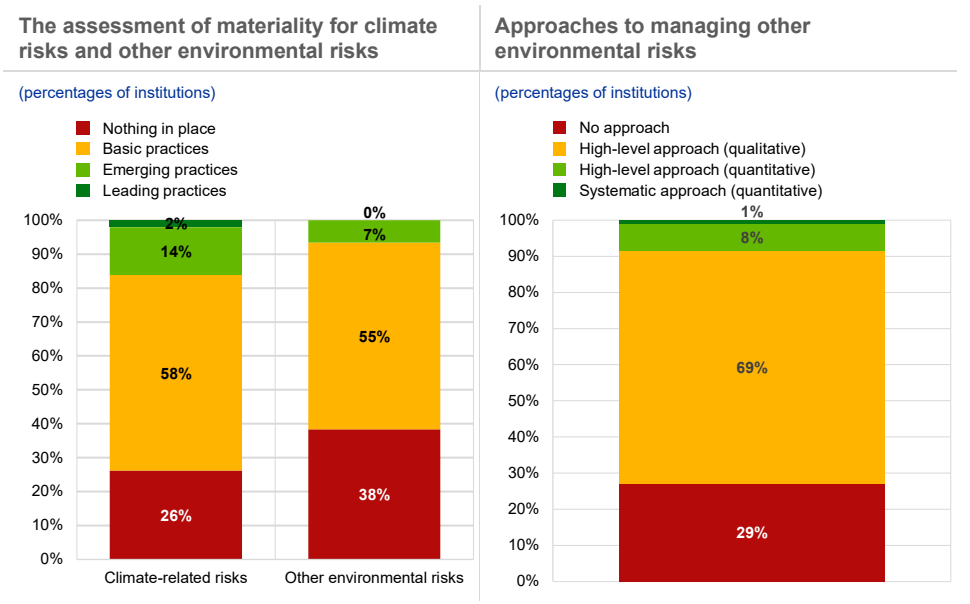
Expectation 7

Institutions are expected to incorporate climate-related and environmental risks as drivers of existing risk categories into their risk management framework, with a view to managing, monitoring and mitigating these over a sufficiently long-term horizon, and to review their arrangements on a regular basis. Institutions are expected to identify and quantify these risks within their overall process of ensuring capital adequacy.

While still lagging behind climate risk management, institutions are following a similar path for the management of other environmental risks. Many institutions have at least a high-level, largely qualitative approach in place to better understand other environmental risks, such as those associated with pollution, water stress and biodiversity loss. The ECB observes that institutions take a similar approach to that taken for climate-related risks in this regard. Institutions start with high-level considerations of possible physical and transition impacts in their mapping of the risks and scanning of their business and regulatory environment. The first steps towards managing the risks typically include setting exclusion or inclusion criteria. Other approaches include preparing heatmaps, considering the risks in client due diligence and conducting client-specific biodiversity impact assessments. In this way, institutions are effectively re-using many of the concepts and methods employed for climate-related risks. This shows that, beyond conceptual and practical linkages, considering C&E risks jointly may also be more efficient from an operational point of view. Chart 21 shows that institutions are more advanced in terms of assessing materiality for climate-related risks than for other environmental risks.

Chart 21

The level of maturity of practices related to climate-related and environmental risks



Notes: Sample of 107 institutions that were within the scope of the 2022 thematic review on climate-related and environmental risks. For the assessment of the materiality of climate-related risks (left panel), the average is taken across all five risk types (credit, market, liquidity, operational and strategic risk).

Institutions are improving their understanding of the impact of environmental risks on their risk profile and business model. More than one-third of institutions have still not considered environmental risks in their materiality assessments, while over half of the institutions have started qualitative identification of environmental risk drivers other than climate-related risks (e.g. biodiversity loss, pollution, water stress and environmental policy changes) through expert-based judgement and/or descriptive observations. A handful of leading institutions has also started deploying quantitative approaches. As set out in Chapter 3, even institutions that deploy qualitative or quantitative practices have yet to consider a large number of risk drivers.

A group of institutions is leading the way in developing ways of quantifying such risk drivers, but have yet to systematically integrate the risks in their risk management framework. It is critical that institutions take a coordinated approach to collecting the relevant client and risk data needed to manage any material risks in this regard. For example, the effects of biodiversity-related transition risks are already very significant for some institutions in certain regions of the EU. Some leading institutions have started to assess their clients across a wide spectrum of risks drivers, including risks related to pollution, biodiversity, waste management and water stress. Some have conducted assessments on the biodiversity impacts of individual projects or corporate clients, while others have started with broader portfolio-level assessments. Such project or client-based assessments have also served as capacity-building exercises, for example towards biodiversity footprint calculations, development of biodiversity scoring tools, and a more comprehensive consideration of environmental risks beyond climate risks. Table 8 provides an overview of some of the practices observed in this regard.

Table 8

Example of observed practices for environmental risk management

Topic	Example
Commitments	Institutions commit to standards to protect and restore biodiversity, setting specific targets and/or committing to assess, monitor, mitigate and report on impacts.
Exclusions	Institutions restrict the financing of certain controversial activities. These controversial activities are typically in line with international recognised conventions and standards to prevent damage to world heritage sites, wetlands, endangered species and high conservation value forests and may include activities of corporates but also governments that do not meet specific standards.
Due diligence	Institutions implemented a classification system to identify which clients are most exposed to other environmental risk drivers, such as biodiversity loss, water stress and pollution. For example, client-specific due diligence questionnaires identifying risk factors to revenue generating capacity and cost structure of clients.
Target-setting	Institutions start setting targets to reduce adverse environmental impacts of their financed activities, or by committing for its financing to have a positive impact on biodiversity by 2030.
Heat-mapping	Institutions develop portfolio analysis to identify pockets of environmental risk. For example, a heatmap is developed to classify the level of environmental risk of exposures at sub-sector level. The risk levels are retrieved from multiple third-party providers of environmental risk ratings.
Biodiversity foot printing	Institutions have developed ways to measure biodiversity risks. For example, by calculating the net biodiversity footprint of the institution considering the negative impact, avoided negative impact and positive impact on biodiversity of all loans and investments.

Source: ECB, "Good practices on climate-related and environmental risks", November 2022.

Annex

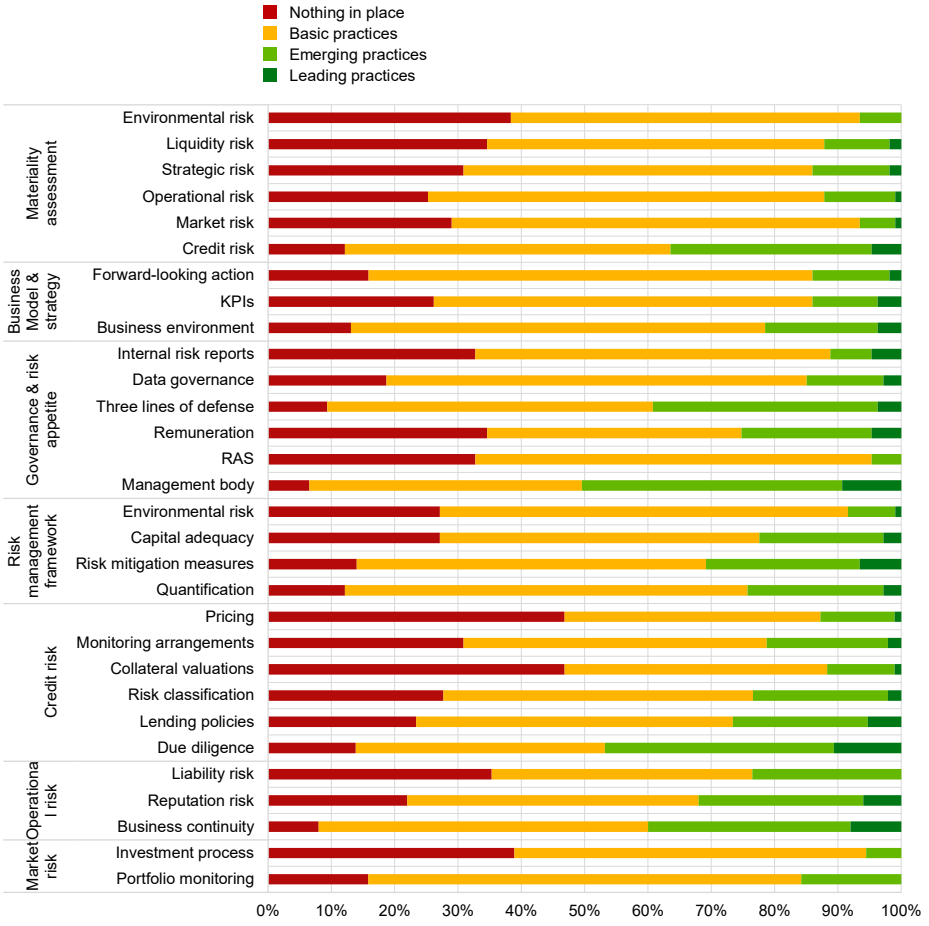
This annex provides more detailed information on the level of maturity of the practices in place in significant and less significant institutions.

Chart A.1

Results of the thematic review for significant institutions

The level of maturity of significant institutions' practices across areas of supervisory expectations

(percentages of significant institutions)



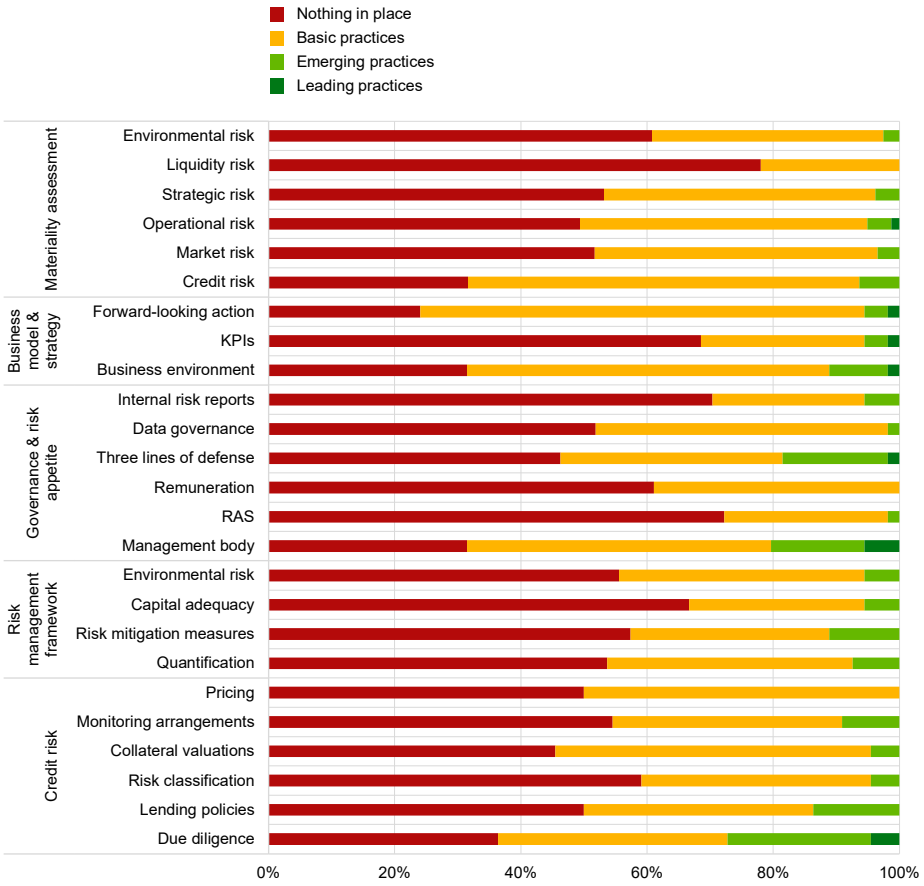
Source: Supervisory assessment of 107 significant institutions' responses to the 2022 thematic review on climate-related and environmental risks.

Chart A.2

Results of the thematic review for less significant institutions

The level of maturity of less significant institutions' practices across areas of supervisory expectations

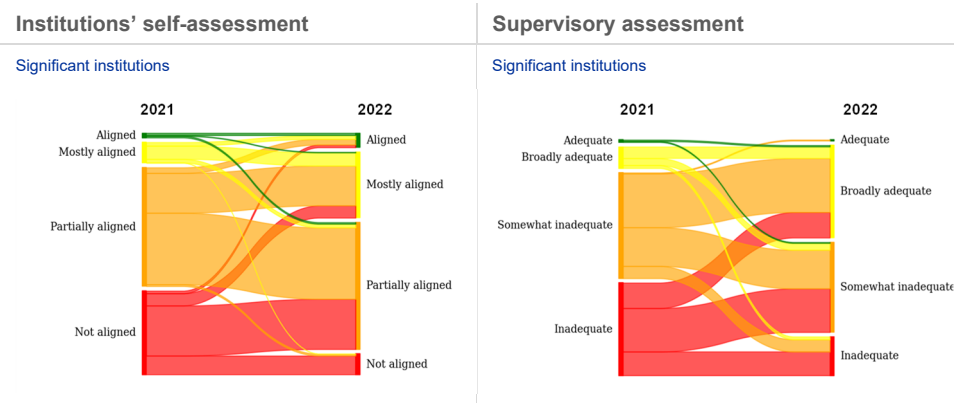
(percentages of less significant institutions)



Source: Supervisory assessment of 79 less significant institutions' responses to the 2022 thematic review on climate-related and environmental risks.

Chart A.3

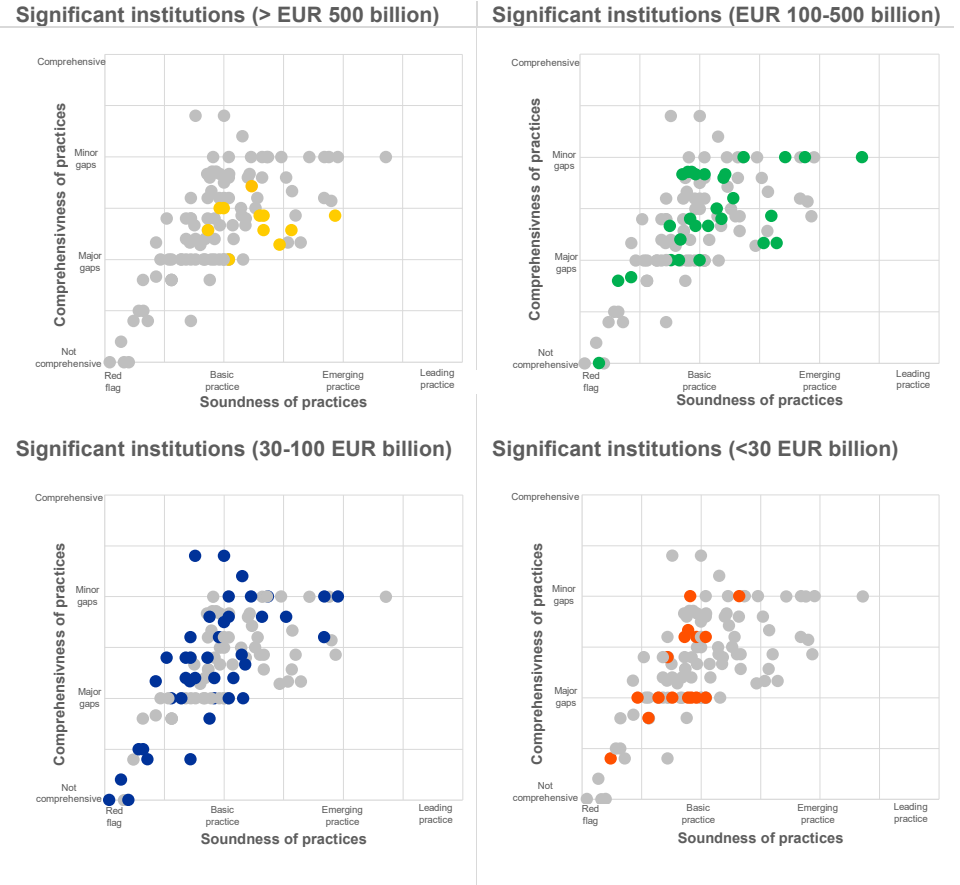
Progress achieved between 2021 and 2022 according to institutions and supervisors



Source: Supervisory assessment of significant institutions' responses to the 2021 self-assessment exercises and 2022 thematic review.
Notes: All institutions assessed in both 2021 and 2022 are included (101 in total). The 2021 supervisory scores are taken as a proxy. Owing to the update of the assessment methodology in 2022, comparisons with the 2021 results should be undertaken with caution.

Chart A.4

Soundness and comprehensiveness of C&E risk management by size bucket



Notes: All four panels show the average soundness (horizontal axis) and comprehensiveness (vertical axis) for 107 significant institutions, showing institutions falling into the relevant category of total assets. Each dot represents a single significant institution. The dot represents the simple average of all module scores for the respective institution. It thus presents the overall performance of the institutions as at the second quarter of 2022.

Postal address 60640 Frankfurt am Main, Germany
Telephone +49 69 1344 0
Website www.bankingsupervision.europa.eu

For specific terminology please refer to the SSM glossary (available in English only).

PDF ISBN 978-92-899-5407-5, doi:10.2866/417808, QB-03-22-081-EN-N